

OKANAGAN BASIN WATER BOARD

water management program review

2014

2014, Okanagan Basin Water Board

All correspondence with respect to this Review should be directed to:

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Executive summary

“... no administrative machinery yet exists to provide the means by which local problems can be properly researched and identified and the necessary corrective or preventative measures developed and enforced. The Okanagan Basin Water Board should be established to fulfill this function...” (1969)

The OBWB's Water Management Program is scheduled for renewal on April 1, 2015. This review lists the program's activities and achievements since the last renewal in 2011. The program was established in 2006, as a means for the OBWB to fulfill its original mandate for water management.

The OBWB is the one body that looks at water issues through a valley-wide lens. Since 2006, the OBWB has assessed the status of water resources – identifying priorities for water management; forming partnerships with all levels of government and local stakeholders; and delivering important information to decision makers.

The OBWB helps local governments prepare for impacts on water from population growth, development, and climate change. Given the diversity of water interests in the valley, and increasing fiscal constraints, it is essential to build bridges between groups and avoid duplication of efforts.

Over the next four years, B.C. will be rolling out regulations for the new Water Sustainability Act. These changes will have sweeping implications for all aspects of Okanagan water management. This program provides a mechanism for local governments to respond and adapt to the new regulations, and, if possible, to shape them to the needs of the valley.

There are no major changes in the scope of funding or activities, but the OBWB seeks a change in the review period to remain consistent with the new municipal election cycle. The Regional District of Okanagan-Similkameen, Regional District of Central Okanagan, and Regional District of North Okanagan are thus requested to pass the following resolution:

“That the each of the Regional Districts, upon mutual agreement with both other Okanagan Regional Districts, reaffirm support for the Okanagan Basin Water Board's Water Management Program under the terms of reference given in the OBWB Governance Manual, as adopted, and support adjusting the review period to remain consistent with the municipal election cycle.”

SUMMARY OF recommendations

The following recommendations are for the renewal and new strategic direction of the OBWB's Water Management Program.

Continue existing program under the Terms of Reference¹ given in the OBWB Governance Manual of 2010, within the limits of legislation and subject to the following:

- » *The OBWB's Water Management Program renewal period will be extended to four years, remaining linked to the timing of the municipal election cycle to ensure that elected officials are familiar with the program's activities. The next renewal will be in 2018.*
 - » *The OBWB may requisition up to two-cents (\$0.02) per \$1000 assessment to support the activities of the Water Management Program.*
 - » *The OBWB will hold an Annual Meeting and issue an Annual Report each September that detail program activities including audited financial statements.*
 - » *The OBWB's Water Management Program will conduct a comprehensive review prior to the end of the renewal period.*
 - » *Water conservation and quality improvement grants program will be maintained at its existing level of \$300,000/yr.*
 - » *Outreach to local governments and the public will remain a core priority, with communication tools and strategies such as a valley-wide advertising campaign and materials to engage youth.*
-

Pursue priorities from the OBWB 2014-2019 Strategic Plan²:

The OBWB Strategic Plan was developed by the OBWB and Okanagan Water Stewardship Council in 2013, building on the Okanagan Sustainable Water Strategy, and putting OBWB's mandate into action.

Goal 1: Adequate Supplies of water for all human and environmental uses.

- a. *The Okanagan has sufficient, accessible water science and data to plan for changing conditions in climate, economy and population growth.*
- b. *Water licence allocations support the environment, agriculture, and urban growth over the long term.*
- c. *Groundwater and surface water are regulated as one source.*
- d. *Water efficiency in all sectors.*

¹OBWB Governance Manual, pg 12

²OBWB Strategic Plan 2014-2019

Goal 2: The Okanagan has excellent source water quality – drinkable, swimmable, fishable.

- a. That we understand risks to source waters and how to manage them.*
- b. Government policy promotes appropriate land use in upper watersheds to protect water quality.*
- c. Pollution is reduced in developed areas through infrastructure improvement and policies limiting contamination of surface and ground waters.*
- d. Harmful new invasive aquatic species, including zebra mussels, are kept out of the Okanagan, and Eurasian watermilfoil continues to be controlled.*

Goal 3: Okanagan local governments, First Nations, water purveyors and stakeholders have up-to-date coordinated plans and policies to protect water quality and water supply, and prepare for extreme events.

- a. Local governments have capacity to prepare and respond to population and climate change.*
- b. Diversifying funding sources, and securing new external funding partners to support Okanagan water initiatives by local governments.*
- c. A knowledgeable public, with widespread commitment to science-based planning, water conservation and reducing pollution.*

Goal 4: The OBWB has excellent relationships, a defined role, and clear communications with stakeholders and other levels of government.

- a. The OBWB is respected as an advocate for Okanagan water concerns.*
 - b. The OBWB has a strong working relationship with Okanagan First Nations communities.*
 - c. The OBWB, working with the Okanagan Water Stewardship Council, maintains excellent communication with local stakeholders.*
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SUPPORTING DOCUMENTS

OBWB Governance Manual
OBWB Strategic Plan 2014-2019
Water Conservation and Quality Improvement Grants Program Review 2013



MESSAGE FROM the executive director.

"As I write, I can't help but stare at Okanagan Lake, that glorious, gorgeous body of water that defines Kelowna and the other communities on its shores. It is the great provider of entertainment, employment and enrichment. If you don't believe me, imagine life without it." – Brenda McMillan, Kelowna Daily Courier, July 27, 2014.

The future of the Okanagan depends on our lakes and streams. Healthy communities and a healthy economy flow from good water management, in the valley as a whole. The OBWB was founded as a way to pool funds for water needs that span the entire valley, and to reduce conflict between water stakeholders. We take our mission very seriously, because our own homes, happiness, and futures depend on it.

More than ever, as executive director, I see the need to adjust to changing circumstances; listening to local communities. Over the past three years, the OBWB has greatly expanded partnerships with local governments – through joint water communication programs, joint water monitoring initiatives, and more workshops and trainings for municipal and regional district staff and engineers. Partnerships with senior government agencies are still a priority, but as these agencies have lost capacity, we have shifted the emphasis of collaboration.

The biggest change on the policy landscape is B.C.'s new Water Sustainability Act. With new regulations on the horizon for groundwater licensing, in-stream environmental flows, and changes

to rules for priority water use during shortages (among many other policy innovations), we'll need all the models and data from the Okanagan Water Supply and Demand Project, and much more local engagement to ensure that Okanagan needs and values are protected, and there is a smooth transition while we adapt.

The OBWB is unique in B.C. We are a local government agency, serving the needs of local communities. This review lays out our best overview and analysis of where we've come, and shares, within the context of our strategic plan, what activities we feel will give the valley the highest and best value moving forward.

A handwritten signature in black ink that reads "Anna L. Warwick Sears". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Anna Warwick Sears,
OBWB Executive Director

PURPOSE and scope of the review

The purpose of the water management program is to bring together the water interests of local governments and water stakeholders in the valley, moving from strategy to action. The scope of the program is set by the board of directors and the needs of the communities, within our budgets and capacity. Often, the biggest shortage is not money, but new ideas and partnerships. With the help of the Okanagan Water Stewardship Council and community partners, we have accomplished much more than ever anticipated, because we have committed staff and expert volunteers who believe in our mission.

When funds are tight and getting tighter, every public body must work as efficiently as possible. It's not just a case of needing to do more with less; it's a case of needing to do more, regardless. To stay healthy and responsive as an organization, we want to build on what works, and learn from what doesn't. We have a commitment to transparency and continuous improvement.

The water management program is reviewed before every renewal period, prior to each municipal election cycle. Here, we share the achievements of the program over the period of 2012-2014, (our renewal period), highlight the strengths, and identify challenges that must be worked on over the coming four years.





Photo: Nelson Jatel

INTRODUCTION TO THE water management program

The vision of the OBWB is for the valley to have clean and healthy water in perpetuity, meeting the needs of natural ecosystems, residents, and agriculture—now and in the future.

Water Management Mandate

The Water Management Program follows and acts on the mandate given to the OBWB in its founding legislation³:

To organize or receive proposals from private interests, organizations or agencies and all levels of governments regarding best practices for water use and management;

To define water problems and priorities, economic feasibility of solutions, responsibility, necessary legislation and required action;

To communicate and coordinate between levels of government and their agencies about water use and management;

To present proposals and recommendations to local or senior governments, according to jurisdiction and responsibility;

To participate financially or otherwise, in surveys, investigations or projects on behalf of Okanagan local governments;

The establishment of the Okanagan Water Stewardship Council was also part of the OBWB's legislated mandate, which requires the OBWB to establish a Liaison Committee⁴:

The Water Board shall establish a Liaison Committee consisting of persons appointed by such municipalities, regional districts, improvement districts and Government agencies as the Water Board may determine, and the Liaison Committee shall advise on such matters as may from time to time be referred to it by the Water Board.

³See OBWB Supplementary Letters Patent in the OBWB Governance Manual

⁴OBWB SLP Article 14

Inter-regional Actions and Economies of Scale

The Water Management Program is structured to support OBWB's water sustainability goals and provide value to local governments. The Program has a unique capacity for undertaking inter-regional projects that:

- » are difficult for individual local governments to lead;
- » are outside local government's mandate;
- » or where a basin-wide approach greatly increases efficiency.

All Okanagan Basin residents contribute at an equal rate to the Program through property tax assessments. Economies of scale are created by pooling funds, sharing resources, and by leveraging dollars from outside the Basin. Rather than each jurisdiction hiring staff or contractors to manage water science projects, grants and planning initiatives, the OBWB centralizes activities in one location.

The current Water Management Program funding agreement allows the OBWB to assess up to \$0.02/\$1000 assessment to cover program costs. Under its SLPs, the OBWB can never requisition more than \$0.036/\$1000 for its operating costs (excluding sewage grants) unless agreed to by the electorate.

OBWB Board of Directors



REGIONAL DISTRICT CENTRAL OKANAGAN

Chair Doug Findlater, Mayor of West Kelowna
Patty Hanson, RDCO East Electoral Area Director
Keith Fielding, Mayor of Peachland



REGIONAL DISTRICT NORTH OKANAGAN

Vice-Chair Juliette Cunningham, Vernon Councillor
Bob Fleming, RDNO Electoral Area 'B' Director
Doug Dirk, Coldstream Councillor



REGIONAL DISTRICT OKANAGAN-SIMILKAMEEN

Stu Wells, Mayor of Osoyoos
Wes Hopkin, Penticton Councillor
Allan Patton, RDOS Electoral Area 'C' Director



WATER MANAGEMENT INITIATIVE APPOINTMENTS

Don Dobson, Chair of the Water Stewardship Council
Toby Pike, Chair of the Water Supply Association of B.C.
James Pepper, Okanagan Nation Alliance

OBWB Water Management Staff

Anna Warwick Sears, Executive Director
Nelson Jatel, Water Stewardship Director

Corinne Jackson, Communications Director
James Littley, Office and Grants Manager



Not pictured: OBWB Water Milfoil Control Staff
Ian Horner, Water Milfoil Control Supervisor
Pat Field, Water Milfoil Control Operator
Dave Caswell, Water Milfoil Control Operator

REVIEW

operations and finances

Financial summaries of Water Management Program income and expenses are given in Appendix E, and additional details are provided below.

Strengths and Successes

Having a stable source of funding for water projects and the ability to carry over funds between years has allowed the OBWB to match tax dollars with leveraged contributions from senior government. The current requisition ceiling of \$0.02 (two-cents) per \$1000 assessment for the water management program is well within limits set by OBWB's legislation. The OBWB is committed to transparency and publishes an annual report with its audited financial statements. This

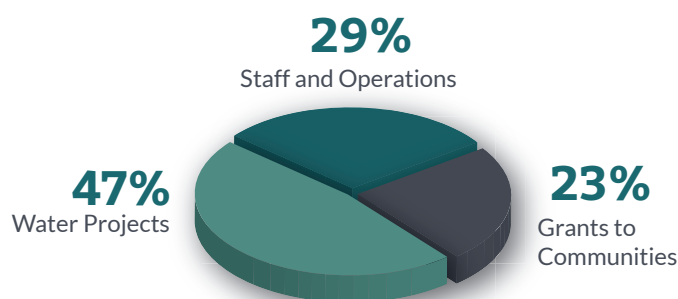
report is released at our Annual Meeting where elected officials and stakeholders can ask questions about the OBWB's programs and management.

