

# Okanagan Basin Water Board Meeting Agenda



*Okanagan Basin*  
WATER BOARD

**DATE:** Tuesday, Dec. 7, 2010

**TIME:** 10 a.m. to 2 p.m.

**PLACE:** Regional District Okanagan Similkameen  
101 Martin St., Penticton, B.C.

1. **CALL MEETING TO ORDER**

2. **APPROVAL OF AGENDA**

3. **INTRODUCTION OF LATE ITEMS**

4. **ADOPTION OF MINUTES**

4.1 Minutes of the Regular Meeting of the Okanagan Basin Water Board of Nov. 2, 2010 at the Coast Capri Hotel in Kelowna, B.C. *(page 1)*

5. **STAFF REPORTS**

- 5.1 Executive Director Report *(page 7)* *(includes recommendation)*
  - 5.1.1 Water Supply & Demand update *(page 31)*
- 5.2 Water Stewardship Director Report *(page 32)*
- 5.3 Communications and Research Coordinator Report *(page 34)*

6. **ADJOURN TO IN-CAMERA MEETING**

6.1 Matters pertaining to OBWB staffing

7. **RESUME REGULAR MEETING**

8. **NEW AND UNFINISHED BUSINESS**

- 8.1 OBWB provisional budget for 2010-2011 – revised *(page 37)* *(resolution required)*
- 8.2 Groundwater Monitoring Project – funding agreement *(page 42)* *(includes recommendation)*
- 8.3 Meadowlark Festival - sponsorship request *(page 54)* *(includes recommendation)*

9. **CORRESPONDENCE**

9.1 Letter re: Okanagan Lake Collaborative Monitoring Agreement from Vic Jensen, Ministry of Environment *(page 57)*

10. **NEXT MEETING**

10.1 The next regular meeting of the Okanagan Basin Water Board will be held Feb. 1, 2010 at Regional District of Central Okanagan.

11. **ADJOURNMENT**



**MINUTES OF A REGULAR MEETING OF THE OKANAGAN BASIN WATER BOARD  
HELD NOVEMBER 2, 2010, AT COAST CAPRI HOTEL,  
1171 HARVEY AVE., KELOWNA, B.C.**

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**PRESENT**

Chair Stu Wells	Regional District Okanagan-Similkameen
Vice-Chair Rick Fairbairn	Regional District North Okanagan
Director Buffy Baumbrough	Regional District North Okanagan
Director Gyula Kiss	Regional District North Okanagan
Director James Baker	Regional District Central Okanagan
Director Doug Findlater	Regional District Central Okanagan
Director Graeme James	Regional District Central Okanagan
Alt. Director Bill Schwarz	Regional District Okanagan-Similkameen
Director Gordon Clark	Regional District Okanagan-Similkameen
Director Bernie Bauer	Okanagan Water Stewardship Council
Director Toby Pike	Water Supply Association of BC

**REGRETS**

Director George Saddleman	Okanagan Nation Alliance
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**OBWB STAFF**

Anna Warwick Sears	Executive Director
Nelson Jatel	Water Stewardship Director
Corinne Jackson	Communications and Research Coordinator
Melissa Tesche	Interim Office and Grants Administrator

**GUESTS**

Drew Kaiser	Mission Creek Restoration Initiative
Jamie Pepper	Okanagan Nation Alliance
Judie Steeves	Kelowna Capital News
Eldon Ulrich	South Okanagan Real Estate Board

**1. CALL MEETING TO ORDER**

Chair Wells called the meeting to order at 10:04 a.m.

**2. APPROVAL OF AGENDA**

*"THAT the agenda of the regular meeting of the Okanagan Basin Water Board of Nov. 2, 2010 be approved."*

**CARRIED**

**3. INTRODUCTION OF LATE ITEMS**

**4. ADOPTION OF MINUTES**

4.1 Minutes of the Regular Meeting of the Okanagan Basin Water Board of Oct. 5, 2010 at Regional District of North Okanagan in Coldstream.

Amendment: A couple small wording changes.

***“THAT the minutes of the regular meeting of the Okanagan Basin Water Board of Oct. 5, 2010 at Regional District of North Okanagan in Coldstream be adopted as amended.”***  
**CARRIED**

**5. NEW AND UNFINISHED BUSINESS**

- 5.1 OBWB provisional budget for 2010-2011 – Budget features  
5.1.1 Consolidated provisional budget for 2011-2012

Dr. Warwick Sears introduced the provisional budget for 2011-12, noting that the \$3.7 million budget represents 6 cents per thousand dollars' value of assessed property values. As a percentage of assessments, the Executive Director noted that the requisition is unchanged from the previous two years.

Some 2.8% of new costs are attributable to the board's recent commitment to the UBCO Water Resources Chair.

An additional increase in budget represents full cost recovery for accounting services at Regional District of Central Okanagan.

Directors discussed whether the \$300,000 budgeted for Water Conservation and Quality Improvement Grants is enough. Directors were told that applicants are strongly encouraged to bring other funding partners to the table. As a result, last year's funding reached more projects than the previous year.

Dir. James noted that he is opposed to groups asking City of Kelowna for funds to leverage funding for an OBWB grant. Dr. Warwick Sears responded that while this may occur at times, the OBWB funds projects that are of benefit to the entire valley. For example, City of Kelowna may fund a project in its jurisdiction because of local benefits and then OBWB makes a contribution because of the valley-wide benefit.

Of interest in the budget was an Osoyoos Water Science Forum in the fall 2011, and work on groundwater issues. Mr. van der Gulik noted that the province will likely be drafting enabling legislation for local government to protect groundwater but will be looking for leadership on the issue. The OBWB is in a good position, having started to look at groundwater, he added.

Dr. Warwick Sears was asked to review the budget, make some small changes and bring it back to the board for its December meeting.

**6. ADJOURN TO IN-CAMERA MEETING**

- 6.1 Matters pertaining to OBWB staffing

***“THAT the Okanagan Basin Water Board adjourns to an In-Camera meeting at 11:15 a.m.”***

**CARRIED**

**7. RESUME REGULAR MEETING**

Regular meeting resumed at 12:32 p.m.

**8. STAFF REPORTS****8.1 Executive Director Report**

Dr. Warwick Sears reported that discussions were held with RDNO about the OBWB budget approval process. It was agreed that the board will receive an update on projects in October and meet again in December to answer questions on the provisional budget.

Staff are working with Ministry of Environment to address milfoil issues which will allow the rototilling part of the program to move ahead, she added. And, a new trainee has begun work.

A group from Washington has also formed to collaborate on aquatic weed management and has invited the OBWB to sign on to a Memorandum of Understanding as a cooperative partner, to participate in meetings and share best practices information. Dr. Warwick Sears recommended that the OBWB respond with a letter of interest. A final commitment would depend on the terms of the finalized MOU, she said.

***“THAT the Okanagan Basin Water Board send a letter of interest to the other participants in the Upper Columbia River System Cooperative Weed Management Area (CWMA), indicating provisional commitment to the terms expressed in the draft MOU. A final commitment would depend on the terms of the finalized MOU.”***

**CARRIED**

Regarding a question by directors on the Similkameen’s potential participation on the Water Board, Dr. Warwick Sears stated that the OBWB’s strength is in its strong geographic basis and clear recognition of issues within those boundaries. She recommended that the Water Board’s structure remain as is and that the OBWB share resources and provide support to the Similkameen as they develop their own water governance structure.

***“THAT the report from Dr. Warwick Sears, dated Oct. 26, 2010, be received.”***

**CARRIED**

**8.1.1 Water Supply & Demand update**

Staff are looking to centrally locate information from the Okanagan Water Supply and Demand (OWSD) study, the Streamlined Water Use Reporting Tool (SWURT) and the Okanagan Water Viewer. This will provide a bank of data for local governments to access. A local government planning expert is writing a report for local governments on what information is available and how to access it.

The OWSD – Phase 3 committee is developing additional scenarios, looking at the impacts of serious drought. The deadline for this work is March 31, 2011. Two more contracts are required to complete the work and meet the terms of the funding agreement. Dr. Warwick Sears recommended the hiring of DHI Water and Environment Inc. and Polar Geoscience Inc.

***“THAT the Okanagan Basin Water Board enter into a technical support contract with DHI Water and Environment Inc., to assist with the transition and use of the Okanagan Hydrology Model and the Okanagan Water Accounting Model for future scenario modeling; and, that the OBWB further enter into a contract with Polar Geoscience Inc. to interpret and report the results of that modeling process to a maximum of \$30,000 each.”***

**CARRIED**

Ministry of Environment has put the OBWB in contact with BCIT students looking to do a 45-day internship. The Water Board is proposing the time be used to create a web page with a map showing information about Okanagan Lakes, rivers, and water supply areas. One feature will allow people to locate their water source and information about it by typing in their address. The UBCO geography department is interested in assisting.