Challenges Ahead

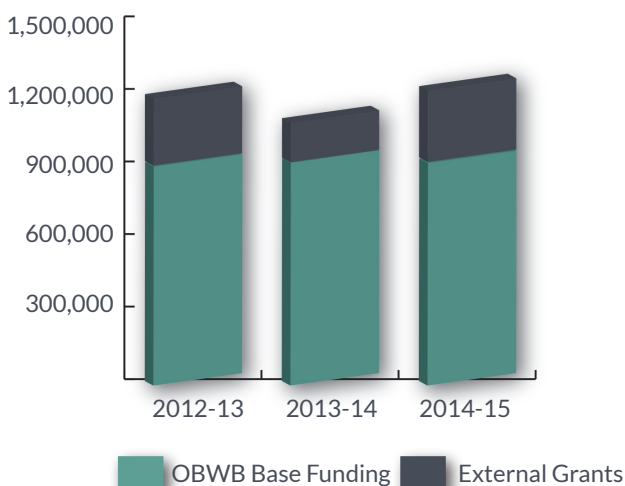
As the governments of B.C. and Canada restructure and downsize, there continues to be potential for downloading responsibility onto local governments – including the OBWB. One major challenge is to determine what is appropriate to manage under each level of

government, and how those activities are funded. As currently structured, the OBWB is primarily a mechanism for Okanagan local governments to pool funds and jointly address shared water concerns. As a result, we are sheltered from direct downloading because major new responsibilities from senior government would have to be accompanied by long-term stable government funding, and would have to be approved by all three Okanagan regional districts.

Water Management Program
Expenditures 2012-14



Water Management Program
Revenues 2012-14





Base Funding

The OBWB is funded through property taxes on land within the Okanagan watershed. Every taxpayer contributes at the same rate, and funds are directed to projects with distinct basin-wide benefits.

The current Water Management Program agreement allows OBWB to assess up to \$0.02 (2-cents) per \$1000 assessment for program costs. By law, the OBWB can never requisition more than \$0.036 (3.6-cents) per \$1000 assessment to cover program costs for watermilfoil and water management combined, unless the OBWB's letters patent are changed, or there is agreement by the electorate. In the absence of other funding mechanisms, this caps the growth of the Water Management Program. The actual cost of the program is based on budget requirements. In the past three years, the requisition has been approximately \$0.017 (1.7-cents) per \$1000.

Leveraged Funding

The OBWB was designed to pool and share funds for inter-regional projects. Its flexible structure allows the OBWB to bring external funds to the Okanagan. The ability to receive funds for water projects was one reason the Water Management Program was established.

Over our first term, April 2006 – August 2008, the OBWB secured more than \$1,500,000 cash funding from senior government with large grants for the Water Supply and Demand Project. In the period September 2008 – June 2011, the OBWB secured almost \$900,000. In the period July 2011 – August 2014, OBWB received more than \$750,000 from senior government, bringing the total to more than \$3,000,000 since 2006, with several large proposals pending or in development. The figure for leveraged dollars (below) does not include additional amounts leveraged by recipients of WCQI grants (see Appendix C), or the in-kind contributions of Water Stewardship Council members, estimated at more than \$180,000. In-kind contributions of non-member attendees at the Water Stewardship Council meetings (also technical experts and stakeholders) are estimated at an additional \$105,000.

Our overall goal is to increase funding to all our partners, whether or not the OBWB receives funds. For example, OBWB's \$120,000 existing budget for the 2014 Make Water Work campaign was able to leverage a \$90,000 grant to RDOS from RBC's Blue Water Project, to provide hands-on water conservation demonstrations at no additional cost to Okanagan communities.

As a grant maker ourselves (through our WCQI Grant program), OBWB has been connecting directly with other funders through the Canadian Environmental Grantmakers Program, helping to establish the B.C. Water Funders Group – a forum for funding agencies and foundations to share information and improve water granting to B.C. communities and non-profits. The group is especially interested in supporting implementation of the B.C. Water Sustainability Act, and finding alternative funding mechanisms for local communities to fund water improvements.

Projections for Future Fund Leveraging

We anticipate continued strong support for Okanagan water projects and programs from senior governments and private granting foundations. The valley has become a centre for water science in western Canada, especially for evaluating the effects of climate change and population growth on water supplies. We have excellent partnerships with UBC-O, and the OBWB can act as a local funding partner and project coordinator with a variety of partner agencies and organizations.

One factor that contributes to the OBWB's leveraging success is our ability to carry-over funds from one fiscal year to the next and to provide financial administration for multi-agency partnerships. The Water Management Program provides two other essential factors for receiving large external grants:

- 1) Adequate staff capacity to participate as full partners.*
- 2) Consistent local base-funding to leverage grants.*

With these factors in place, the province will likely provide additional new sources of funding for the implementation of the new Water Sustainability Act, with revenue from increased water rent collection as well as general revenue. The schedule of future budget projections given in the appendix includes anticipated external grants, however all projects are scalable, and can be adapted to increases or decreases in available funding.



Photo: Nelson Jatel

Leveraged Funding for Water Science and Policy Projects: June 2011 - June 2014

Water Science and Policy Projects	OBWB Funds	Leveraged Funds
Water Supply and Demand Project and related studies	25,000	195,000
B.C. Water Use Reporting Centre	111,000	168,000
Groundwater and stream flow monitoring and data collection	181,000	157,000
Ecosystem Valuation of Okanagan River for sockeye	15,000	65,000
Biodiversity and Wetlands Conservation strategies	5,000	50,000
Topsoil Bylaws and Water Conservation Planning guides	9,000	32,000
Osoyoos Forum and other workshops and conferences	24,000	84,000
Totals	370,000	751,000

UBC-O Research Chair

In 2010, the University of British Columbia made a request to the three Okanagan regional districts, through the OBWB, to help secure \$1.5 million in grants from the Province of B.C. and the B.C. Real Estate Foundation for a water research chair endowment. The regional districts approved a requisition of \$100,000/year, over 5 years, and the external funds were secured in 2011. The final contribution will be made during the 2015-16 fiscal year, with no further financial commitments. A local advisory board has been established to provide community-driven research priorities to the water research chair.

Dr. John Janmaat, a natural resources economist, was given the water research chair position in 2011,

and has been actively identifying local priorities and initiating research projects. Three theme areas have emerged from advisory committee meetings. These are (a) the need to develop a better understanding of the relationship between water and the economy of the Okanagan; (b) to develop a better understanding of the value of water in its various uses, many of which are not reflected in monetary transactions; and (c) to identify ways to improve water governance in the Okanagan.

Working with the water research chair has had many benefits. As our communication with UBC-O has increased, we've had more opportunities to collaborate with other researchers as well. This has let us tap into expertise and research

funds, although university research often takes longer to get off the ground, as it takes time to secure grants and hire graduate students. The full suite of benefits will unfold over the next few years as faculty become better informed about local needs and issues, and our relationship with the university evolves. The Water Research Chair is a legacy that will support the needs of the community for many years to come.



Photo: UBC, Darren Hull

REVIEW water science and policy projects

Water supply was top of mind for community leaders in 2006, when the OBWB's water management mandate was renewed. After the fires and shortages of 2003, there was widespread concern that the Okanagan was overdeveloped and running out of water. New climate change studies from UBC suggested that the problems would worsen. The newly formed Okanagan Water Stewardship Council was directed by the OBWB determine the best strategy for updating water policy and management, leading to the Okanagan Sustainable Water Strategy (2008). This has been our guiding document, and much of our work relates directly back to the suggestions in this report.

Summary of Recent Achievements

- » Renewal of the Osoyoos Lake Operating Orders, protecting fish habitat and maintaining Canadian control of Okanagan River flows;
- » Analysis of the economic value of the ecosystem services from the remaining unchannelized section of the Okanagan River, showing millions of dollars of direct economic benefit from the restoration of sockeye salmon;
- » New climate change scenarios and a study of agricultural water needs on Mission Creek (in partnership with Agriculture Canada), showing potential impacts from sprawl development on future water availability in a hotter, drier, climate;
- » The Okanagan 'Hydrologic Connectivity' model is being used to assess the potential impacts of climate change on Peachland's water supply;
- » Plan for using Okanagan water supply and climate change studies to update the provincial water license allocation process, in partnership with the Ministry of Forests, Lands, and Natural Resource Operations.
- » Water Conservation Planning Guide for B.C. municipalities completed in partnership with the Ministry for Community, Sport, and Cultural Development and the Polis Project for Watershed Governance;
- » Phase One of the Okanagan Wetlands Strategy, bringing together all existing wetland maps and data, and establishing a steering committee to launch Phase Two, funded by Environment Canada;
- » Okanagan perspectives contributed to the development of the new B.C. Water Sustainability Act through OBWB's participation on the province's Technical Advisory Committee, and substantial written comments by the OBWB and the Okanagan Water Stewardship Council;
- » Initiation of a process to develop a Blue-Green Algae Response Protocol for local communities, in partnership with Interior Health.

Strengths and Successes

The great strength of this program is that the OBWB can take on important questions that would otherwise be very difficult to answer. One provincial ministry may be interested in source protection, another may be interested in water licensing, but if a study is undertaken by any one ministry, they design the project to meet their own goals. That way, there is little continuity, little integration with local needs and goal, and less ability to use the results of the project for other purposes. The OBWB looks at how one project may help with the goals of another – like, how climate change modeling can support our understanding of agricultural water needs, and both may contribute to regulation development for the Water Sustainability Act. Another example is how the study on the economic value of ecosystem services for the Okanagan River, combined with the Okanagan Wetlands Strategy, is helping on a project for RDOS to get permission for a wastewater treatment wetland in Okanagan Falls.

The OBWB approach to water science and policy projects is to steadily work away at problems that are likely to have the greatest impact on water quality and supply over the long term. The Board and Council work together, and with other interested agencies and individuals, to find strategic projects with strong partners. Through persistence and continuity, we make great progress.

Challenges Ahead

The biggest water science and policy challenge on the horizon is B.C.'s new Water Sustainability Act. Although we anticipate that the government will make some additional funding available for its implementation, getting it right will be expensive. We will need to make best use of our available data, and find new, lower-cost ways to apply our water science to decision making. While funding is always a concern, government staff capacity may be a bigger issue. Whatever happens with the new Act, local communities will have to be more self-reliant, and clearly communicate their needs to provincial ministries. The OBWB can help local communities join forces to share resources, and to magnify the voices of individual local governments.

Many of our biggest challenges are at the intersection of science and policy. For example, climate science shows that there will be more water shortages and more flood events in coming years, but in surveys of Okanagan local governments, few have up-to-date drought or flood plans. These plans are critical for avoiding or riding out crises with minimal conflict. We need valley-wide drought and flood planning, but the process is very slow and there are few examples to follow.

Essentially, we are trying to improve water management during a time of rapid climate, population, and social change. If we aren't experiencing challenges, we aren't addressing real problems.

We are trying to improve water management during a time of rapid climate, population, and social change. If we aren't experiencing challenges, we aren't addressing real problems.

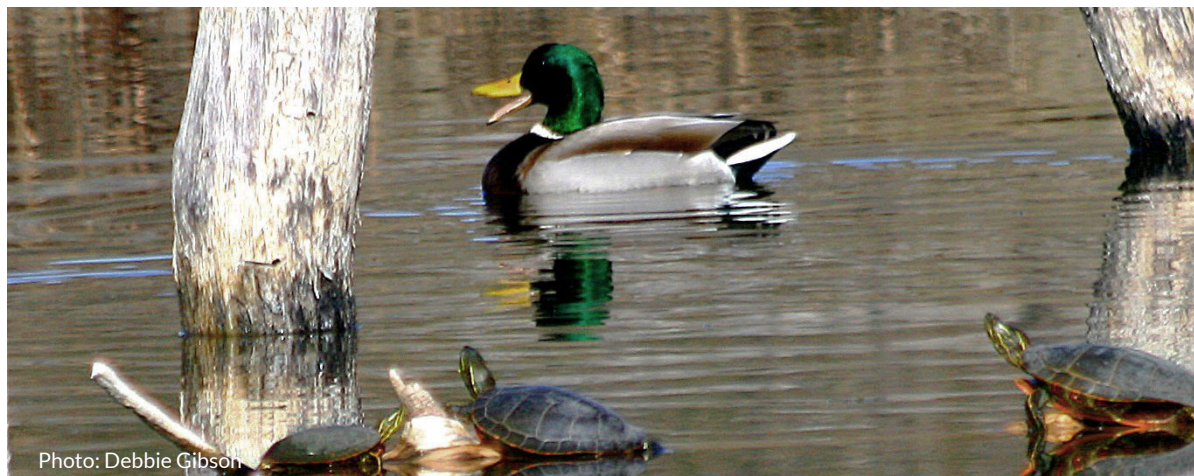


Photo: Debbie Gibson

REVIEW data collection and management activities

As the saying goes, “You can’t manage what you don’t measure.” The OBWB’s role in data collection and management has steadily grown, driven by need.

Summary of Recent Achievements

- » The B.C. Water Use Reporting Centre has expanded, capturing approximately 70% of all water extractions in the valley. BCWURC has also been adapted by the Regional District of Nanaimo, and may be adopted B.C.-wide;
- » Okanagan water demand model is being widely used for regional growth strategies, OCP updates and local government development planning, and has been replicated throughout B.C.;
- » Agricultural irrigation and land use inventories are currently being updated, with all three regional districts scheduled for completion in 2015, with information made available for all local governments;
- » 13 new groundwater monitoring wells and 2 new hydrometric stations installed to track water supplies in at-risk aquifers and streams;
- » Locally-collected hydrometric database completed with Gas Tax funds, collecting data from local government and industry, and making it available in the same format as Water Survey of Canada stream flow data;
- » Three-year evaporation study for Okanagan Lake, for the first time giving accurate estimates of year-round water loss from open water surfaces;

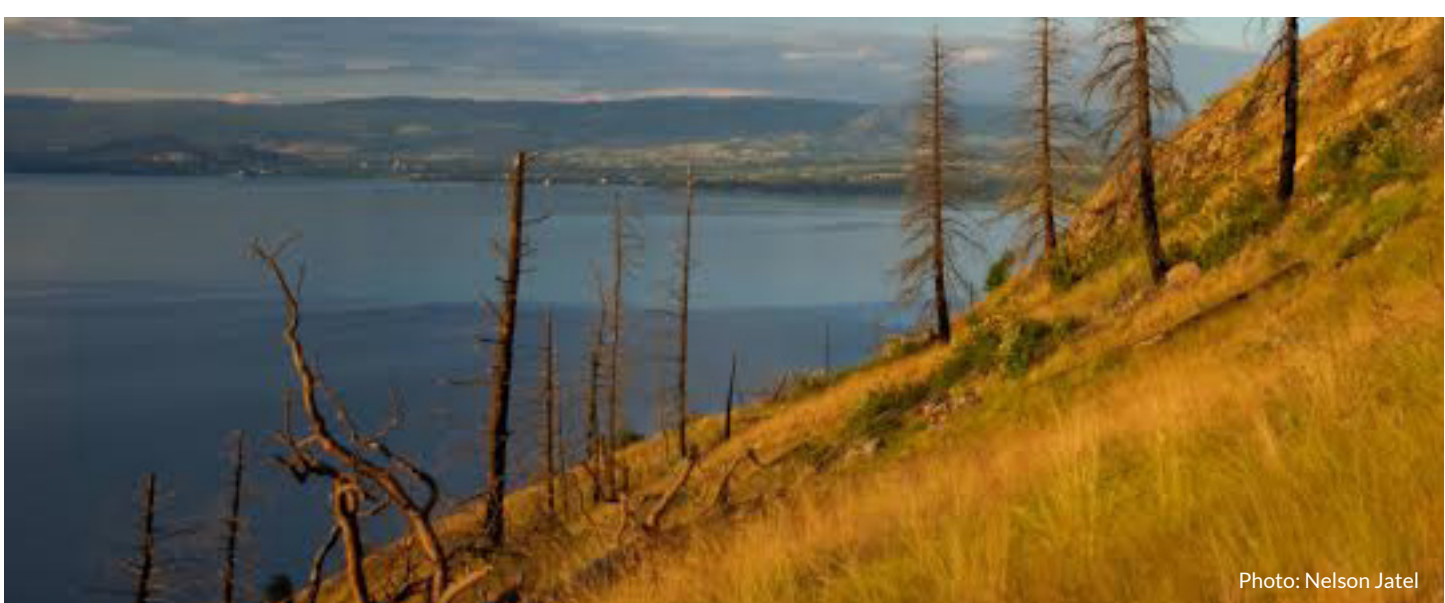


Photo: Nelson Jatel

Strengths and Successes

As part of the Okanagan Water Supply and Demand Project, many thousands of dollars were spent gathering and organizing data from water utilities, local and senior governments. In the past three years, we've build on this effort, and made significant progress filling some of the largest data gaps flagged in the Water Supply and Demand Project: actual water use (B.C. Water Use Reporting Centre), lake evaporation (Environment Canada buoys), and surface and groundwater monitoring (partnerships with local and senior governments). We also completed a Gas Tax-funded initiative to build a system for gathering locally-collected (non-Water Survey of Canada) data for streamflow, a need flagged back in 2007. This summer, we are updating the GIS maps of all agricultural land use and irrigation systems. This data is all highly valuable for understanding our water supply, but there is no other organization that brings it together and makes it available.

Every piece of data has a cost. If it's not collected all together, organized, used and reused, we waste a valuable information resource. Without good data, we can't learn from the past or do proper risk assessments for the future. As part of OBWB's data management service, we provide ongoing access to this data to water engineers and local government staff, and add new data sets as the come available. The OBWB forms a bridge between the data collection of local utilities and governments, so that the whole of the data collection is greater than the sum of its parts.

Challenges Ahead

Although the 21st Century may be the century of computers, digital data collection and management is a work in progress. In many ways, the technology is ahead of our abilities to use it. Data is costly to collect, organize, and share. The systems need regular maintenance, and the data must to be screened for quality. Computer technology opens up great opportunities, but it takes time and expertise to design systems that are simple to use and update.

Local governments and utilities collect data in different forms, and it varies in quality. Both local and senior governments have their staff capacity stretched to the limits. Although all are very supportive and appreciative of the OBWB's data management service, it takes time and commitment for them to provide data sets or to access the ones we have available.

We address these challenges by making it as simple as possible for our partners – through better system design, training, and extension support. The OBWB covers the cost of all data delivery to local governments, and can provide custom data sets or water supply modeling to reduce the hours a local government would have to pay for an engineering company.

REVIEW okanagan water stewardship council

The Okanagan Water Stewardship Council acts in an advisory role to the OBWB's board of directors, and the council chair is a voting member on the board (excluding financial decisions). The goal of the council is to capitalize on local expertise, supporting communication and conflict resolution among Okanagan water stakeholders.

A detailed review of the council is given in Appendix B.

Summary of Recent Achievements

- » Extensive consultation on the new B.C. Water Sustainability Act, providing detailed advice to the OBWB to inform the board's submission to the Ministry of Environment;
- » Extensive advice provided to the OBWB on the renewal of the Osoyoos Lake Operating Orders for Zosel Dam;
- » Overseeing development of the B.C. Water Use Reporting Centre (BCWURC), in partnership with provincial and federal governments, to help water utilities meet their reporting requirements through an online portal;
- » Consultation with stakeholders, contributing to the development of the Okanagan Wetlands Strategy;
- » Consultation with stakeholders, contributing to the successful development and implementation of the award-winning Silvopasture Pilot Project;
- » Consultation on agricultural water policies, leading to a joint project by OBWB and Agriculture Canada to test the feasibility of an Agricultural Water Reserve in Mission creek, and the development of an Irrigation Position Paper, adopted by the OBWB;
- » Design, consultation and initiation of a valley-wide water sustainability planning process, now in the research phase with interviews of local governments and water utilities;
- » Invitational drought tournament held, with participation from water managers, consultants, academics, policy makers, farmers, and other stakeholders, to help participants improve drought response plans.

Strengths and Successes

Given the increased importance of collaboration and conflict resolution for water issues, much of the OBWB's success in the past eight years would not have been possible without the ongoing contributions of the Council.

Water stewardship is a balancing act among diverse, often competing, interests, and the council provides a unique forum for Okanagan stakeholders to share their perspectives and better understand and resolve opposing viewpoints. The collaborative environment builds bridges and partnerships between member organizations that might not happen otherwise. Council members volunteer their time for the monthly council meeting, as well as for committee and project participation. Meetings and events are consistently well-attended, attracting a variety of other topic experts as guests, and the council is widely respected locally, provincially and nationally. In 2013, The Okanagan

Water Stewardship Council won a prestigious national award from the Council of the Federation.

Challenges Ahead

There continues to be concern from some members of the council on how initiatives are communicated and implemented, and the desire to become more actively involved in projects. Currently, the council works through recommendations to the OBWB's board of directors. This ensures that the recommendations work for local government, but makes the process move more slowly than alternative models might. The OBWB and the council need to determine the best way to communicate recommendations to local governments for adoption into policy by municipalities, regional districts, and water suppliers.

Excellence in Water Stewardship Award

The Okanagan Water Stewardship Council received the first-ever Council of the Federation's "Excellence in Water Stewardship Award" for the Province of B.C., in 2013. The Council of the Federation is the group of Canada's provincial and territorial premiers, and the award was established to recognize outstanding achievement, innovative practice, and leadership in the area of water stewardship.

The council was chosen from 16 B.C. nominations. Nominees were evaluated based on the contribution

of their project toward the Council of the Federation Water Charter objectives, including leadership, innovation, collaboration, water conservation and the achievement of measurable results. The Okanagan Water Stewardship Council exemplifies these objectives by bringing about demonstrable change through leading-edge research, decision-making tools and plan development. All of this is done in a highly collaborative environment with a broad spectrum of interests who don't always see eye-to-eye.



"The Okanagan Water Stewardship Council exemplifies the World Water Day theme of 'water co-operation' perfectly... more than two-dozen volunteer representatives from a wide range of interests who come together to work as a team to find effective solutions to benefit everyone in the Okanagan."

-Terry Lake, B.C. Minister of Forests, Lands, and Natural Resource Operations.

REVIEW

WCQI Grants Program

Since 2011, OBWB has distributed \$914,154 of Water Conservation and Quality Improvement Grants to 61 projects by 26 organizations, including local governments, improvement districts and NGOs (\$2,896,654 since 2006, to 179 projects and 59 organizations). Projects funded through the program increase water conservation and/or improve water quality to benefit Okanagan families and protect nature. Networks of collaboration and communication are built through the WCQI program as communities work together to develop and share best management practices. More than 45 other agencies, organizations or businesses contributed funding or in-kind support since 2006, which combined for a total of nearly \$15,236,000.

**\$2,896,654
IN GRANTS
SINCE 2006**

**179 PROJECTS
BETWEEN
59 GROUPS**

**\$15,236,000
INVESTED IN
OUR WATER**

RDCO Reclaimed Water Project (2013)

The Westside Regional Wastewater Treatment Plant services the communities of West Kelowna, Peachland and Westbank First Nation. This project refitted components of the plant, such as cooling systems and irrigation, to recycle treated wastewater, replacing fresh potable water from the domestic water supply. This one-time project received a \$30,000 grant from OBWB in 2013. In the first complete year of the system, the plant conserved more than 25,000M3 of potable water, more than enough to fill 10 Olympic-sized swimming pools. In other terms, the amount of water saved is enough to service 102 average Okanagan homes.



Strengths and Successes

This program has led to significant improvements in water conservation and water quality protection, has leveraged substantial external grant funds from senior government or agencies such as the B.C. Real Estate Foundation, and has increased collaboration and communication between participating local governments and organizations.

Many times local governments will use the program to undertake innovative pilot projects outside of their normal business, like the Westside water reuse program profiled in the “project spotlights”. Lessons learned and successful examples in one area (such as Greater Vernon Water’s extensive source protection response planning) then spread to other parts of the valley. The Okanagan Foreshore Inventory was completed piece by piece over a series of years, as local governments drew on the WCQI grant program to map their own lakeshore; and other mapping initiatives have been completed in the same incremental way.

The program strives for continual improvement and support for our grantees. In 2009, the OBWB joined the Canadian Environmental Grantmakers Network (CEGN), where it is recognized for its unique focus on collaboration and valley-wide benefits, and continues to learn from the experience and advice of other established granting agencies.

Challenges Ahead

Each year the program is over-subscribed, and it has been suggested that the OBWB increase the annual amount available to fund more projects. Although some applicants are unsuccessful, the rigorous selection process keeps the awards competitive, ensuring that only the projects with the best potential for valley-wide benefit receive funding. To reduce frustration for unsuccessful applicants, staff have increased feedback, providing clear direction on the fit of the project with WCQI programs goals.

Okanagan River Restoration Initiative (2009-2014)

The health of the Okanagan River watershed has been severely impacted by channelization in the mid-1950’s. The river was once connected to its floodplain, and wetlands played a critical role in filtering the water and helping provide clean, secure water sources; providing environmental and social value by moderating the effects of droughts, floods, climate change, and erosion (decrease silt loads in the

main channel); offering tremendous recreation and learning opportunities for people of all ages; providing essential habitat for many fish and wildlife species; and removing and storing greenhouse gases from the Earth’s atmosphere.