***“THAT the Executive Director Report from Dr. Warwick Sears, dated Oct. 26, 2010, be received.”***

**CARRIED**

## 8.2 Water Stewardship Director Report

Mr. Jatel recommended that four new agencies join the Okanagan Water Stewardship Council for the upcoming 18-month term.

***“THAT the Association of Professional Engineers and Geoscientists (APEGBC); City of Vernon, South Okanagan Real Estate Board and the Okanagan Mainline Real Estate Board be included as council members for the upcoming 18-month term.”***

**CARRIED**

***“THAT the Water Stewardship Director Report from Mr. Jatel, dated Oct. 26, 2010, be received.”***

**CARRIED**

## 8.3 Communications and Research Coordinator Report

Ms. Jackson noted the success of the OBWB’s “From Rain to Resource” workshop held in Kelowna Oct. 28 and 29. Organizers reached their target of 100 attendees, including elected officials and local government staff, and others, working in rainwater management. There was also extensive media coverage. Presentations will be up shortly on the OBWB website ([www.obwb.ca](http://www.obwb.ca)).

The WaterSmart Innovations conference, Oct. 6-8 in Las Vegas, provided extensive information on public outreach initiatives and studies. A few slides were presented from one session that looked at what motivates behavior change. Ms. Jackson answered a number of questions from directors and invited people to view the presentations at [www.watersmartinnovations.com/2010\\_sessions.php](http://www.watersmartinnovations.com/2010_sessions.php). Topics include: Alternate [Water] Sources (with a large focus on stormwater); Code, Policy and Rates; Conservation and Incentive Programs; Construction and Development; Drought Management; Education; Landscapes; Marketing and Outreach; Plumbing, Appliances and Fixtures; Utility and Infrastructure; and Water Loss Management.

An invitation to take a quick survey was sent to the Water Board’s distribution list, including elected officials, Stewardship Council members and other interested individuals, asking for feedback on current OBWB programs and services and where efforts should be focused in the coming year. Ms. Jackson encouraged board members to complete the survey if they haven’t already.

***“THAT the Communications and Research Coordinator Report from Ms. Jackson, dated Oct. 26, 2010, be received.”***

**CARRIED**

#### 8.4 Office and Grants Administrator Report

Ms. Tesche reported that recipients of last year's Water Conservation and Quality Improvement Grants are beginning to submit midpoint reports.

Staff were hoping to start rototilling earlier this year to address milfoil, however, the discovery of an endangered mussel in the north and south Okanagan is being reviewed by the province. Staff are now waiting to see what areas are approved for the milfoil crew to work in.

***"THAT the Office and Grants Administrator Report from Ms. Tesche, dated Oct. 24, 2010, be received."***

**CARRIED**

#### 9. CORRESPONDENCE

9.1 Letter from MLA Ben Stewart, Ministry of Community and Rural Development, regarding Topsoil Bylaws Primer grant

Dr. Warwick Sears noted that the \$10,000 grant from the province will allow the Water Board to develop a Topsoil Bylaws Toolkit, similar to its Groundwater Bylaws Toolkit, and will include model bylaws that local government can use. Proper topsoil, she added, relates to good water quality and quantity.

***"THAT the Okanagan Basin Water Board receive the correspondence from Ben Stewart, Ministry of Community and Rural Development, regarding a Topsoil Bylaws Primer grant."***

**CARRIED**

#### 10. NEW AND UNFINISHED BUSINESS

10.1 Farm classification memorandum – Ted van der Gulik, Ministry of Agriculture

Mr. van der Gulik asked the board to send a letter to the province supporting an initiative that would allow local governments, or water purveyors, to request growers to not grow a crop in Level 3 drought conditions when there is a severe water shortage. The letter should further request that the province waive the income required to retain the farm status in the drought stricken region for that year only.

Mr. van der Gulik noted this was an issue last winter in the North Okanagan. Fortunately, the rains came in the spring and farmers were able to farm, but a policy such as this would allow us to be ready if a drought hits the Okanagan in coming years, he added.

There was much discussion around the implications of such a policy. The board agreed to send a letter supporting the principle issues of assisting farmers to save water in times of drought without losing their licence while supporting agricultural land.

***"THAT the Okanagan Basin Water Board staff draft a letter to the province regarding waiving the income requirement for farm status in Level 3 drought conditions."***

**CARRIED**

#### 11. NEXT MEETING

The next regular meeting of the Okanagan Basin Water Board will be held Dec. 7, 2010 at Regional District of Okanagan-Similkameen.

**12. ADJOURNMENT**

*"THAT there being no further business, the regular meeting of the Okanagan Basin Water Board of Nov. 2, 2010 be adjourned at 1:25 p.m."*

**CARRIED**

Certified Correct:		
Chair		Executive Director

DRAFT

## MEMORANDUM

Okanagan Basin Water Board  
Regular meeting  
December 7, 2010  
Agenda No: 5.1

File No. 0550.04

To: OBWB Directors  
From: Anna Warwick Sears, Executive Director  
Date: November 30, 2010  
Subject: **Executive Director Report**

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### Sewage Assistance Grants

We are continuing with our forensic review of the sewage grants program. After receiving a number of reports from individual municipalities, it became clear that there is a wide range of projects and arrangements spanning a 20 year window (each grant pays a portion of debt costs for a 20 year period). As a result, we are working with each recipient individually, collecting additional background materials and ensuring that calculations are done correctly on customized spreadsheets. Beginning in 2011, grant recipients will be able to invoice quarterly, and we will have much greater control of our cash flow management. So far, the response from recipients has been very positive.

### Watermilfoil Control Program

The Ministry of Environment gave the go-ahead to begin our winter rototilling program on November 18<sup>th</sup>. With some minor exceptions, both MOE and DFO have approved winter work in our historical treatment areas, but we will have to re-apply for the summer harvesting season and our work windows may be tightened in certain areas. Our approval letter is attached. We will be meeting with DFO and MOE in the early spring to discuss the process for next year – we would like to be as proactive as possible to avoid delays like this in the future.

Rototilling is now underway in the Vernon Arm of Okanagan Lake, Wood Lake, and Osoyoos Lake – we had some concern about a very early freeze up, but the warm weather at the end of the month gave some reprieve from ice build-up. Our trainee, Dave Caswell, put in two days work on the weekend in Osoyoos, and will be rototilling there throughout the month of December as our regular operator goes on vacation.

Dave Caswell and Melissa Tesche have been actively working on establishing a mapping system for our milfoil work. The goal is to better track annual work locations and intensity of effort, as well as provide a record for our compliance with Ministry of Environment and DFO. Each machine will be fitted with a GPS unit, collecting data that will be recorded on digital maps at the OBWB offices. The first unit is being trialed this month.

The milfoil group from Washington and Idaho are finalizing the international MOU on milfoil control, and we have signaled an interest in signing the final document. By participating, we commit to twice-yearly meetings, and ongoing information exchange.

### Osoyoos Lake Water Science Forum 2011

The first organizational meeting for the conference on Osoyoos Lake science was held on November 23. The steering committee includes representatives from the International Joint Commission,



Environment Canada, DFO, the US Army Corps of Engineers, the US Geological Survey, OBWB, and the Town of Osoyoos (Mayor Stu Wells). There are several objectives for the conference. It is a follow-up to the very successful Osoyoos Lake Water Science Forum held in 2007. It is also an important opportunity for consultation around the studies conducted for the renewal of operating orders for Osoyoos Lake. The public and stakeholder groups from Osoyoos, the greater Okanagan valley, and the Similkameen, need an opportunity to review and comment on the studies before policy decisions are made. Proposed dates are October 12-14, or Oct 16-18, 2011.

**National Water Webinar** - Tuesday, December 14, from 9:00am – 12:00pm PST

The Program on Water Issues at the Munk School of Global Affairs, University of Toronto is hosting a special presentation by Scott Vaughan, Commissioner of the Environment and Sustainable Development, Office of the Auditor General, followed by a panel discussion by leading Canadian water specialists. The Commissioner will table his report to Parliament early in December 2010. This half-day event is an opportunity to hear directly from Commissioner Vaughan soon after the report's release. The government's track record in monitoring the country's fresh water resources will be the key focus of the report and the Commissioner's remarks. Dr. Thomas Axworthy, President and CEO of the Walter and Duncan Gordon Foundation, will moderate a panel discussion of leading Canadian water specialists who will offer comments on both the report and the key water challenges facing the country. This event will be webcast starting at 9:30 PST at: <http://hosting.epresence.tv/MUNK>.

**Rainwater Management Guide for Homeowners**

One of the recommendations emerging from last months' Rain to Resource workshop was to prepare a rainwater management guide for homeowners – backyard, low-impact solutions that help recharge aquifers and reduce water pollution. Through Brock Dolman, our plenary speaker, we were introduced to the "Slow it. Spread it. Sink it!" guide, developed with grant funding by a Resource Conservation District of Santa Cruz County (RCDSCC). The RCDSCC has agreed to let us reproduce the guide (layout, artwork, pictures, and text) and adapt it to the Okanagan, *at no cost*. Our only investment would be to re-write portions of the text, change maps, and provide local case studies. We have about \$10,000-\$15,000 of NRCan/RAC funding remaining in our budget from the Rain to Resource workshop (depending on how the final accounting settles out), and it would be appropriate to use those funds to produce this guide. Depending on the budget, we may be able to produce some print copies, but it would primarily be digitally published and distributed through OKWaterWise. I have attached an excerpt from the original document, and some example full copies will be brought to the meeting.

**Recommendation:** *That the OBWB adapt the homeowners' "Slow it. Spread it. Sink it!" guide for rainwater management for the Okanagan Basin, using remaining funds from the Rain to Resource conference budget.*

**OBWB Meeting Schedule 2011**

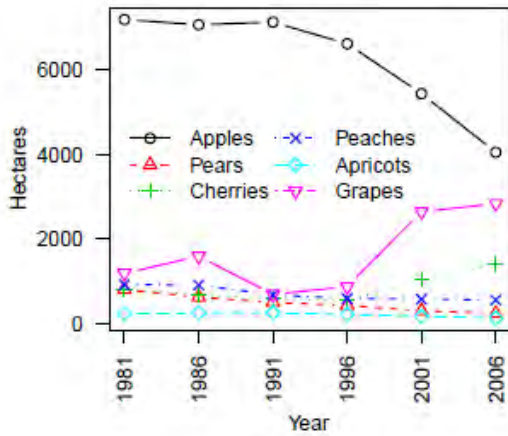
The proposed 2011 OBWB meeting schedule and locations are attached.

**Update on Regional Innovation Chair in Water Resources and Ecosystem Management**

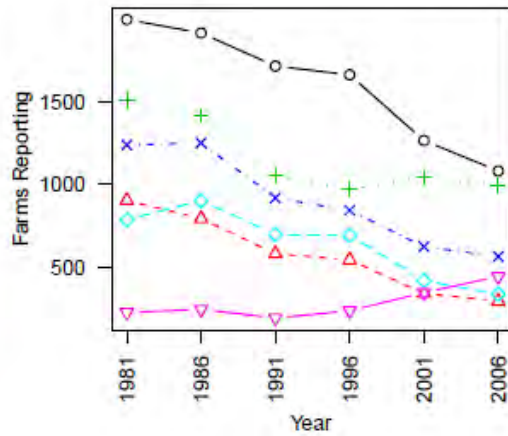
With the commitment of funding through the Okanagan Basin Water Board, UBC Okanagan is finalizing the "Water Research Chair" agreement with the province and the Real Estate Foundation. The formal, completed application was submitted to the Leading Edge Endowment Fund (LEEF) on November 25<sup>th</sup>, and will be evaluated by an external review committee before going to a final vote by the LEEF board. No obstacles are anticipated in this process. UBC Okanagan will begin the process of establishing the local advisory board in January. A big "splashy" announcement is planned for late winter/early spring.

Dr. Janmaat has been moving forward with his water economics research. He is a principal participant in the agricultural water economics study we have submitted as a proposal to Ag Canada. The graphs below are from a paper he is writing with one of his graduate students (used with permission).

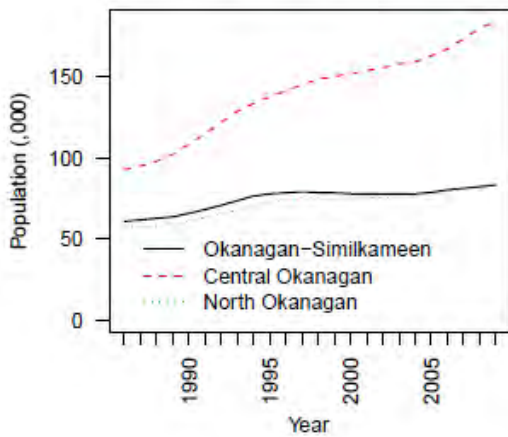
**a) Area by Crop, Okanagan Valley**



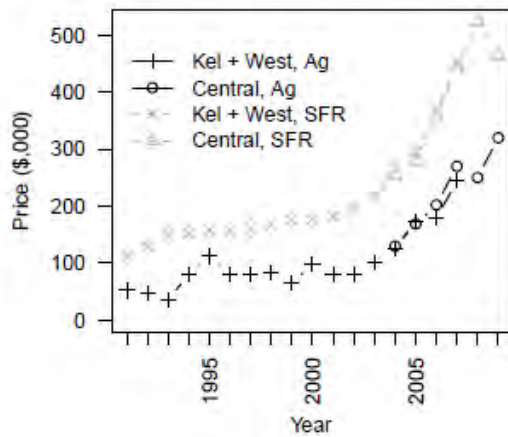
**b) Farms by Crop, Okanagan Valley**



**c) Okanagan Valley Population**



**d) Central Okanagan Property Prices**





November 18, 2010

File: R8-6919

Okanagan Basin Water Board  
1450 KLO Road  
Kelowna BC V1W 3Z4

Attention: Melissa Tesche

Re: Milfoil Harvesting in Okanagan valley large lakes

Staff with the Ministry of Environment have reviewed the above mentioned notification application. A Section 9 Water Act Approval is not required for the proposed work as long as the work is done in accordance with BC Regulation 204/88 – Part 7.

*As per section 42 (1) To protect habitat, a person making a change in and about a stream under this regulation, other than under section 44(1)(o) to (s) or (2), must make that change in accordance with terms and conditions specified by the habitat officer. **The terms and conditions you must follow for your works are outlined on the attached document and in the following text.** The term of these conditions is from November 18, 2010 to May 1, 2011. A new Water Act application will be required for works after that term. The numbers in front of each condition below relate to the attached terms and conditions document. A copy of this letter should be provided to the equipment operators to ensure they are aware of these conditions.*

In addition to the attached terms and conditions, these additional conditions must be followed.

42(1) a – The de-rooting polygon at Willow Beach is within 120m of Okanagan River in Osoyoos Lake (not >500m as stated in the application). The work window for this site, within 500m of the Okanagan River, is July 22 to August 31. De-rooting can occur outside of the work window at this site in 2010 (Steve Matthews and Jeff Guerin pers. comm.). However, next year this work window will need to be reconsidered.

42(1) a- April and May harvesting is not within the work window for birds (August 1 to March 31). Work must either be done inside the stated work window or ensure that birds and nests are not disturbed. This includes, but it not limited to, minimizing wave action to avoid disturbance or damage to nests, particularly floating nests in emergent vegetation (see below).

Birds listed under the Migratory Birds Convention Act, including but not limited to waterfowl, are moving through this area on northern migrations at this time of year and often are under nutritional stress. Shallow areas of lakes often are used as feeding stopovers. The milfoil harvester is slow and birds can move from the disturbance but equipment operators should be informed and develop adaptations to avoid disturbance, if issues become apparent. Some species of grebes are nesting during the proposed April and May de-rooting window. Grebes create floating nests that are attached to emergent vegetation like rushes and cattail. These nests can be destroyed or dislodged and eggs or young can be tipped out of nests by wake or waves. Noise disturbance may cause nest abandonment, even for a short period, that may increase predation of eggs. These situations must be avoided.

42(1) c – Any milfoil removed must be placed where it does not impact known or potential rare plant sites. Rare plants are not known to be impacted directly at the current locations for de-rooting. However, large piles of milfoil have been observed on top of rare plant locations at Vaseux Lake Park and can have a serious effect on growth and reproduction in this case. They may not be related directly to milfoil treatments or processes, but if de-rooted milfoil floats to shorelines and accumulates, either naturally or as a result of human beach cleanup activities, this issue should be addressed. Piling of harvested milfoil in the summer should avoid known or potential rare plant sites.

42 (1) d – Ensure equipment and machinery are in good operating condition (power washed), free of leaks, excess oil, and grease. No equipment refuelling or servicing should be undertaken within 30m of any watercourse or surface water drainage. Note that the following best management practice will help to avoid impacts from accidental leaks. “Ensure all hydraulic machinery entering a stream uses environmentally sensitive hydraulic fluids that are non-toxic to aquatic life and that are readily or inherently biodegradable.”

42 (1) d – Keep a spill containment kit readily accessible onsite in the event of a release of a deleterious substance to the environment. Train onsite staff in its use. Immediately report any spill of a substance that is toxic, polluting, or deleterious to aquatic life of reportable quantities to the Provincial Emergency Program 24-hour phone line at **1-800-663-3456**.