The Okanagan River Restoration Initiative (ORRI) was initiated in 2000 with the intention to re-naturalize a section of the channelized river,

reconnecting 1 km of river to its historical floodplain. This is being done through dike-setbacks, restoration of meanders, the creation of pool/riffle sequences and the restoration of riparian vegetation. This multi-year project, with a budget of \$3.5 million has received three WCQI grants totalling \$25,050, and brings together more than 14 partners providing either direct funding or in-kind support.

REVIEW communication and outreach program

Communication and Outreach is one of the five main components of the Water Management Program, but is also integral to the support of each of the program's other core components, as well as the work of the OBWB in general.

Effective communication between the OBWB and local government, aboriginal peoples, senior levels of government, water researchers and local residents is critical to create an understanding of Okanagan water issues, and develop and act on solutions to protect and conserve it.

Summary of Recent Achievements

- » The valley-wide Make Water Work campaign was piloted in 2011 and has grown in leaps and bounds valley-wide, with many new industry partners and its own website, www.makewaterwork.ca;
- » The Don't Move a Mussel campaign was launched in 2013, aimed at stopping the spread of invasive zebra and quagga mussels, with valley-wide government and media partnerships;
- » Slow It, Spread It, Sink It, a homeowners guide to rainwater harvesting was adapted and produced for the Okanagan region and due to its popularity, is now on its second printing;
- » Okanagan WaterWise's online following is growing, with over 1,300 followers on Twitter and 460 on Facebook;
- » Several fun and informative OkWaterWise videos were produced and launched on WaterWise's own YouTube channel;
- » Between April 1, 2012, and July 30, 2014, the Water Board has issued 36 news releases and held 7 public or media events;
- » During the same time, 426 news stories were generated, reaching viewers/readers not just throughout the Okanagan, but also sometimes provincially and nationally;
- » Monthly reports on activities at board meetings now reach over 200 people, as well as being available online;
- » OBWB staff were invited to meet with the Okanagan MLA caucus to discuss Okanagan water issues including the B.C. Water Sustainability Act, and the approaching invasive zebra mussels;
- » The OBWB second official position paper, Irrigation Efficiency in the Okanagan, was adopted by the board in July 2012;
- » Six conferences and workshops aimed at bringing together water stakeholders to make progress on water issues were held, on topics from adapting to climate change and drought planning, to keeping the Okanagan zebra mussel free;
- » The Topsoil Bylaws Toolkit was produced as a companion document to the OBWB's Groundwater Bylaws Toolkit, supplementing the Green Bylaws Toolkit; and
- » OBWB staff delivered over 70 presentations to public forums, conferences, and workshops.

Strengths and Successes

As the agency charged with water management in the Okanagan Valley, the OBWB has become the go-to communications hub for those looking for information on Okanagan water and those working towards its sustainability. This includes local government officials, residents, researchers, media and water stakeholders. In response, the OBWB has developed a number of communication tools and strategies to reach specific audiences and improve understanding of water issues in the region and encourage collaboration. As our communication program has expanded, there has been ever-increasing interest among the public and media about water issues. The Don't Move a Mussel campaign is unique in B.C., and has led to wide awareness about the emerging issue of invasive mussels.

Public outreach on important water issues is an ongoing discussion at the board and council table (e.g. source protection, invasive mussels, and outdoor water conservation). Staff are continually building on communication efforts to reach this audience, using its websites and social media, through working with media, and the use of several other tools.

Of particular note has been our success in developing partnerships with local governments, water purveyors, and other organizations like the Okanagan Xeriscape Association and the Summerland Ornamental Gardens.

With the help of these partners, and the very generous contributions and in-kind donations from media outlets and the nursery and landscaping industries, our messages have spread much farther than we ever expected. Because of our success at local collaboration, the program has also benefited from partnerships with groups like the Freshwater Alliance, that supported our Make Water Work focus group interviews and website development, and a grant from RBC and Tides Canada that sponsored a team-building workshop among our water conservation partners.

Challenges Ahead

The biggest challenge for our communication program is to keep up with demand. As word spreads about the range of water issues in the valley, we've had more demand for public outreach, educational materials for schools, and other resources. With only one dedicated staff member, assisted by summer interns, this aspect of the program is stretched to near-capacity. The OBWB has been addressing this challenge by contracting out some aspects of design and website development, and by working with local government, media, and industry partners who contribute staff time to participate in steering committees and distribute materials, or make in-kind contributions to spread our messages and engage the public.



REVIEW

program staffing

Current staffing levels are adequate for maintaining existing program areas and allowing the Water Management Program to develop at a measured pace. Any large new initiatives would require either reliance on consultants or the hiring of additional OBWB employees. The latter could be more cost-effective for large-scale projects, and could be hired on term contracts.

Strengths and Successes

The success of the OBWB's Water Management Program is a direct result of the quality of its staff, and their personal commitments to water sustainability in the Okanagan. All staff are highly experienced, well-educated and trained for their positions. The program is run from a single office and has very low overhead. Staff salaries are at or slightly below the 50th percentile of comparable positions in the external marketplace.



Challenges Ahead

Like all government agencies, the OBWB is working to its maximum capacity. One of the reasons we've been innovative and highly collaborative is because we have few staff and must find new ways to make progress. We rely on contractors to help us accomplish many of our projects. In the current employment environment, this has not been a major challenge, but as the economy improves we will have more competition for talent, and short-term project contracts.

Current Staff Positions

Executive Director

Reports directly to the Board of Directors. The Executive Director provides leadership for all OBWB programs, managing staff, and working with the board to develop long-term strategic plans. The Executive Director acts as board representative and primary point of contact for political leaders, First Nations, senior government officials and staff. This is a permanent position.

The current Executive Director, Anna Warwick Sears, has a Ph.D. in Biology, and before coming to the OBWB was the Research Director for an environmental NGO, responsible for developing watershed management plans and managing an aquatic weed control program.

Water Stewardship Director

Reports to Executive Director. The Water Stewardship Director is the primary staff person to the Water Stewardship Council, managing Water Management projects and initiatives, participates in strategic planning and development of council work plans, and engaging in outreach with technical experts and community members. This is a term position, supporting the Water Management Program.

The current Water Stewardship Director, Nelson Jatel, recently completed his M.A. in Geography, with a focus on Okanagan water issues. Mr. Jatel also holds a B.Sc. in Freshwater Science, and before coming to the OBWB was the Executive Director of the Okanagan Partnership where he created programs focused on bridging environmental and economic concerns for sustainable prosperity in the Okanagan.

Communications Director

Reports to Executive Director. The Communications Director is responsible for communication between the OBWB and the community at large, as well as record keeping for OBWB and Water Stewardship Council meetings. This is a term position supporting the Water Management Program.

The current Communication and Research Coordinator, Corinne Jackson, has a B.A. in political science and had a former career as a journalist for a number of B.C. newspapers. Ms. Jackson recently graduated with a certificate in Local Government Administration.

Office and Projects Manager

Reports to Executive Director. The Office and Projects Manager is responsible for managing the Water Conservation and Quality Improvement Grants program, and coordinating the Eurasian Watermilfoil Control Program and other OBWB programs as required. This is a term position, bridging the Water Management Program, the Milfoil Program, and the Sewerage Facilities Program.

The current Office and Projects Manager, James Littlely, came to the OBWB with 12 years management experience as an officer in the Canadian Forces Reserve. He has a B.A. in political science and human geography. Mr. Littlely recently graduated with a certificate in Local Government Administration.

LOOKING FORWARD

water management program

Making a Difference: New Projects for Water Sustainability

It's essential to have a forward-thinking strategic plan, as the board of directors developed in 2013, but the important next step is to operationalize it.

WATER QUANTITY

The Okanagan Water Supply and Demand Project has been the OBWB's largest ongoing initiative since the Okanagan Basin Study was completed in 1974. In the last three years we've continued to fill information gaps – understanding lake evaporation, water use, stream flows and aquifers – but more importantly, we're finding ways to apply this new knowledge to policy. As the new Water Sustainability Act comes in to force, with groundwater licensing and environmental flow protections, we need the best possible data to ensure that existing license holder's needs, and the needs of the environment are met before new licenses are issued. And some years the problem is too much water, rather than not enough. After the example of Calgary's catastrophic 2012 flood, we are working with local governments to reduce risks from flooding.

WATER QUALITY

Okanagan water should be drinkable, swimmable and fishable, to benefit all. Our water quality is directly influenced by land use in the upper watersheds, agricultural lands, and stormwater runoff, as well as wastewater outfalls, and problems are exacerbated by global warming increasing water temperatures. The OBWB works with local communities to develop best practices to reduce erosion, and nutrients from agriculture and stormwater. This year, we began working with Interior Health to develop a Blue-Green Algae Response Protocol for beach closures. The OBWB is working with the regional districts and many other partners to map, protect and rehabilitate wetlands for water quality improvement. We are also working with RDOS and UBC-O to build a case for creating a treatment wetland near the Okanagan Falls wastewater treatment plant by evaluating endocrine disrupting hormones in their releases to Okanagan River.



Photo: Nelson Jatel



COORDINATED PLANS AND POLICY

While we can't do anything about the weather, population movement, and wear and tear on our infrastructure, we can prepare in advance to respond and adjust. If we know there will be more droughts, we can create drought plans. If we know there will be more floods, we can map floodplains. If we expect a larger population, we can create water budgets and find ways to create efficiencies. The OBWB was created and structured for local governments to collaborate on water issues affecting the valley as a whole, and which benefit from a basin-wide approach. If capacity is limited in individual communities, partnerships can expand opportunities. Some projects, like the Okanagan Waterwise outreach program, are much more effective than water outreach programs that differ between communities. The OBWB has been laying the groundwork for a valley-wide approach to drought and flood planning, surveying water utilities about their plans and systems. We bring together funding and expertise from inside and outside the valley, to benefit local governments and the valley as a whole. Partnerships are our strategy for progress.

RELATIONSHIPS, ADVOCACY, AND COMMUNICATION

The OBWB is a unique watershed agency, because we have no rule-making authority, and all our work is based on partnerships, communication, and trust. There are many valuable (but non-financial) resources within and outside the valley, and we can tap into them through the networks of the Okanagan Water Stewardship Council, through partnerships with other government jurisdictions, and through the universities. Communication is a core part of our legal mandate, providing information and recommendations to municipalities, regional districts, the provincial and federal governments. To be effective communicators, we always seek to provide the best possible, most accurate and science based information, in a non-partisan way. The Okanagan Waterwise public education campaign continues to grow, with new local government and industry partners, benefiting from a valley-wide approach. We continue to expand the Don't Move a Mussel campaign to reduce threats from invasive aquatic species. And our advocacy for best water policies and practices is even-handed and well respected.

KEY ONGOING, PROPOSED, AND COMPLETED WATER MANAGEMENT PROJECTS

Ongoing Projects
Okanagan WaterWise public education program
Don't Move a Mussel public education program
Water data hosting, management, and delivery to local governments
Groundwater and Hydrometric (stream flow) monitoring
B.C. Water Use Reporting Centre, including local utility and ag water use, and hydrometric data
Okanagan Wetlands Strategy
Blue green algae response protocols
Valley-wide water systems survey
Land Use Inventory updates
Proposed Future Projects
Analysis of endocrine disruptors in Okanagan Falls wastewater outfall
Local oversight of Water Sustainability Act and implementation of groundwater licensing
Creating an Okanagan-specific water license allocation decision tool
Floodplain mapping to reduce flood risks to water quality and infrastructure
Hydraulic surveys for minimum instream environmental flow needs
Recently Completed Projects
Groundwater Bylaws Toolkit
Topsoil Bylaws Toolkit
Endocrine Disruptor project
Climate change scenarios
Hydrologic Connectivity project
Economic valuation of the Okanagan River sockeye spawning habitat

APPENDICES

- A: Detailed Overview of New and Ongoing Water Management Projects
- B: Detailed Overview of the Water Stewardship Council
- C: Detailed Overview of the WCQI Grant Program
- D: Detailed Overview of Communications and Outreach Program
- E: Financial Review Schedules

APPENDIX A

new and ongoing water management projects

The following are a set of new and ongoing water management projects to operationalize the OBWB Strategic Plan. Many of these projects are inter-related.

Note on B.C.'s new Water Sustainability Act (WSA): The WSA was signed in to law in May, 2014, and is expected to come into force in 2015, once regulations are in place. The new Act opens the door for many changes. Most significant is the introduction of groundwater licensing for all large well users, integrated with the surface water licensing system. Surface and groundwater use will still be managed under the first in time, first in right (FITFIR) principle, but the government has many more powers to restrict use for environmental needs or during shortages. Much is still unknown about aquifer capacity, and groundwater/surface water interactions, and there are gaps in data, policy, and information management. The WSA primarily focuses on water supply, so it is most closely aligned with OBWB's activities under Goal 1 of the Strategic Plan; however, these changes will have impact on all OBWB's goals and activities.

All ongoing and new projects are linked to goals in the OBWB Strategic Plan.

Goal 1: Adequate Supplies of water for all human and environmental uses.

- a. The Okanagan has sufficient, accessible water science and data to plan for changing conditions in climate, economy and population growth.
- b. Water licence allocations support the environment, agriculture, and urban growth over the long term.
- c. Groundwater and surface water are regulated as one source.
- d. Water efficiency in all sectors.

Water Supply & Demand Project (2007–current)

Funding Partners: Agriculture and Agri-Foods Canada, B.C. Ministry of Forests, Lands, and Natural Resource Operations, B.C. Ministry of Agriculture, B.C. Agriculture Council.

The Water Supply & Demand project is an ongoing effort to maintain the highest level of information on Okanagan water availability and how it may be affected by climate change.

a. Data Delivery to Local Governments (2010 – current).

Local governments and local researchers need Water Supply & Demand data for planning. Their questions often require custom data queries for specific areas, and sometimes new model runs. The OBWB maintains an

updated database on our server, and has developed an easy-to-read guide for local governments on how they can incorporate water data into their plans and projects.

Thus far the data have been used by local and senior governments for:

International Joint Commission's lake level operations scenarios for renewal of the Osoyoos Lake operating orders; RDOS, RDCO, RDNO regional growth strategies; Penticton irrigation plan; Twin Lakes aquifer vulnerability analysis; Kelowna Joint Water Committee planning process; City of Vernon liquid waste management plan; Lake Country master water plan; Peachland master water plan, incorporating the effects of future climate change; West Kelowna's master water plan; Agriculture and Agri-Food Canada feasibility study for an agricultural water reserve in the Mission Creek drainage; and Interior Health's inventory of large water systems and the populations they serve.

And by water researchers for:

A dam safety study by Dr. Dwayne Tannant of the UBC-O Engineering department; residential and agricultural irrigation behaviors by Steve Conrad of SFU; Forecasting land use change in the Deep Creek drainage, integrating surface and groundwater by Dr. Adam Wei at UBC-O; a study on pollinators for agricultural crops by Dr. Jason Pither at UBC-O; virtual water use in the Okanagan, evaluating the amount of water that is imported and exported in the form of food and wine, by Dr. Hans Schreier of UBC-V; and a book on Okanagan Groundwater by Dr. Murray Roed.

b. Land Use Inventory and Water Demand Field survey – (Current).

In 2014-15 we are collaborating with the B.C. Ministry of Agriculture to re-survey land use in the valley to update the Okanagan Water Demand model. Land use and irrigation information is in very high demand from local government. This project will be completed by October, 2015.

c. Okanagan Water Allocation Tool (2013 - current).

This project will design a tool for water licence allocation in the Okanagan, incorporating Water Supply and Demand data and models. It includes future climate scenarios and the Okanagan hydrologic connectivity model to show how water use by one community may affect water availability elsewhere, given (FITFER) priority dates and legal water entitlements during droughts. The first phase developed a plan and identified remaining gaps that must be addressed prior to new allocation decisions.

d. Environmental Flow Needs – (2015).

Balancing water needs between the environment, agriculture, and residential water use is often controversial. The new B.C. Water Sustainability Act requires that all new allocations protect stream flows, and gives the government power to restrict use of existing license holders during low-flow periods. However, there is no agreed-on method for establishing what environmental flows should be. In the coming year, we hope to work with the government to develop a workable process for the Okanagan.

e. Okanagan Water Supply & Demand Website – (2010 – current).

This website is the one-stop-shop for Water Supply & Demand general information and technical reports. It also houses a searchable database of all the technical water reports used in the study. The website is regularly updated, and can be found at www.obwb.ca/wsd.

Groundwater Assessment of the Okanagan Basin – (2005 - current).

Funding Partner: B.C. Ministry of Environment.

Over several years OBWB received a series of grants from the B.C. Ministry of Environment, for groundwater studies in the Okanagan. These projects are undertaken according to mutual agreements by OBWB and MOE. Remaining funds will be used for groundwater analyses in the implementation of the Water Sustainability Act. There is no set end-date for use of these funds.

B.C. Water Use Reporting Centre – (2010 – current).

Funding Partners: Infrastructure Canada, Environment Canada, B.C. Agriculture Council, B.C. Ministry of Forests, Lands and Natural Resource Operations, B.C. Ministry of Agriculture..

How much water do we actually use each month? The B.C. WURC lets large water users in the Okanagan report their monthly water extractions online through this web-based tool, and to track water use and reservoir levels over time. The project initially focused on the largest water utilities, but the goal is to have all large surface and groundwater users report through this tool. This project is ongoing, and we've received new funding to develop reporting tools for agricultural users. The tool was designed to be easily modified for other regions of B.C., and is now being used by the Regional District of Nanaimo. It has been offered to the government, for implementation B.C.-wide.

Groundwater and Stream-flow Monitoring – (2010 – current).

Funding Partners: Agriculture and Agri-Foods Canada, Environment Canada, B.C. Ministry of Forests, Lands and Natural Resource Operations, Habitat Conservation Trust Fund, local Okanagan governments.

The groundwater monitoring project has a goal to install 15 new monitoring wells in at-risk aquifers identified through the Water Supply & Demand project. Wells are added as funding and partners become available, and 13 have been installed as of 2014. A related project is to install stream flow (hydrometric) monitoring stations in priority locations, in partnership with Water Survey of Canada, local utilities and the Okanagan Nation Alliance. Two new hydrometric stations have been installed, and more will be added as funding and partners become available.

Hydrometric Monitoring Database (2008 – current).

Funding Partners: Environment Canada, B.C. Gas Tax Program.

Restoring the streamflow monitoring network has been a top-priority for many years, but much information was lost because locally-collected data were not accessible or integrated with Water Survey of Canada data. We built a new database in 2013 using Aquarius software, and web-tools so that utilities and local hydrologists can upload streamflow data through the B.C. Water Use Reporting Centre. The data will be used by local and senior government engineers for water management.

Okanagan Water Supply Webinars (2010 – current).

In-kind Partners: Environment Canada, Agriculture Canada, Ministry of Forests, Lands, and Natural Resource Operations.

This series of webinars provides up-to-date information on water supplies, snow pack, and weather projections each spring to help Okanagan communities and water suppliers prepare for shortages. Webinars are held monthly between February and June, as needed. They are free and open to the public. The project arose as a recommendation of the OBWB's 2009 Okanagan Drought Workshop.

Goal 2: The Okanagan has excellent source water quality – drinkable, swimmable, fishable.

- a. That we understand risks to source waters and how to manage them.
- b. Government policy promotes appropriate land use in upper watersheds to protect water quality.
- c. Pollution is reduced in developed areas through infrastructure improvement and policies limiting contamination of surface and ground waters.
- d. Harmful new invasive aquatic species, including zebra mussels, are kept out of the Okanagan, and Eurasian watermilfoil continues to be controlled.

Okanagan Wetlands Strategy – (2013 – current).

In-kind and Funding partners: Environment Canada; B.C. Wildlife Federation; Ducks Unlimited; City of Kelowna; RDCO.

Wetlands provide valuable environmental services, including natural water treatment and flood mitigation, as well as providing wildlife habitat and recreational opportunities. Recognizing that many Okanagan wetlands have been filled in or degraded in the past few decades, the OBWB initiated a collaborative process to locate, map, and develop protection strategies for high-priority valley wetlands. A steering committee was established in Phase 1, and GIS maps of all known wetlands were compiled and saved to a central access location, through the Okanagan Collaborative Conservation Program website.

Blue-Green Algae Protocol – (current).

In-kind Partners: Interior Health, local Okanagan governments.

Blue-green algae, or cyanobacteria, are a very primitive form of aquatic plants that can photosynthesize and acquire nitrogen from the air. “Blooms” are often triggered by phosphorus pollution and warm water temperatures, when the one-celled organisms divide very rapidly forming a noxious, pea soup or oil slick appearance on lakes or beaches. They are a health concern because certain species produce toxins that cause a range of symptoms from skin irritation to paralysis. Local water suppliers test regularly for blue-green algae in water sources, but there has been no standard protocol for how to respond when the bloom is affecting a public beach. OBWB is working with Interior Health officers and an aquatic biologist to test and promote a standard set of actions to take when a bloom occurs.

Study of EDCs in Wastewater Outfall at Okanagan Falls – (current, in development).

In-kind Partners: RDOS, UBC-O..

The new wastewater treatment plant at Okanagan Falls has advanced biological nutrient removal, but does not have treatment to remove hormones and other endocrine disrupting compounds (EDCs). This is a concern, because the outfall is directly upstream of sockeye spawning habitat, and the wildlife area at Vaseaux Lake. It was designed to have a final stage of discharge to a treatment wetland, but was not able to obtain permits to construct the wetland on nearby federal lands. The OBWB is working with RDOS and researchers from UBC Okanagan, to test waters at the outfall for EDCs, to determine what if any environmental risk they hold. If there is no risk, the study could support approval by Environment Canada for discharge on the original site. If there is a risk, the study could support applications to funding agencies to lease or purchase another piece of land to construct a wetland.

Goal 3: Okanagan local governments, First Nations, water purveyors and stakeholders have up-to-date coordinated plans and policies to protect water quality and water supply, and prepare for extreme events.

- a. Local governments have capacity to prepare and respond to population and climate change.
- b. Diversifying funding sources, and securing new external funding partners to support Okanagan water initiatives by local governments.
- c. A knowledgeable public, with widespread commitment to science-based planning, water conservation and reducing pollution.

Ecosystem Valuation of Sockeye Salmon Habitat (2012-2013).

In-kind and Funding Partners: Environment Canada, UBC Okanagan, Okanagan Nation Alliance.

More than 80% of all the sockeye salmon in the Columbia watershed spawn in the Okanagan River. The best, highest quality spawning habitat, and the only section of the Okanagan River that has not been channelized is immediately north of the Town of Oliver, south of Vaseaux Lake. In this project, the OBWB worked with UBC-O Researchers, economic consultants, and the Okanagan Nation Alliance, to determine the economic values associated with the 3-km stretch of un-channelized river. The values are in the millions of dollars each year, representing food and recreation opportunities. This project is being used to raise funds and awareness for the protection of this habitat, and the restoration of nearby spawning areas.

Floodplain Mapping Working Group. (2013 – current).

In-kind Partners: Real Estate Foundation of B.C., B.C. Real Estate Association, SFU Adaptation to Climate Team, B.C. Water and Waste Association.

Increased flooding and increased intensity of storms have been the most direct negative impact of climate warming in Canada, as the atmosphere holds more water, and the jet stream has slowed down. There have been three 1-in-200 year floods in the past two years on Mission Creek, causing the province to revise their risk calculations because this has only a one in 8-million probability. If the 1948 and 1894 floods on the Fraser River (the worst on record) occurred today, millions of people would be affected, and there would be billions of dollars of damage. Yet most of B.C.'s floodplain maps are out of date. This initiative, organized by the Real Estate Association of B.C., provides information and materials for local governments wishing to update their flood risk assessments. The OBWB has participated in the working group, hosting a Kelowna workshop "Not Waiting for Noah: new approaches to flood risk assessments" for local governments, and is supporting a scoping exercise (first phase of floodplain mapping) by RDCO.

UBC-Okanagan Water Research Chair. (2011 – current).

Partners: UBC-O, Real Estate Foundation of B.C., Government of B.C., Water Supply Association of B.C., Columbia Basin Trust.

More and more, communities are faced very tight fiscal constraints. With rising costs for infrastructure (new and replacement), an aging population, and more extreme weather events from climate change, funding is almost always a limiting factor. The OBWB has been actively working with other grantmakers in B.C. and Canada to improve efficiency and coordinate water funding for water science and policy, including the implementation of the Water Sustainability Act, and identification of alternative funding mechanisms for B.C. communities.

Water Funders Networks (2010 - current).

In-kind Partners: B.C. and Canada funding agencies from public, private and industry sectors.