42(1) e – In areas where mussels have been identified nearby (see additional information at the end of this document and the Large Lake Protocol, below), ensure that de-rooting is confined very specifically to milfoil patches (i.e. avoid drift or other activities that might impact adjacent habitat). If any de-rooting is proposed within areas where there are known occurrences of Rocky Mountain Ridged Mussels, you must engage the services of a qualified professional to undertake a salvage and relocate them to an area with similar site conditions. Salvage must be consistent with DFO’s Protocol for Detection and Relocation of Freshwater Mussel Species (contact MOE Ecosystems staff to obtain this protocol). Follow up monitoring must be conducted for 2 years post relocation and

reports provided to Habitat Officer annually. Note that this requirement may be expanded to include other species of mussels in the future.

42(1) h – Recommendations within the Milfoil Management Plan (April 2009) must be followed.

42(1) h – The Department of Oceans Regional Operating Statement for Aquatic Vegetation Removal must be followed. This document can be found at: ([http://www.pac.dfo-mpo.gc.ca/habitat/os-eo/pdfs/aquatic\\_vegetation\\_e.pdf](http://www.pac.dfo-mpo.gc.ca/habitat/os-eo/pdfs/aquatic_vegetation_e.pdf)). We recognize that DFO's opinion was solicited and received for 2010, as recommended by this document when "mechanical disturbance of the bottom of the lake" is involved.

Please note that both timing windows and species data and zones can change annually. Ever year, you should review our website for most recent data. Up to date maps and information on risk of works can be found in the Okanagan Region Large Lakes Foreshore Protocol (ORLLFP, May 2009), relating to kokanee spawning, work windows, known mussel and rare plant locations. This document can be found at (<http://www.env.gov.bc.ca/okanagan/esd/ollp/ollp.html>). Work windows are available at the following location: <http://www.env.gov.bc.ca/wsd/regions/okr/wateract/workwindows.html>.

It is the proponent's responsibility to ensure their activities are in compliance with all legislation, including the Fisheries Act, the Migratory Bird Convention Act and the Wildlife Act, as well as with local government bylaws and regulations.

Milfoil treatment sites near Greata (not provided with the digital map but on paper maps submitted with the application) appear to be within the boundaries of Okanagan Lake Provincial Park, which extends into the water, and therefore treatments require a park use permit. The same issue occurs at Christie Memorial and Haynes Point. It is your responsibility to ensure a permit or other authorization is in place. In addition, summertime cutting at other parks may also require a park use permit. This should be considered prior to the 2011 application. BC Parks staff are preparing an authorization for this year.

Please ensure that a meeting is arranged to "formally determine a course of action for future treatments" as per the recommendation by Jeff Guerin from DFO before additional Water Act applications are made. The meeting should include DFO, and local ecosystems and fisheries staff.

Please ensure you and equipment operators have reviewed the following Terms and Conditions and are compliant with them when completing the above noted works.

If you have further questions please contact the undersigned at 250-490-8244.

Lastly, I have provided some additional information for your reference.

Yours truly,

A handwritten signature in black ink, appearing to be 'Orville Dyer', written in a cursive style.

Orville Dyer  
Ecosystems Biologist

OD/cl

cc: JeffGuerin Department of Fisheries and Oceans, 985 McGill Place  
Kamloops, B.C. V2C 6X6

## **Additional Information**

### **Fish Species at Risk**

Sue Pollard, Aquatic Species at Risk Specialist, was contacted in regard to threatened or endangered fish species. No fish species at risk were identified as being of concern in the milfoil treatment area at this time, but should be re-checked in the future.

### **Mussels**

Rocky Mountain Ridged Mussel currently is listed by the Species at Risk Act as Special Concern. An updated status report is being reviewed by the Committee on the Status of Endangered Wildlife in Canada and an updated designation is expected in the third week of November, 2010. The current thought is that it may be uplisted to Threatened or Endangered. Please check for the results of the assessment at the end of April. It could affect your work.

Little surveying for this species has been done in milfoil areas and little is known about potential impacts from milfoil or from milfoil de-rooting. Milfoil de-rooting has been identified as a potential threat in the draft management plan, based on anecdotal information and requires further investigation.

Shellfish are defined as “fish” in the Fisheries Act (federal). The Department of Fisheries and Oceans (DFO, Jeff Guerin) has provided the following email regarding the mussels.

“I have consulted informally with our local Species at Risk contact in DFO and Orville and I have also discussed this proposal further. I can now shed a little more light on DFO's perspective on this issue. For the end of this year's treatment program, DFO is comfortable with the OBWB carrying out the treatments as proposed (see previous DFO comments below) but we will need more discussion over the winter to determine what survey information will/may be required (re: RMRM presence/absence) in the future for proposed rototilling treatment sites. It is my understanding that the listing status of the RMRM is currently being reviewed by COSEWIC and also that a management plan for RMRM has been developed but is currently within the review process also. These initiatives have the potential to affect the legal status of this species related to protection levels and also the mitigative measures for activities which may impact the species. It is my understanding that Orville will also be providing further comments on this current application. Over the winter, the relevant agencies (MoE, DFO and the OBWB) should meet and formally determine a course of action for future treatments.”

In addition, Section 35 (1) of the *Fisheries Act* states that “No person shall carry on work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat” where “fish habitat” means “spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.” Fish includes:

- (a) “Parts of fish,
- (b) Shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and

- (c) The eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals.”

Concerns have been raised regarding the potential impacts of de-rooting on fish habitat and must be addressed.

Several sites are of potential concern based on known locations of Ridged Mussels or Floaters. The two species have been found together at at least one site and occur in proximity at other sites so the presence of Floaters may indicate potential habitat for Ridged Mussels. Due to data accuracy questions, it is not confirmed whether mussel and milfoil microsites or habitat actually overlap, or not, but additional care should be taken at these sites (i.e. avoid drift or other activities that might impact adjacent habitat at the edges of milfoil sites).

- Packing House Beach at the north end of Wood Lake: Western Floaters (not listed) have been reported in or near the milfoil treatment site.
- Kal Beach on Kalamalka Lake: Western Floaters have been reported.
- Vernon: Western Floaters have been identified at Phillip’s Corner and Ridged Mussels were reported at a location 500m to the west of Kin/Sandy Beach.
- Okanagan Lake Park: Western Floaters are reported.
- Peachland Highway Boat Launch: Historic mussel presence, species not identified.
- Crescent beach: Ridged mussels are present in or adjacent to milfoil treatment site.
- Summerland Marina: Ridged Mussels are present to the north of the marina.
- Okanagan Lake Marina: Ridged Mussels and Floaters present to the north of the marina.
- Christie Memorial and South Skaha: Ridged Mussels reported to the west of the site.
- Willow Beach: Western Floaters reported at 2 sites
- Inkameep Campground: Ridged mussels reported nearby.
- Haynes Point: Western Floaters reported. Historic records of Ridged Mussel nearby.

### **Migratory Birds Convention Act and Regulation**

<http://laws.justice.gc.ca/PDF/Statute/M/M-7.01.pdf>

<http://laws.justice.gc.ca/PDF/Regulation/C/C.R.C., c. 1035.pdf>

“Subject to subsection 5(9), no person shall (a) disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird”



## **Environmental Oil**

The Migratory Birds Convention Act states:

“5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.”

The Fisheries Act states:

(3) Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

Best management practices recommend the following to avoid contravention of the Migratory Birds Convention Act or the Fisheries Act.

<http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf>

- Ensure equipment and machinery are in good operating condition (power washed), free of leaks, excess oil, and grease. No equipment refuelling or servicing should be undertaken within 30m of any watercourse or surface water drainage.
- Ensure all hydraulic machinery entering a stream uses environmentally sensitive hydraulic fluids that are non-toxic to aquatic life and that are readily or inherently biodegradable.
- Keep a spill containment kit readily accessible onsite in the event of a release of a deleterious substance to the environment. Train onsite staff in its use. Immediately report any spill of a substance that is toxic, polluting, or deleterious to aquatic life of reportable quantities to the Provincial Emergency Program 24-hour phone line at **1-800-663-3456**.

# Slow it. Spread it. Sink it!

## A Homeowner's Guide to Greening Stormwater Runoff

Practical and Eco-Friendly Ways to Protect  
Your Property and the Environment from  
the Effects of Stormwater Runoff



RESOURCE  
CONSERVATION DISTRICT  
OF SANTA CRUZ COUNTY

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1st edition June 2009

**Compiled and Written by:** Resource Conservation District of Santa Cruz County  
**Funded by:** The State Water Resources Control Board 319(h)  
**Guide Design, Layout & Editing:** Blue Heron Design Group  
**Illustrations By:** Ritch Waldron, Wildways Illustrated  
Page Gruys

Copies of this guide can be obtained from:



**RESOURCE**  
CONSERVATION DISTRICT  
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820 Bay Avenue, Suite 128 · Capitola, CA 95010  
(831) 464-2950  
[www.rcdsantacruz.org](http://www.rcdsantacruz.org)

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## DID YOU KNOW?