More and more, communities are faced very tight fiscal constraints. With rising costs for infrastructure (new and replacement), an aging population, and more extreme weather events from climate change, funding is almost always a limiting factor. The OBWB has been actively working with other grantmakers in B.C. and Canada to improve efficiency and coordinate water funding for water science and policy, including the implementation of the Water Sustainability Act, and identification of alternative funding mechanisms for B.C. communities.

Goal 4: The OBWB has excellent relationships, a defined role, and clear communications with stakeholders and other levels of government.

- a. The OBWB is respected as an advocate for Okanagan water concerns.
- b. The OBWB has a strong working relationship with Okanagan First Nations communities.
- c. The OBWB, working with the Okanagan Water Stewardship Council, maintains excellent communication with local stakeholders.

WaterWise Education Program (2010 - current).

In-kind Partners: Okanagan local governments.

The WaterWise program is the OBWB's public outreach voice was initiated by the board under the leadership of Brian Given. Activities range from regular water columns in local newspapers or radio shows, to fun surveys and education programs for kids. This is a new program and is evolving as we develop new partnerships. It is guided by a committee that includes Water Stewardship Council members and water conservation staff from local governments.

a. Okanagan WaterWise Website.

This website provides friendly, easy-to-read information on Okanagan water issues and ways to conserve or reduce pollution. It brings together tools, tips, and information to be a value-added service for Okanagan local governments who need more water information resources. The website was launched in August 2010, and new information is added all the time.

b. Okanagan WaterWise Social Media.

The WaterWise program has a YouTube channel with short educational films, and clips of news footage about Okanagan water. We have a Facebook page and Twitter feed where we share information about local water conservation issues and events. And we have the "Building Bridges" blog, that provides more indepth coverage on issues like the B.C. Water Sustainability Act.

Make Water Work campaign (2012-current).

Funding Partners: Okanagan local governments and water utilities, media outlets, and local businesses, RBC Blue Water Project.

The Make Water Work (MWW) project was a long-term goal of the Water Management Program. Local governments had early on expressed a need to share resources and messaging on water conservation. Beginning with a small pilot in the North Okanagan, this initiative continues to expand and gain new partners. The campaign focuses on high-level messaging and advertisements, targeting outdoor water use by the general public, led by a steering committee from partner local governments. In 2014, OBWB's MWW program was successfully used to leverage a \$90,000 grant by the RBC Blue Water Project to RDOS, for a hands-on demonstration training for water conservation around homes and businesses.

Don't Move a Mussel campaign (2013 – current).

In-kind and Funding Partners: Okanagan local governments, the Okanagan and Similkameen Invasive Species Society, the Invasive Species Council of B.C., and local news media.

After intense concern by local governments, the OBWB launched a publicity campaign to raise awareness about invasive mussels among the general public. The campaign compliments the province's Clean, Drain, Dry campaign targeting boaters and other recreational water users. Invasive mussels would cause irreparable damage and high costs to local communities and residents, and the campaign has had impressive support from local media and businesses.

Okanagan Conservation Planning website (2010 – current).

Funding Partners: Environment Canada, UBC – Okanagan, Okanagan Collaborative Conservation Program.

This website provides a home for all Okanagan GIS products and environmental mapping information relevant to local planners. These include the Foreshore Inventory Maps, Sensitive Habitat Inventories, Source Protection Plans, and Wetland Inventory Maps. The website is hosted by UBC Okanagan. The OBWB uses this site to make available all of the mapped water information collected through our Water Conservation and Quality Improvement grants program, as well as our maps of watermilfoil control areas. This is an ongoing project with information being added all the time.

Water Conservation Planning Guide for Local Governments (2012 – current).

In-kind and Funding Partners: Ministry of Community, Sport, and Cultural Development and the Polis Water Project.

The OBWB assisted the province in rewriting, reviewing and publishing a new water conservation planning guide for local governments. The guide walks local governments through a series of steps for community consultation, costing different options, and finding the optimal strategy for increasing water efficiency across sectors.

Slow it, Spread it, Sink it, Homeowner's guide to Stormwater Management (2011 - current).

Funding Partners: Natural Resources Canada, B.C. Water and Waste Association.

This project developed a homeowner's stormwater management guide, developed in California, customizing it for the Okanagan. It arose from a recommendation of the OBWB's 2010 Rain to Resource workshop, and funded by NR Can for climate change adaptation communication related to stormwater. The project was led by a committee including local government engineers, local irrigation designers and landscapers, and green building experts. The guide is being distributed by local government building departments around the valley.

APPENDIX B

okanagan water stewardship council

The Okanagan Water Stewardship Council was established in 2006 to tap expertise and channel technical advice, ideas and information. It is a standing committee of the OBWB, filling the role of the Liaison Committee from the OBWB's Supplementary Letters Patent.

The Council has 26 volunteer members, ranging from water user groups, non-profit organizations, professional associations, economic interests, and First Nations, to Okanagan College and UBC Okanagan faculty, and water and climate change scientists from local, provincial, and federal government. They meet formally as a Council once a month, with informal committees lending help on a range of projects.

- » *The OBWB provides staff to the Council through the Water Management Program.*
- » *The OBWB established the Council as an advisory committee to enhance the effectiveness of OBWB recommendations and to provide a communication channel to water stakeholders, consistent with the requirement of establishing a liaison committee.*
- » *The Council was designed to include a diversity of stakeholder organizations to expand two-way communication with Okanagan water sectors, and decreases conflict among these groups.*
- » *The Council does not have delegated authority and reports directly to the OBWB.*
- » *The Council recommends only those actions that can be undertaken within the bounds of the OBWB mandate.*

PROMOTING COLLABORATION

The central role of the Okanagan Water Stewardship Council is to find solutions that work for all – farmers and urban planners, fishers and developers, senior and local governments, and First Nations (and many others). The Council's diversity is a major strength (list of organizations attached). Above all, the Council provides a means to resolve potential conflicts before they begin, building trust among individuals and organizations, and promoting resilience in the community. This capacity to bounce-back is an essential skill needed for the 21st century.

“ – the benefit of the Council is that it brings together a group of people working within water management in some capacity from a wide spectrum of backgrounds and organizations– multiple levels of government, private sector, water utilities, and major water users. There is tremendous value in having such a group convene and be able to look at issues, potential projects, overall water management from all perspectives, and integration of these perspectives is vital for sound resource management.”

-Anna Page, Sustainability Coordinator, Regional District of North Okanagan, former council member

The relationship between the Council and the OBWB is unique in Canada. The Council is a source of technical and grassroots input to watershed governance, and maintains accountability to local citizens through the elected officials on the OBWB..

“The Water Stewardship Council has done some impressive work, bringing together a diverse group of community and senior government partners to reach consensus on a vision for water management in the Okanagan. This Okanagan Sustainable Water Strategy is an important decision support tool focused on action ... an important roadmap for future action in the Okanagan.”

-Honourable D. Ross Fitzpatrick

The Council's mission is to be a trusted source of expertise and knowledge for sustainable water management in the Okanagan, providing balanced and considered advice to the Water Board – and through them to the community at large.

“The Okanagan Water Stewardship Council has been a very successful venue for allowing representatives of all water stakeholders/groups to express their opinion and for exchange of information. Our successes are speaking as one voice for the Okanagan Basin for important issues such as governance, groundwater protection and development around reservoir lakes.”

-Lorne Davies, Ocoela Fish and Game Club, Council member

ENCOURAGING WATER CONSERVATION AND WATER STEWARDSHIP

Since its founding, Council members have contributed technical advice to dozens of projects. These include the award-winning Okanagan Water Supply and Demand Project; the BC Water Use Reporting Tool; and Groundwater and Hydrometric Monitoring Networks. They have provided policy recommendations on the BC Water Act modernization process, on the International Joint Commission's renewal of the Osoyoos Lake Operating Orders, (under the Boundary Water's Treaty), and on multi-use resource access in watersheds. Recommendations go to the Okanagan Basin Water Board, who acts on behalf of Okanagan local governments.

The ability to take action requires more than just decision-makers. The Council members are highly skilled and connected, and know how to get things done in their sectors. It is exciting to sit at the table and hear one person suggest a funding opportunity, another offer scientific research support, another to steer the project, and the next thing you know, there are monitoring wells going in.

If there is anything that the Okanagan can teach other places about water management, it is the value of this dynamic combination of a Board and Council, complementing and strengthening each other, allowing scientific and water sector ideas to enter political discussion, and lending political insight to stakeholder passion.

HIGHLIGHTED PROJECTS OF THE OKANAGAN WATER STEWARDSHIP COUNCIL

The following projects are a few examples of work that the Council and member organizations have guided or contributed to in the Okanagan.

Okanagan Sustainable Water Strategy

The Council's first major product was the 2008 Okanagan Sustainable Water Strategy, based on a two-year process of research and shared learning. The recommendations from this strategy have led to policies and projects on water conservation, water economics, irrigation efficiency, water monitoring and reporting, and water source protection.

"Water is an essential component to the quality of life we share in the Okanagan. It is our lifeblood and soon will become our most treasured resource. A regional water strategy is not just desirable, it is essential to ensuring our most valuable future commodity is managed for the benefit of our children, grandchildren and all those who follow."

-Brad Bennett President, McIntosh Properties

The Strategy brings together extensive technical information about the Basin and highlights the most important water management issues and how they connect to one another. The Strategy recommends actions to protect water at its source, share water in times of shortages, manage water demand, and improve valley-wide governance. It builds on the 1974 Okanagan Basin Study, a joint Canada/BC initiative to plan for the development and management of water resources in the Okanagan. The Strategy is available at: www.obwb.ca.

"Recognizing the seriousness of our collective duty to protect and preserve our precious Okanagan water resources, the Okanagan Water Stewardship Council has prepared this Sustainable Water Strategy. This document sets out a long range vision and twelve Guiding Principles to manage water, in both quantity and quality, for decades to come. The Council, comprised of more than two dozen water management experts, representatives of user groups, and concerned community leaders, has devoted several thousands of hours over the past thirty months in preparation of this important work. Our findings, conclusions, and recommended Actions are based on a remarkable degree of consensus among all participants."

-Dr. Tom Siddon, past-Chair WSC

"This regional water strategy is an essential step in rational water management for the present and future of our communities and the ecosystems they depend on. The Water Stewardship Council and Okanagan Basin Water Board have shown commendable leadership in taking-up this important initiative – one that has fallen through jurisdictional cracks for decades."

-Dr. Jeff Curtis Associate Professor, UBC Okanagan

Okanagan Water Supply and Demand Project

The Okanagan Water Supply and Demand Project is the most detailed assessment of water supply and demand ever conducted in western Canada, creating a framework of models and data on which to build future work. The project's data and models are being used in Regional Growth Strategies, Liquid Waste Management Plans, Irrigation Plans, Water Master Plans, dam safety studies, groundwater studies, and hydrology research. The project also contributed essential information for the 2013 renewal of the international agreement for Osoyoos Lake.

The project provides a scientific basis for a regional public communication program on water conservation (www.ok-waterwise.ca). Please visit the project website (www.obwb.ca/wsd) to see the full scope of the effort and all the component studies – ranging from climate change models to golf course water use and aquifer delineation.

Other communities have been inspired by this data-rich approach to water planning. The new models and techniques are being replicated across B.C. The project was featured in a 2010 national report by Agriculture Canada as an example of progressive, integrated water management. It won the 2012 Award of Excellence by the BC Water and Waste Association.

Water Reporting Tool for Okanagan Water Utilities

In the Okanagan, we must use the best available tactics and technologies to manage our water. B.C.'s 2008 Living Water Smart called for all large water users to measure and report their water use. This was more urgent in the Okanagan than any other region, as dozens of independent water utilities struggle to jointly manage a single resource. With guidance from the Council, the Water Board led the rest of BC, to build the BC Water Use Reporting Centre.

As new technologies have emerged, they allowed us to create a system to report quicker, with less effort, and more frequently than before. The BC Water Use Reporting Centre is a simple web-based system designed to help utilities and large water users regularly record water use. Once entered, the data is securely held until provincial reporting is required; then with a click of a button, reports can be printed.

"The BC Water Use Reporting Centre allows utilities to provide current water use data and access historic data for trending. And just as importantly, we are able to see what other water utilities in the valley are extracting, helping us work together and manage our common water resource."

– **Bob Hrasko**, Water Supply Association of B.C. Vice-Chair and Black Mountain Irrigation District (BMID) Administrator

Groundwater Bylaws Toolkit

Groundwater regulations are a high priority for the new B.C. Water Sustainability Act, but good legislation and regulations take time. In the Okanagan, development pressure creates an urgent need to regulate groundwater use – so the Water Board, with the help of the Council, looked to what regulatory tools already were available under local government jurisdiction.

The purpose of the Groundwater Bylaws Toolkit (the “Toolkit”) is to give local governments practical land use management tools to protect groundwater resources. Protecting groundwater will provide a strong foundation - critical to the economic, social and environmental sustainability of British Columbia communities.

The Toolkit presents the basic principles of groundwater science, outlines the jurisdiction for managing groundwater, and provides practical land use management tools for local government to protect groundwater. It clearly explains each tool, and provides sample policy and bylaw language that can be tailored to each unique area. It also provides case studies that highlight the best practices in groundwater protection already in use by local governments in B.C.

APPENDIX C

water conservation and quality improvement grants

The following overview has been adapted from the Water Conservation and Quality Improvement Grants Program Review, completed in 2013. For full descriptions of all projects funded through the program, please refer to the report, or use the online WCQI Project Database.

Between 2006 and the 2013 grant year, the WCQI grant program has made 160 grants, totalling \$2.6 million in funding for projects with combined budgets of over \$15.3 million. However, the value of the projects is far greater than the sum of the budgets. Take, for example, the multi-agency Okanagan River Restoration Initiative (ORRI). This multi-year project, with a budget of \$3.5 million has received three WCQI grants totalling \$25,050, for water quality testing. ORRI will restore 1 Km of the most critical habitat along the channelized Okanagan River. This section of restored river will provide stormwater treatment, flood protection, carbon sequestration, air quality improvement, as well as habitat improvement to both commercial and non-commercial species of fish and wildlife. As part of a larger partnership, OBWB's relatively small investment will support significant long-term benefits, to the economy, the environment and the people of the Okanagan. ORRI is only one of 22 restoration projects funded by the WCQI grant program. These projects lead to measurable improvements in water conservation and quality throughout the valley, but their long-term economic, social and environmental benefits are far greater.

TYPES OF PROJECTS GRANTED

Grant projects since the beginning of the program were sorted into 18 types of projects. The table below shows the number of grants in each category, the amount of grants paid in each category and the average per grant category over the 8 years of the program so far. The total at the bottom shows that the average grant amount is \$16,260, or 54% of the maximum available per grant. Over the eight years of the program, WCQI grants have paid an average of 16.9% of the actual project costs.

Category	Number	Total Amount	Avg/Grant
Drought Planning	3	\$50,857	\$16,952
Education – General	4	\$88,365	\$22,091
Education – Outdoor Conservation	4	\$39,100	\$9,775
Education – Water Quality	6	\$49,940	\$8,323
Groundwater	7	\$101,500	\$14,500
Indoor Conservation	5	\$59,560	\$11,912
Irrigation	9	\$156,500	\$17,388
Mapping	19	\$405,470	\$21,340
Metering	7	\$124,685	\$17,812
Restoration	22	\$327,268	\$14,875
Source Protection	24	\$420,722	\$17,530
System Improvement – Conservation	9	\$86,459	\$9,606
System Improvement – Water Quality	2	\$45,000	\$22,500
Water Flow Monitoring	8	\$132,343	\$16,542
Water Management Plan	5	\$106,500	\$21,300
Water Quality Project	8	\$101,750	\$12,718
Water Treatment Study	5	\$94,620	\$18,924
Xeriscape	13	\$211,015	\$16,231
Total	160	\$2,601,654	\$16,260

MATCHING GRANT PARTNERS

Additional funding and in-kind support for WCQI funded projects comes from a wide range of partners, including local, provincial, and senior governments, NGOs, First Nations, universities, and industry partners.

Federal Partners
Canada-BC Water Supply Expansion Program, Fisheries and Oceans Canada, Habitat Conservation Trust Fund, Pacific Agriculture Research Centre, Geological Survey of Canada; Natural Resources Canada
Provincial Partners
Ministry of Environment, Ministry of Agriculture, Ministry of Forests, Lands, and Natural Resource Operations, Ministry of Community Sport, and Cultural Development, Direct Access Gaming Grants, Interior Health
NGO Partners
B.C. Real Estate Foundation, Ducks Unlimited, TD Great Canadian Shoreline Cleanup, Vancouver Foundation, Honda Foundation, Community Mapping Network, Friends of Mission Creek, Okanagan River Restoration Initiative, Osoyoos Lake Water Quality Society, South Okanagan Similkameen Conservation Program, Friends of Park Rill, RBC Blue Water Project, Community Foundation of the North Okanagan, Home Depot Canada Foundation, Okanagan Science Centre, Canadian Wildlife Federation, Okanagan Collaborative Conservation Program, Priest Rapids Coordinating Committee, Okanagan Greens Society, Okanagan Xeriscape Association
First Nations Partners
Okanagan Nation Alliance, Okanagan Indian Band, Westbank First Nation, Osoyoos Indian Band, En'owkin Centre
University Partners
Simon Fraser University, UBC – Okanagan, Queens University
Industry Partners
Gorman Bros. Lumber Ltd., B.C. Cattlemens Association, Coldstream Ranch Ltd., Tolko Industries Ltd., Irrigation Association of BC, Professional Landscape Association of BC, Georgia Laine Development, Vantage One

BENEFITS OF THE PROGRAM

Simple Process:

Throughout the program, the OBWB has sought feedback from recipients about strengths and points to improve in the granting process. Feedback has consistently been that the process is clear, and significantly less arduous than other grant programs. Our application is a simple four-page form. Our required mid-point report is two-pages and our final report is three pages. The only other required form is the contribution agreement, which simply requires signatures. The simplicity of the process is a major benefit to grant applicants since it saves staff or volunteer time, in both the application and through the reporting process.

Local:

Because the grant program serves the Okanagan and is administered by the OBWB, grantees can call or come into the office to directly speak with OBWB staff. Staff routinely receives calls from interested applicants and grantees, seeking more information about their project, looking for opportunities to collaborate, or seeking support to apply for funding through other agencies. Because the process is local, grantees often collaborate with other local governments, agencies or non-profits. This collaboration is not only a benefit of the program, but leads to greater efficiency and reduced costs. Each grantee must show that their project will benefit the basin as a whole, either directly, or as a pilot method that can be shared with others.

Flexible:

The WCQI program is remarkably flexible, as shown through our payment options, which allow a grantee to choose their payment schedule, even allowing a 25% advance to begin the project where needed. Changes to project schedules are also relatively flexible, on the principle that it is more important to have a project completed, than complete on time. Given the nature of the projects, they can sometimes be delayed by poor or unpredictable weather conditions, necessitating an extension. Other scheduling difficulties, such as securing alternate sources of funding, can also be considered for extensions. This flexibility has meant that the WCQI projects have an incredibly high level of success, with grantees largely being able to achieve their original project scope without change.

Leverage to bring money into the Okanagan:

Another benefit to the program is that grantees leverage WCQI funds to gain other funding. Grant programs often require prior confirmed funding through other organizations in order to consider a project. OBWB staff routinely provides letters of support for our grantees to leverage WCQI funding through other agencies. Many of our grantees apply for multiple grants from many agencies, often from outside the Okanagan. An example is the Friends of Summerland Ornamental Gardens, who in 2012 received funds from Environment Canada, the Real Estate Foundation of B.C., the Vancouver Foundation, the Community Foundation of the South Okanagan, and the TD Friends of the Environment Fund. In that example, a WCQI grant for \$25,000 was part of a budget that brought another \$68,872 from outside the valley, and \$7,100 from another Okanagan Valley funder.

Water Conservation and Quality Improvement:

Of course, the greatest benefit of the program is that it achieves its goal of enhancing water conservation and quality improvement in the Okanagan valley. Through local governments, this program provides an incentive to prioritize water-related projects, as well as assisting smaller local governments to meet their water quality and supply goals. Among irrigation districts, this program allows them to meet ever increasing regulatory challenges to protect water sources and support delivery of clean and sufficient drinking water to their ratepayers. Through non-profits, this program increases awareness of the need to conserve and protect our water, and enhances the public understanding of our basin, often through projects that local governments and water districts could not facilitate.

GRANTEE FEEDBACK

"The project has met our goals to regulate water usage, provide equitable water distribution and conserve energy in our orchards. The grant provided by Okanagan Basin Water Board and the assistance provided by your staff was instrumental in completion of this project. Thank you."

Osoyoos Irrigation District, 2006

"The City has been very pleased with the application process. Sufficient time was allowed for the City to prepare the original grant application and the Board dealt with the application within the original timelines set out in the grant. O.B.W.B. staff has been very helpful in providing advice and direction throughout the process."

City of Armstrong, 2007

"OBWB encouraged a collaborative approach and the project could not have been achieved without the pulling together of various stakeholders. We were able to also link projects together and carry funds forward - and this flexibility in the grant program is invaluable."

Regional District of Central Okanagan, 2009

"The Westbank Irrigation District wishes to thank the OBWB for their continued generous grant contributions for 2009 and past years. The grant funding has been a significant benefit and has allowed WID to complete projects pertaining to water conservation and other key aspects related to water supply and demand management that otherwise would be difficult to undertake."

Westbank Irrigation District, 2009

"Greater Vernon Water has received a number of WCQI grants in the past five to six years. The grants have developed opportunity to work with partners and other stakeholders. We hope the WCQI grants continue as they inspire innovative projects that are not always possible due to staff time or dollars."

Greater Vernon Water, 2011

APPENDIX D

communication and outreach program

The OBWB has many distinct audiences, and a number of tools have been developed to facilitate Water Management communications. They are reviewed here.

ANNUAL REPORT AND ANNUAL GENERAL MEETING

The OBWB's first Annual General Meeting was held in the fall of 2009 and coincided with the release of the first Annual Report. Based on positive feedback, we have provided an annual report and held an AGM each year since. The meeting and report are an opportunity to share with local government officials and staff, as well as the general public, the accomplishments of the OBWB over the past year and plans for the coming year. These meetings are well-attended and attract both members of the public and media. The OBWB is currently making plans to hold its sixth AGM on Sept. 5, 2014.

BOARD REPORTS

The monthly Board Report has been an important tool for providing up-to-date information about the activities, projects and policies of the Board to a wide audience. The reports are distributed to all OBWB directors, Water Stewardship Council members, the CAOs, Board Chairs and Mayors of all regional districts and municipalities, as well as local First Nations chiefs and councils. It is also distributed to all regional board and municipal council members. The distribution list has been expanded to include media and others who have requested that their name be added. Currently, the list sits at about 200 people. The report is also available to the public on the Water Board's website (www.obwb.ca/obwb_minutes/) and is posted each month through our social media channels (Facebook and Twitter).

PRESENTATIONS TO LOCAL AND SENIOR GOVERNMENT

Between 2012 and 2014, OBWB staff presented updates on water issues and OBWB activities to all three Okanagan regional districts, and municipalities from Armstrong to Osoyoos. Meetings have also been held with a number of individual mayors, administrators, and councillors. In 2013, OBWB staff were invited to meet with the Okanagan MLA caucus to discuss Okanagan water issues including the B.C. Water Sustainability Act, BC Water Use Reporting Centre and zebra/quagga mussels. .

WATER POLICY AND LEGISLATION

In July 2009, the OBWB put out its first position paper on the *Disposition of Crown Lands Surrounding Drinking Water Reservoirs*. Also in July 2009, the board delivered a position paper on *Multi-use on Crown Lands in Watersheds*,

Recognizing the significance of such position papers, Water Board staff and the Board's technical advisory body, the Okanagan Water Stewardship Council, developed the *Irrigation Efficiency in the Okanagan* paper which was adopted by the board in July 2012..

STAKEHOLDER OUTREACH

The OBWB recognizes that stakeholder outreach is essential for effective management of our shared water supply. The OBWB is also now viewed by local residents, university researchers, and many other groups, as the place to go for information on Okanagan water issues. Some of our stakeholder outreach efforts are noted below.

Conferences and Workshops

Events, such as conference and workshops, play an important role in bringing stakeholders together to define water issues and develop meaningful responses. The following is a listing of OBWB events held since April 1, 2011:

- a. Keeping up with the Climate, Keeping up with Technology Workshop – March 2012
- b. Adapting to Climate Change in the Okanagan – June 22, 2012
- c. Sharing Water, Building Agreements – FCM-OBWB Workshop – October 23, 2012
- d. Okanagan Invitational Drought Tournament – November 16, 2012
- e. Water Conservation in the Okanagan: What Can We Learn From Las Vegas? – December 5, 2012
- f. Keep the Okanagan Zebra Mussel-Free public meeting/workshop – April 4, 2013
- g. Not Waiting for Noah: New approaches to assessing flood risk – April 24, 2013
- h. Okanagan Wetlands Strategy Workshop – November 28, 2013
- i. Growing a WaterWise Community in the Okanagan Workshop – March 6-7, 2014

Research and Reports

Based on the Keeping up with the Climate workshop, the "*Getting Climate Adaptation Tools Out There: A Workshop Process Guide*" was created to help organizations design effective training workshops about adaptation tools and raise awareness about available resources.