Something as simple as water from a downspout contributes to a number of unwanted consequences.

Roofs and other impervious surfaces alter natural hydrology increasing the volume of stormwater runoff. This has a variety of impacts including streambank erosion and degraded wildlife habitat.

Other unintended outcomes associated with accelerated stormwater runoff are potholes, damage to structures, beach closures, and in severe cases, land and mud slides.

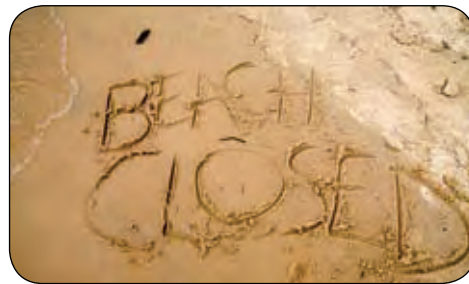
Fortunately there are simple low-cost things that we all can do to help decrease the volume of, and minimize the pollutants in, the runoff leaving our properties.

And many have the added benefit of beautifying our landscapes! Read on.

## DID YOU KNOW THAT THIS:



## CAN CONTRIBUTE TO THIS:



## SO WHY NOT TRY ONE OF THESE?

Here are just a few of the ideas you'll find in this guide to address stormwater runoff around your home.

Collect your roof water in a **RAIN BARREL**.



**Cost:** LOW  
**Installation difficulty:** EASY  
See page 24

Plant a **RAIN GARDEN** in your landscape.



**Cost:** LOW to MODERATE  
**Installation difficulty:** EASY to INTERMEDIATE  
See page 27

Install a **WATERBAR** on your driveway.



**Cost:** MODERATE  
**Installation difficulty:** INTERMEDIATE  
See page 35

Use **PERVIOUS PAVERS** when renovating your patio.



**Cost:** MODERATE - HIGH  
**Installation difficulty:** INTERMEDIATE  
See page 30

# Introduction

Before Santa Cruz County and its incorporated cities became the developed, unique communities they are today, the diverse collection of habitats including redwood forests, oak woodlands, native grasslands, riparian areas, wetlands, and sand dunes were virtually undisturbed. Rivers and streams, capturing and conveying rainwater, flowed from the mountains to the Monterey Bay along sinuous unchannelized corridors. Intact wetlands functioned as natural filters and buffers from major storms. Under these pre-development conditions as much as 50% of rainwater **infiltrated** (soaked into) the soil replenishing groundwater supplies, contributing to year-round stream flows, and sustaining plants. Another 40% was released into the atmosphere through **evapotranspiration** (evaporation of surface and ground water plus water loss from plants). Only about 10% contributed to **stormwater runoff** (rainwater that flows over the land surface). Our modern day urban centers and rural neighborhoods are made up of **impervious surfaces** (hardened surfaces that do not allow water to pass through) such as roofs, streets, and parking areas. When rain falls on these surfaces, it flows faster and in greater amounts than it would have under pre-development conditions

significantly increasing runoff and decreasing infiltration and evapotranspiration. Runoff is typically conveyed by pipes, driveways, streets, and storm drains to creeks and rivers, where it can cause flooding, road damage, stream erosion, and landslides. Runoff also carries sediments and other pollutants to beaches and rivers making them unsafe for recreation and wildlife. Though it starts as relatively clean rainwater, runoff collects pollutants as it flows over the landscape. For example excess lawn fertilizers, pet waste, soap from car washing, oil and grease from leaking engines, zinc from tires, and copper from brakes are just some contaminants that have been found in runoff in the county. It is important to note that nearly ALL storm drains in Santa Cruz County empty into local waterways **UNTREATED**.

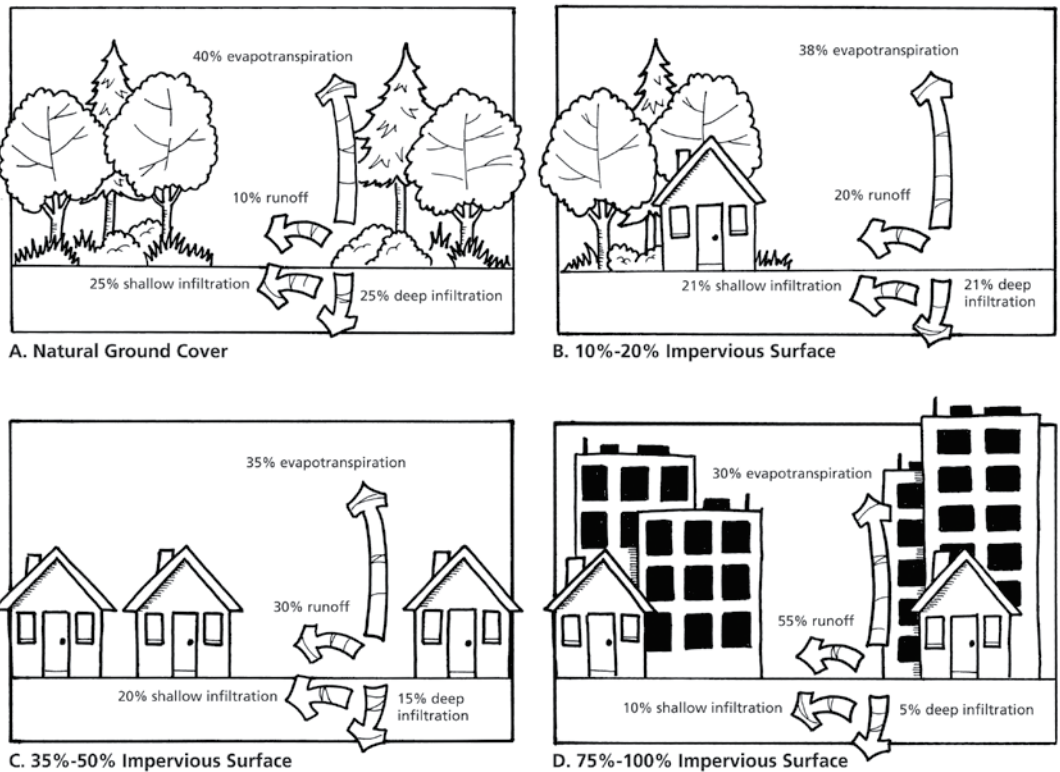


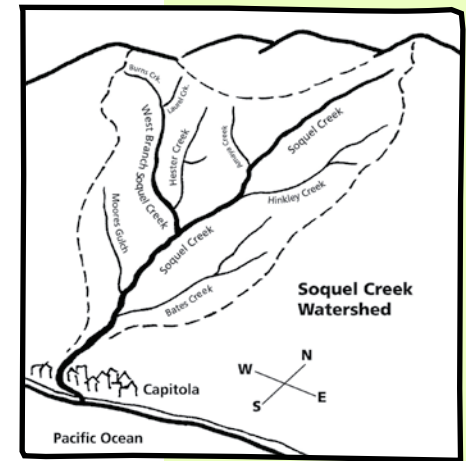
FIGURE 1: PERCENTAGE RUNOFF GENERATED FROM IMPERVIOUS SURFACES, ADAPTED FROM FISRWG 1998



RUNOFF FROM THE SURROUNDING HOMES AND STREETS FLOWS THROUGH THIS STORM DRAIN...



...AND CONTINUES DIRECTLY TO THE SAN LORENZO RIVER IN FELTON.



### DID YOU KNOW?

Just as a city, county, state, or even our personal property has boundaries, so does a watershed. We define a watershed as the land that contributes water to a given area. Watersheds are normally named after the river, creek, or stream that they drain to. For instance, residents of Felton are in the San Lorenzo River Watershed. If you live in Soquel Village or Capitola, you are in the Soquel Creek Watershed. All of the rainfall and runoff from a home drains into the watershed where it is located, eventually replenishing critical groundwater resources or flowing to the Monterey Bay.

One way to help reduce the negative impacts of runoff is by changing the way we approach new construction. However, since much of our county is already developed, a great benefit can be derived by addressing runoff from our existing homes. Just as with new construction, through good planning and designing we can accomplish the following:

- Conserve our natural resources
- Clean up our creeks, streams, and the bay
- Create healthier homes
- Protect infrastructure and reduce flooding

In addition to the information provided in this guide the Resource Conservation District of Santa Cruz County (RCD), in partnership with the USDA Natural Resource Conservation Service (NRCS) and other local organizations, offers free technical publications, educational workshops, on-site stormwater runoff evaluations, and cost-share assistance for implementing stormwater Best Management Practices (BMPs). For more information visit the RCD web site at [www.rcdsantacruz.org](http://www.rcdsantacruz.org).



## CHAPTER 1

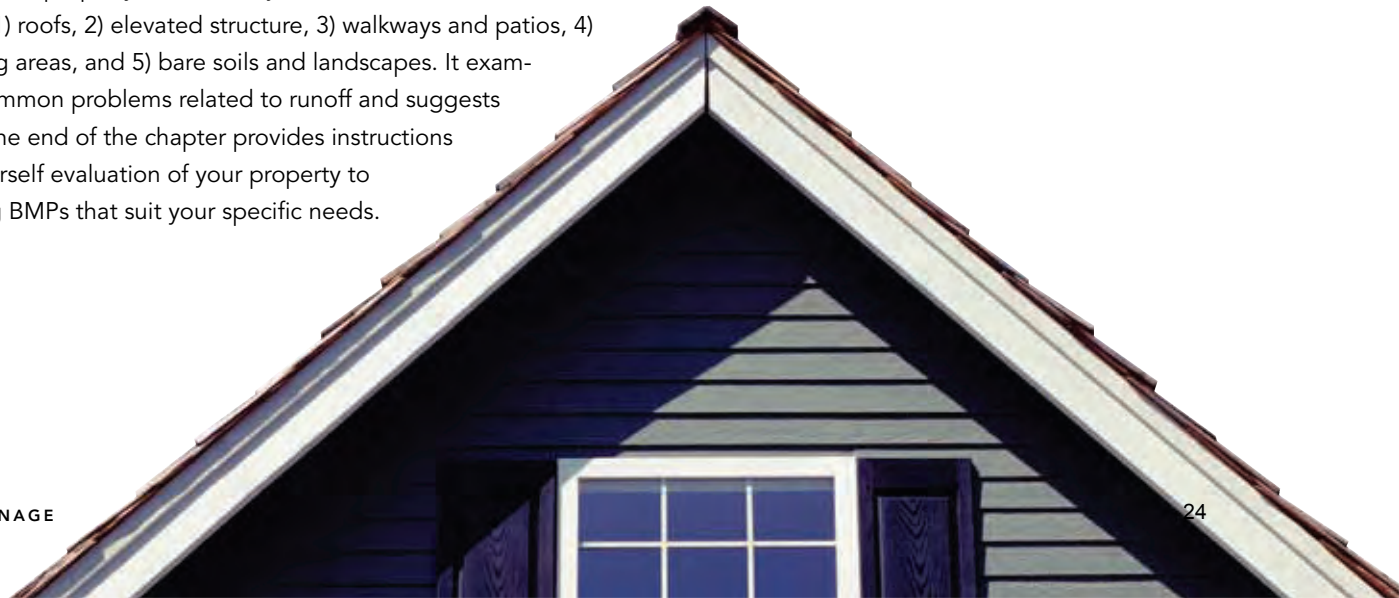
# UNDERSTANDING AND EVALUATING STORMWATER RUNOFF AROUND YOUR HOME

Most counties and cities in California are required by law to develop and submit a Stormwater Management Plan (SWMP) to the state. A SWMP must detail specific actions or practices, called Best Management Practices (BMPs) that will be implemented to minimize the effects of stormwater runoff. An example of a BMP is slowing runoff by temporarily storing it in a rain barrel or other containment system where it can be used to water plants or metered out over the landscape once the rains have passed. Another example is allowing runoff to sink into the ground by directing it to landscape vegetation where sediment can be filtered out and contaminants reduced through bioremediation (use of plants and microorganisms to biologically break down and thereby remove pollutants). Low Impact Development (LID) is another common term normally referred to in larger scale developments that incorporate “green” stormwater management practices. Although new construction will likely soon be required to utilize BMPs and LID, many buildable areas of the county are already developed. It is, therefore, essential that we each do our part to implement stormwater BMPs.

This guide will focus on BMPs that you can do at home. The BMPs are not complicated. They are geared toward residential homes or small developments and the underlying concepts behind them follow a simple mantra: Slow it. Spread it. Sink it!

- **Slow the runoff down**
- **Spread it out in planters, gardens, or over other pervious surfaces - do not confine runoff to pipes**
- **Sink it back into the ground!**

This chapter divides your property into five major areas or “zones” that can contribute to runoff: 1) roofs, 2) elevated structure, 3) walkways and patios, 4) driveways and parking areas, and 5) bare soils and landscapes. It examines each zone for common problems related to runoff and suggests potential solutions. The end of the chapter provides instructions for a simple do-it-yourself evaluation of your property to assist you in choosing BMPs that suit your specific needs.



## CHAPTER 4

### LOCAL PROJECTS



#### RAINWATER TANKS

**Location:** Scotts Valley

**Designer:** Earthcraft Landscape Design

**Installation:** Superior Pump Company

**Project Description:**

This is a 30,000-gallon rainwater harvesting system that has reduced erosion, sedimentation, and peak flows into Granite Creek. It has also increased aquifer recharge and will provide for the owner's annual irrigation (drought tolerant plantings, large organic vegetable garden and orchard, etc.)



#### RAIN GARDEN/DRY CREEK BED

**Location:** Santa Cruz

**Designer:** Love's Gardens

**Installation:** Love's Gardens

**Project Description:** The rain garden and dry creek bed stopped flooding of the front path to the house and now keep water on-site. Runoff infiltrates and is stored in the soil for later use by drought tolerant plants and no longer carries potential pollutants from the street to the Monterey Bay.



#### BIORETENTION POND/RAIN GARDEN

**Location:** Watsonville

**Designer:** Ausonio Incorporated of Castroville

**Project Description:** The bioretention pond treats runoff and reduces peak flows from a small parking area at Smith and Vandiver, a company in Watsonville that makes and distributes shower, bath, and body care products.

## VEGETATED SWALE

**Location:** Watsonville

**Designer:** DES Architects and Engineers

**Project Description:** The vegetated swales capture automobile-related pollutants in runoff from the upper parking lot at Pajaro Valley High School which is located in the coastal zone between Struve Slough and Hanson Slough in Watsonville. The intentional lack of curbs allows the water to flow directly into the swale.



## VEGETATED SWALE/BIORETENTION

**Location:** Watsonville

**Designer:** Ifland Engineers

**Project Description:** The Strawberry Business Center in Watsonville uses a neat swale/bioretention system. The plants still need a bit of time to fill in the voids. This setup would work well for folks who want a xeriscape feature that doubles as a rainwater conduit. It was very easy to build and is also easy to maintain.



## VEGETATED SWALE/BIORETENTION

**Location:** Boulder Creek

**Designer:** Central Coast Wilds

**Installation:** Central Coast Wilds

**Project Description:** This newly installed vegetated swale sits at the base of a slope above a retaining wall to help divert and infiltrate water on the slope. The gentle swale is surrounded by native *Juncus effusus* plants with native *Aster chilensis* on either side of that. The aster will eventually form a ground cover, but mulch is used to protect the bare soil until then.





## SWALE/PREVIOUS HARDSCAPE

**Location:** Santa Cruz

**Designer:** Love's Gardens

**Installation:** Love's Gardens

**Project Description:** The original impervious concrete path was removed, and the pieces were used to create an urbanite path that allows water to infiltrate. Water that was draining to the street is now diverted to the path and into the landscape (see flexible black pipe extending from the soil bed at the start of the path). The use of native, drought tolerant plants in combination with the extra water now stored in the soil allowed the irrigation system to be removed thus conserving more water. All of these practices support cleaner water and reduced flooding by limiting runoff leaving the site.



## UNDERGROUND WATER STORAGE/GROUNDCOVER

**Location:** Santa Cruz

**Designer:** Habitat Gardens

**Installation:** Habitat Gardens

**Project Description:** This rainwater storage system collects rainwater from two downspouts on the front of the house. The water passes through a debris filter and then into a 3,000-gallon underground water storage cistern. The water is used to irrigate the landscape providing nutrient-rich water to vegetation and local wildlife, as opposed to commercially treated water that can contain chlorine and other additives. The overflow from the cistern empties into the seasonal pond located on top of the cistern to allow for more rainwater storage. When the seasonal pond is full, it overflows down a seasonal creek bed or rock swale. The runoff that eventually makes its way to the street has been significantly reduced through infiltration.



## GROUND COVERS/EROSION CONTROL BLANKETS

**Location:** Santa Cruz

**Designer:** Habitat Gardens

**Installation:** Habitat Gardens

**Project Description:** This project used jute netting to help control erosion until the plants were established. Mexican Sage and jute netting covered with shredded redwood bark were used.