A summary report was also created for the Okanagan Invitational Drought Tournament (IDT). The IDT is a simulation gaming exercise was developed by Agriculture and Agri-Food Canada to support drought preparedness and response efforts.

In October 2012, the OBWB released its *Topsoil Bylaws Toolkit* for local governments. The toolkit is a companion to the

OBWB's *Groundwater Bylaws Toolkit* and a supplement to the Green Bylaws Toolkit (www.greenbylaws.ca). This new toolkit was developed to give local governments practical tools that support smart topsoil policies.

In October 2013, the OBWB approved its 2014-2019 *Strategic Plan* which will guide the Water Board's work for the next five years. The Plan reflects our priorities, our unique strengths in contributing to water sustainability, and is a framework for future work plans, programs, partnerships, and decisions. The complements our 2008 *Okanagan Sustainable Water Strategy*.

PUBLIC OUTREACH

Between 2012 and 2014, OBWB staff presented updates on water issues and OBWB activities to all three Okanagan regional districts, and municipalities from Armstrong to Osoyoos. Meetings have also been held with a number of individual mayors, administrators, and councillors. In 2013, OBWB staff were invited to meet with the Okanagan MLA caucus to discuss Okanagan water issues including the B.C. Water Sustainability Act, BC Water Use Reporting Centre and zebra/quagga mussels. .

Presentations

OBWB staff participate in numerous public forums, conferences and workshops, sharing water management ideas and science, and promoting collaboration and best practices to address water issues. In total, since April 1, 2012, staff have delivered at least 70 presentations.

Examples of involvement in professional association events include the international WaterSmart Innovations Conference, Natural Resource Canada's Climate Forum, Canadian Water Network workshop, Polis Project's Water Governance Forum, and the BC Water and Waste Association conference.

Presentations have also been made to stakeholder groups, including the BC Institute of Agrologists, North Okanagan Naturalists, rotary clubs and school classrooms, as well as at events hosted by various public groups such as BC Communities in Bloom, and REEL Change FilmFest.

Public Events

For the last several years, OBWB has held panel discussions to celebrate Canada Water Week (around March 22 UN World Water Day) and participated and assisted with WWD events at UBC-Okanagan. Since 2011, the Water Board has expanded the week's offerings to include the Okanagan WaterWise Challenge for youth – a contest aimed at encouraging young people to learn more and engage on local water issues. In addition to the panel and contest, in 2014 we partnered with Fresh Outlook Foundation and held a very successful screening of the film *Watermark* at a local movie theatre.

In 2011, the BC Water and Waste Association began organizing Drinking Water Week events in B.C. The OBWB helped facilitate participation in this week-long celebration in May to local governments and utilities in the Okanagan and promote the event to the public.

Websites

The OBWB has developed an extensive corporate website (www.obwb.ca) with information on its programs, while providing a web presence for the Water Supply & Demand Project, the BC Water Use Reporting Centre, and the Building Bridges Water Blog. The OBWB has a separate website for its public outreach program, Okanagan WaterWise (www.okwaterwise.ca) which is updated regularly. The WaterWise site is aimed at informing Okanagan residents about water in the Okanagan, issues affecting it, and encourages protection of this valuable, shared resource. The site provides tips for residents, businesses, and students.

Also in 2013, the OkWaterWise program launched its Don't Move a Mussel campaign to raise awareness around the potential threat of invasive zebra and quagga mussels entering Okanagan waters. The campaign included the launch of a website at www.DontMoveAMussel.ca.

Written Communication

Since 2011, the Water Board has been working with community newspapers in the valley to run a series of contributed articles on various water issues during spring and summer. In 2012, the series began focusing on residential outdoor watering, helping promote the Make Water Work message and the need to conserve for food, fish, firefighting and more.

The OBWB has also been asked to provide articles or assistance on stories to publications, including Watermark Magazine, Okanagan Health and Wellness Magazine, Okanagan SunCruiser Magazine, and Okanagan Life. Staff have also contributed to various utility newsletters, as well as the Living Greener Calendars that are delivered to households in the Okanagan.

In 2011, the Water Board produced an Okanagan version of "Slow It. Spread It. Sink it," a homeowners guide to rainwater harvesting. The guide has been very popular, requested by master gardeners, landscapers, and homeowners. It is posted on the OkWaterWise website and is in its 2nd printing. We have also had requests from several Canadian watershed groups interested in producing a similar version for their region.

Media Coverage

There has been excellent media coverage of OBWB, Water Stewardship Council and Okanagan WaterWise initiatives, and of projects funded through the Water Conservation and Quality Improvement Grant Program. Between April 1, 2012 and June 26, 2014 (during a period of two years, two months), the Water Board has issued 36 news releases and held seven media events. In this time, there have been at least 426 news stories generated. These stories have reached viewers/readers throughout the Okanagan, and in some cases have been seen and heard by a national, even international, audience. Many of these stories are based on news releases put out by the OBWB, but also from reporters calling the Water Board for comment on water-related issues, recognizing the expertise available. By comparison, the 2011 WMP report noted 280 news stories during that 2-year, 2-month reporting period, and the 2008 report noted 50 stories within that 2-year period.

Social Media

While a summary of traditional media coverage is a useful tool to determine if the Water Board's messages are getting out, the landscape of communications is changing and it is important to recognize this and use it to our advantage. No longer is the public merely learning of what is happening in their community through traditional media (eg. TV, radio, and print). Social media is fast becoming an important tool in communications, especially Facebook and Twitter.

Through Okanagan WaterWise's Facebook and Twitter pages we post almost daily messages regarding the work of the OBWB or other water-related news. Our following has steadily grown since we began using social media in mid-2010. Interestingly, our 2011 WMP report noted more than 300 followers on both Facebook and Twitter combined. As of the end of June 2014, we have 1,263 followers on Twitter and 437 individual "likes" on Facebook. In addition, we have 158 pages that have liked us on Facebook (i.e. businesses, local governments, non-profits and other groups that have their own Facebook page). These are people or groups who have chosen to stay connected to our message and often "share" our message by re-tweeting or re-posting our information.

In 2012 we launched a YouTube channel, posting various OBWB-related news clips as well as our new series of OkWaterWise videos. These videos included three fun and informative pieces encouraging water conservation and protection, another provided information on our milfoil control program and another on the Water Supply and Demand Viewer website. Since its launch, the channel has been built out to include at least 40 OBWB-related videos, as well as about 10 additional water-related videos. At times we have been asked by partners (e.g. RDNO) who have nowhere to post their videos to post them on our channel and we have been happy to help.

UPCOMING

A number of communication and outreach initiatives are underway to assist local governments and stakeholders improve the way we address water management issues, and expand public outreach, informing people of the challenges we face and inspire everyone to do their part to make a difference. This is being done through a number of avenues including:

- » Build-out of our www.MapYourTap.ca web tool for the WaterWise website, encouraging people to get to know their water, connect with their water source, take ownership of it and work to protect it;
- » Follow up on a 2012 update and reprinting of the Okanagan Waterscape poster, updating supplementary school materials and expanding to include lessons around the Water Supply and Demand project.
- » Further development of the Okanagan WaterWise website with additional information and pages (e.g. on wetlands, rainwater, gray water use, etc.), and improve the site to attract and retain viewers.
- » Expand the Make Water Work project in partnership with Bylands and the Okanagan Xeriscape Association to create a MWW plant palette, encouraging residents to buy plants that Make Water Work.
- » Work with RDOS who received a \$90,000 grant from RBC Blue Water to help us expand the reach of Make Water Work in 2015 with public and landscaper workshops and the build out of xeriscape-rain garden demonstration gardens in the valley.

APPENDIX E

financial review schedules

SCHEDULE A: PREVIOUS AND CURRENT BUDGETS

OBWB Water Management Program	2012-13	2013-14	As of June 16 2014-15 (Q1)
REVENUE			
Okanagan Regional District Requisition			
RDOS	226,215	229,642	224,815
RDCO	611,465	622,855	627,930
RDNO	200,302	201,852	200,055
<i>Requisition subtotal</i> Note 1	<i>1,037,982</i>	<i>1,054,349</i>	<i>1,052,800</i>
External grants Note 2	283,618	165,530	25,000
Interest	11,410	12,512	1,505
Other income	-	4,796	-
Transfer from operational reserve Note 3	120,198	-	18,861
Transfer from sewage program Note 4		25,477	20,000
TOTAL REVENUE	1,453,208	1,262,664	1,098,166
EXPENDITURES:			
Program Operating Costs			
Administration			
Board of Directors	10,030	11,140	2,812
Employee salaries and benefits	290,136	286,164	48,720
Office overhead	66,767	75,139	13,257
<i>Operating Costs subtotal</i>	<i>366,933</i>	<i>372,443</i>	<i>64,789</i>
Projects and Activities Note 5			
Assistance Grants	294,693	293,144	300,000
Contract Services	447,027	418,682	13,025
Communication and Outreach	119,546	140,225	13,006
Water Stewardship Council	18,916	19,309	3,679
Transfer to operational reserve	206,093	18,861	-
<i>Okanagan Water Management Program subtotal</i>	<i>1,086,275</i>	<i>890,221</i>	<i>329,710</i>
TOTAL EXPENDITURES	1,453,208	1,262,664	394,499
Surplus (Loss)	-	-	703,667

Note 1. 2014-15 requisitions are provisional budget numbers. Actuals are based on final assessments.

Note 2. We expect an increase in provincial funding in 2015-16 for Water Sustainability Act implementa

Note 3. Operational reserves are required to manage multi-year projects grants.

SCHEDULE B: 2014-15 BUDGET ESTIMATE AND 2016-19 FY BUDGET PROJECTIONS

OBWB Water Management Program	Current year				
	2014-15	2015-16	2016-17	2017-18	2018-19
REVENUE					
Okanagan Regional District Requisition					
RDOS	224,815	222,000	222,000	222,000	222,000
RDCO	627,930	633,000	633,000	633,000	633,000
RDNO	200,055	200,000	200,000	200,000	200,000
<i>Requisition subtotal</i> Note 1	<i>1,052,800</i>	<i>1,055,000</i>	<i>1,055,000</i>	<i>1,055,000</i>	<i>1,055,000</i>
External grants Note 2	200,000	300,000	300,000	300,000	300,000
Interest	12,000	12,000	12,000	12,000	12,000
Transfer from operational reserve Note 3	130,000	182,100	229,600	209,600	174,600
Transfer from sewage grant program Note 4	20,000	20,000	20,000	20,000	20,000
TOTAL REVENUE	1,394,800	1,549,100	1,596,600	1,576,600	1,541,600
EXPENDITURES:					
Program Operating Costs					
Administration					
Board of Directors	12,000	12,000	13,000	13,000	13,000
Employee salaries and benefits	288,500	290,000	295,000	300,000	305,000
Office overhead	93,700	95,000	96,500	96,500	97,000
<i>Operating Costs subtotal</i>	<i>394,200</i>	<i>397,000</i>	<i>404,500</i>	<i>409,500</i>	<i>415,000</i>
Projects and Activities Note 5,6					
Assistance Grants	300,000	300,000	300,000	300,000	300,000
Contract Services	400,000	500,000	550,000	550,000	500,000
Communication and Outreach	118,600	125,000	135,000	145,000	155,000
Water Stewardship Council	22,500	22,500	22,500	22,500	22,500
Transfer to operational reserve	159,500	204,600	184,600	149,600	149,100
<i>Okanagan Water Management Program subtotal</i>	<i>1,000,600</i>	<i>1,152,100</i>	<i>1,192,100</i>	<i>1,167,100</i>	<i>1,126,600</i>
TOTAL EXPENDITURES	1,394,800	1,549,100	1,596,600	1,576,600	1,541,600
Surplus (Loss)	-	-	-	-	-

Note 1. 2014-15 requisitions are provisional budget numbers. Actuals are based on final assessments.

Note 2. We expect an increase in provincial funding in 2015-16 for Water Sustainability Act implementation

Note 3. Operational reserves are required to manage multi-year projects grants.

Note 4. A portion of the sewage grant budget is transferred for overhead costs.

Note 5. Projects and Activities budget expenses include both OBWB contribution and external grants

Note 6. Priority project areas include groundwater, source protection, drought and flood planning, water monitoring and information management.