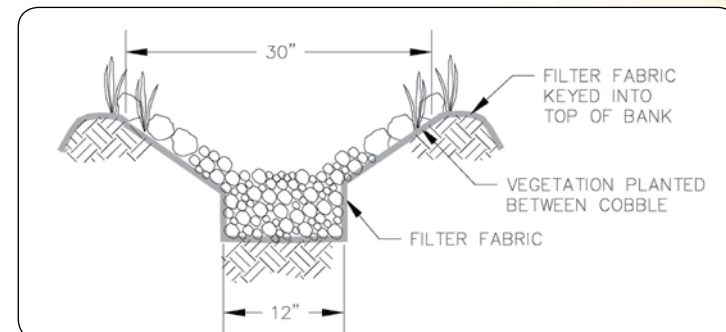
## SWALE/BIOFILTER

**Location:** Soquel

**Designer:** Fall Creek Engineering

**Installation:** Homeowner

**Project Description:** The owner wanted to incorporate green stormwater techniques for the new ADU (Accessory Dwelling Unit or studio) roof as well as the existing house. As part of this project the driveway was replaced with pervious pavers. Runoff overflow from the pervious pavers, the existing house roof, and the new ADU roof were all directed towards a long dry swale/biofilter. This swale serves as an all weather pathway into the backyard and as a stormwater feature. This swale has been effective in reducing runoff from the site through means of infiltration and improves water quality through biofiltration.



# RESOURCES GUIDE

## AGENCIES/NONPROFITS

### Coastal Watershed Council

P.O. Box 1459  
Santa Cruz, CA 95061  
(831) 464-9200  
www.coastal-watershed.org

### Ecology Action

PO Box 1188  
Santa Cruz, CA 95061-1188  
(831) 426-5925  
www.ecoact.org

### Low Impact Development Center California Branch Office

P.O. Box 747  
San Luis Obispo, CA 93406-0747  
(805) 540-9772  
www.lowimpactdevelopment.org

### Resource Conservation District of Santa Cruz County (RCD)

820 Bay Avenue, Suite 128  
Capitola, CA 95010  
(831) 464-2950  
www.rcdsantacruz.org

### Save Our Shores

345 Lake Avenue, Suite A  
Santa Cruz, CA 95062  
(831) 462-5660  
www.saveourshores.org

### Surfrider Foundation

2222 East Cliff Drive #234  
Santa Cruz, CA 95062  
(831) 476-7667  
www.surfridersantacruz.org

### USDA-Natural Resources Conservation Service (NRCS)

820 Bay Avenue, Suite 128  
Capitola, CA 95010  
(831) 475-1967  
www.nrcs.usda.gov

## LOCAL WATER PURVEYORS

Many of the water districts offer rebates for water saving techniques including rain catchment and low water use landscaping

### Central Water District

P.O. Box 1862  
Aptos, CA 95003  
(831) 688-2767

### City of Santa Cruz Water Department

212 Locust Street, Suites A-D  
Santa Cruz, CA 95060  
(831) 420-5200  
www.ci.santa-cruz.ca.us/wt/

### City of Watsonville Public Works

250 Main Street  
Watsonville, CA 95076  
(831) 768-3100  
www.ci.watsonville.ca.us

### Lompico County Water District

11255 Lompico Road  
Felton, CA 95018  
(831) 335-5200

### Pajaro Valley Water Management Agency

36 Brennan Street  
Watsonville, CA 95076  
Ph: (831) 722-9292  
www.pvwma.dst.ca.us

### San Lorenzo Valley Water District

13060 Highway 9  
Boulder Creek, CA 95006  
(831) 338-2153  
www.slvwd.com

### Scotts Valley Water District

2 Civic Center Drive  
Scotts Valley, CA 95066  
(831) 438-2363  
www.svwd.org

### Soquel Creek Water District

5180 Soquel Drive  
Soquel, CA 95073  
(831) 475-8500  
www.soquelcreekwater.com

## PROFESSIONAL ASSOCIATIONS

### California Landscape Contractors Association

1491 River Park Drive, Suite 100  
Sacramento, CA 95815  
(916) 830-2780  
www.clca.org

CLCA can help you find a qualified and licensed landscape professional to assist with your home drainage needs.

### California Native Plant Society Santa Cruz Chapter

P.O. Box 1622  
Santa Cruz, CA 95061  
www.cruzcnps.org

### Certified Professionals in Erosion and Sediment Control, Inc. (CPESC)

49 State Street  
Marion, NC 28752-4020  
(828) 655-1600  
www.cpesc.org/cc-info/cc-dir-list.asp

\*Link to CPESC professionals in California who can assist you with erosion and drainage concerns

### Ecological Landscape Association

1257 Worcester Road #262  
Framingham, MA 01701  
(617) 436-5838  
California chapter web site  
www.ecolandscaping.org/ela-CA.html

Contact the local ELA chapter for information on regional landscape professional

### The Monterey Bay Green Gardener Program

P.O. Box 1188  
Santa Cruz, CA 95061-1188  
(831) 426-5925  
www.green-gardener.org

MBGGP can help you find a certified green gardener

## REGULATORY AGENCIES (COUNTY AND CITIES)

### City of Capitola

420 Capitola Ave  
Capitola, CA 95010  
(831) 475-7300  
www.ci.capitola.ca.us

### City of Santa Cruz Planning and Community Development

809 Center Street  
Santa Cruz, CA 95060  
(831) 420-5100  
www.ci.santa-cruz.ca.us

### City of Scotts Valley Building Department

1 Civic Center Dr.  
Scotts Valley, CA 95066  
(831) 440-5640  
www.scottsvalley.org

### City of Watsonville

250 Main St  
Watsonville, CA 95076  
(831) 768-3050  
www.ci.watsonville.ca.us

### County of Santa Cruz Planning Department

701 Ocean Street  
Santa Cruz, CA 95060  
(831) 454-2580  
www.co.santa-cruz.ca.us

## REGULATORY AGENCIES (OTHER)

### California Coastal Commission

(Central Coast District Office)  
725 Front Street, Suite 300  
Santa Cruz, CA 95060-4508  
(831) 427-4863  
www.coastal.ca.gov

### California Department of Fish and Game (CDFG)

P.O. Box 47  
Yountville, CA 94599  
(707) 944-5500  
www.dfg.ca.gov

\*CDFG should be contacted for any work done within a stream or riparian corridor

### National Marine Fisheries Service (NOAA Fisheries)

777 Sonoma Ave.  
Santa Rosa, CA 95404  
(707) 575-6050  
www.nmfs.noaa.gov

NOAA must be consulted when steelhead or salmon are potentially affected by an activity

### Regional Water Quality Control Board Central Coast (Region 3 – Covers Santa Cruz County)

895 Aerovista Place, Suite 101  
San Luis Obispo, CA 93401  
(805) 549-3147  
www.swrcb.ca.gov

### U.S Army Corps of Engineers (ACOE)

333 Market Street, 8th Floor  
San Francisco, CA 94195  
(415) 977-8462  
www.usace.army.mil

ACOE regulates the discharge of dredged or fill materials in most creeks, rivers, and wetlands

### US Fish and Wildlife Service (Region 8 – Covers Santa Cruz County)

2493 Portola Road, Suite B  
Ventura, CA 93003-7726  
(805) 644-1766  
www.fws.gov



### Tentative Board Meeting Schedule for 2011

Month	Date	Location
January	Tuesday Jan 4	Canceled
February	Tuesday Feb 1	Regional District Central Okanagan, Kelowna
March	Tuesday March 1	Regional District of Okanagan Similkameen, Penticton
April	Tuesday April 5	Regional District North Okanagan, Coldstream
May	Tuesday May 3	Regional District Central Okanagan, Kelowna
June	Tuesday June 7	Regional District of Okanagan Similkameen, Penticton
July	Tuesday July 5	Regional District North Okanagan, Coldstream
August	Tuesday August 2	Regional District Central Okanagan, Kelowna
September	Tuesday September 6	Regional District of Okanagan Similkameen, Penticton
October	Tuesday October 4	Regional District North Okanagan, Coldstream
November	Tuesday November 1	Regional District Central Okanagan, Kelowna
December	Tuesday December 6	Regional District of Okanagan Similkameen, Penticton

## MEMORANDUM

Okanagan Basin Water Board  
Regular meeting  
December 7, 2010  
Agenda No: 5.1.1

File No. 0550.04

To: OBWB Directors  
From: Anna Warwick Sears, Executive Director  
Date: November 30, 2010  
Subject: **Water Supply & Demand Project Update**

---

**Scenarios:** We have funding from NRCan (RAC) to undertake more climate scenarios and develop a report on the outcomes. The first round of scenarios (in Phase 2), focused on a middle-of-the-road climate future, and fairly conservative estimates of conservation and population growth. For example, the three-year drought model was not as extreme as the historical drought of the 1930s. As a result, we had fairly moderate responses – some real concerns for fish flows and low snow packs, but we did not get a sense of what the extremes might be like.

For this round, experts at Environment Canada and Agriculture Canada have created additional future climate data sets for us to test, including a recreation of the 1930s-level drought conditions. We will run the drought model for a five-year drought, and can examine the impacts in any of those years. Another innovation is to allow for more urban-sprawl, with respect to how it impacts water use. In Phase 2, most of the population growth was confined to the existing urban boundaries. However, much of the current new development of single family homes (with high water use) is being targeted to undeveloped hillsides that have never been irrigated. This represents a substantial increase in demand, so is being incorporated into the model.

There are many different factors to consider, so the committee sought to focus down on the most critical issues, and how they interact with each other. We want to design scenarios and the resulting report so that they answer public questions in the clearest way possible.

**Communications:** We are now just waiting until the Okanagan Water Viewer tool is completed before we launch the new OBWB Water Supply & Demand webpage. The webpage will be an access point for all the resources from the project, and the Water Viewer will allow an in-depth study of the data. Work continues on the Local Government Guide to the Water Supply & Demand Project. That report will detail what data and information are available for local government planning and engineering staff to answer different practical questions or inform OCP development and other processes.



## MEMORANDUM

Okanagan Basin Water Board  
Regular meeting  
Dec. 7, 2010  
Agenda No: 5.2

File No. 0550.04

To: Board of Directors  
From: Nelson R. Jatel, Water Stewardship Director  
Date: November 30, 2010  
Subject: **Water Stewardship Director's Report – November**

---

This memo provides an update on some of the ongoing activities of the OBWB's Water Management Program.

### 1.0 OKANAGAN WATER STEWARDSHIP COUNCIL, TECHNICAL ADVISORY COMMITTEE

The November Stewardship Council meeting marked a historic first joint meeting with the Board of Directors. The Council is responsible for providing strategic and technical advice to the Board; especially with respect to defining problems and determining priorities, economic feasibility, responsibility, necessary support legislation and required action.

The opportunity to have Council and Board members participate together was well-received with positive comments from the Board and Council. It has been recommended that staff organize one joint meeting per year. Drew Kaiser presented on the recent work plans for Mission Creek and some of the project work recently completed with the support of the OBWB's Water Conservation and Quality Improvement Grant initiative.

December's meeting has a number of important topics scheduled for discussion including: Sustainable Water Strategy review (due to be completed in February), Okanagan Source Protection, review of the AAFC Innovative Approaches Program grant submission and the proposed Bill S-11 (First Nations Safe Drinking Water Act).

### 2.0 PROJECT UPDATES

#### 2.1. Streamlined Water Use Reporting Tool

The beta-version of the web-based reporting tool was launched in Victoria on November 28<sup>th</sup>. Mr. Jatel met with B.C. government staff on a range of technical issues relating to the project including: integration of BCeID, the legality of collected project data use for billing, water utility participation, and reconciliation of data sets – between SWURT and the B.C. government.

On Monday, December 6<sup>th</sup>, a workshop with five Okanagan water purveyors will test the beta-version of the software. The completed web reporting tool is planned to be implemented in January 2011. The development of a communication strategy and a news conference including representation from OBWB, BC Government, and Okanagan water utilities is being planned for the end of January.

## 2.2. Okanagan Groundwater Monitoring Project

At the request of the Township of Spallumcheen, project team members (Mr .Jatel and Mr. Oleg Ivanov) presented project details to staff. Staff who attended the meeting had many good questions and were generally supportive of the initiative. A second meeting has been scheduled to present the project details to the Committee of the Whole on December 13<sup>th</sup>.

## 2.3. Hydrologic Connectivity Study

The project steering committee met with the consulting team on November 12<sup>th</sup>. The project lead, Summit Environmental Consultants Inc., presented on the project details and outlined the use and functionality of the Water Evaluation and Planning (WEAP) model.

### WEAP Highlights

<b>Integrated Approach</b>	Unique approach for conducting integrated water resources planning assessments
<b>Stakeholder Process</b>	Transparent structure facilitates engagement of diverse stakeholders in an open process
<b>Water Balance</b>	A database maintains water demand and supply information to drive mass balance model on a link-node architecture
<b>Simulation Based</b>	Calculates water demand, supply, runoff, infiltration, crop requirements, flows, and storage, and pollution generation, treatment, discharge under varying hydrologic and policy scenarios
<b>Policy Scenarios</b>	Evaluates a full range of water development and management options, and takes account of multiple and competing uses of water systems
<b>User-friendly Interface</b>	Graphical drag-and-drop GIS-based interface with flexible model output as maps, charts and tables

The goal of this project is to develop a decision support tool that models how any one of 25 water utilities (referred to as user nodes in this RFP) are connected within the Okanagan Basin. The scope of the analysis involves exploring 25 demand nodes – 20 public utilities and five private utilities. The model will characterize how each demand node (water utility) is connected:

- within the Okanagan hydrologic system,
- within the FITFIR water license system, and
- within a chain of upstream and downstream demand nodes.

This project will develop a tool to illustrate and answer fundamental questions about how water utilities are connected within the Okanagan Basin. This project is intended to illustrate how water management actions (i.e. changing water storage, demand management, changes to water licenses, and change in environmental flows) are interconnected within the basin. The model requires the consideration of groundwater extraction (largely unknown), evapotranspiration and precipitation variability. The developed tool will require the ability to manage varying degrees of uncertainty and model complexity.

## MEMORANDUM

Okanagan Basin Water Board  
Regular meeting  
Dec. 7, 2010  
Agenda No: 5.3

File No. 0550.04

To: OBWB Directors  
From: Corinne Jackson  
Date: November 30, 2010  
Subject: **Communications and Research Coordinator Report**

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### Youth Leadership Forum

Plans for a youth leadership conference are underway. Letters will be going out to high schools within the Okanagan Basin in early December, inviting nominations of Grade 10 and 11 students to participate in Eau!kanagan.

The forum is intended to meet a number of objectives: 1) inform Okanagan youth – who are already interested in water/the environment/sustainability – about local water issues, 2) engage these youth in helping protect our water, and 3) work with them to spread the message.

The one-day event will be held around World Water Week/Spring Break (March 18 or April 1, 2011). Participants will receive a certificate of participation to include in their graduation portfolio. In turn, we are requesting that each participating student conduct five hours of outreach in their school, or to another school in the region, to share what they have learned and encourage being waterwise. By creating a roster of students interested in water issues, we will also have young people we can potentially hire to assist with WaterWise community outreach events in the summer.

### Drinking Water Week

BC Water and Waste Association approached the OBWB, inviting staff to participate in a province-wide committee to help plan, promote and assist with Drinking Water Week, May 1 to 7, 2011. I have been assisting with preparing communication plans and materials in anticipation of DWW.

The committee is hoping local governments and water utilities will participate in DWW events, for example with proclamations, tours of treatment plants, and reservoirs. Advertising and a media launch are also being discussed.

## Update on other communication activities

Materials from October's "From Rain to Resource" workshop and tradeshow, are now available on the Water Board's website at [http://www.obwb.ca/rain\\_to\\_resource/](http://www.obwb.ca/rain_to_resource/), including presentations, videos, news clippings and news releases. Photos from the event are also available in the [photo gallery](#) of our OKWaterWise Facebook page.

It recently came to our attention that a presentation made by the OBWB's Dr. Warwick Sears to a class at UBCO was the inspiration behind a beautifully crafted music video. The video, "Xeriscape Gardens," was created by geography student, Graham Campbell, as a class project but has also been entered in BC Hydro's Invent the Future contest. Inspired ourselves, staff have been helping promote the video on Facebook and Twitter, but also by contacting local media. The story has been picked up by newspaper and radio and, currently, the video sits at #1 in the song category. The video, which gives a nod to the Okanagan Xeriscape Association, can be found at: [www.inventthefuture.ca/songs.php?sort=popular&](http://www.inventthefuture.ca/songs.php?sort=popular&). If you have a moment, take a look and vote. It's a fantastic communication piece for a youth audience – one that we will be promoting through Okanagan WaterWise.

The screenshot shows the 'INVENT THE FUTURE CONTEST 2010' website. The 'AUDIO ENTRIES' section is active, displaying a list of entries. The 'XERISCAPE GARDENS' entry is the most popular, with 1,093 votes and rank 1. Below the list, a video player shows the 'Xeriscape Rap' by TheGeoCrimCee. The video player includes a play button, a progress bar at 0:03 / 1:25, and a volume icon. To the right of the video player is a sidebar for the 'XERISCAPE GARDENS' entry, showing it was posted by Graham Campbell on November 14, 2010, at 6:00 pm. The sidebar text describes the video as promoting sustainable gardening practices and water conservation. At the bottom of the sidebar, it says 'Do get educated on plants that are suitable to your climate, and that sometimes cost less to a resource.'

## Summary of Recent Media

- Oct. 27 "From Rain to Resource" (invu w/ Brock Dolman), AM 1150 - *Jacked-in (afternoon drive show)*
- Oct. 28 "Public needs to think more about rainwater management," *Kelowna Capital News*
- Oct. 28 "Stormwater cause of great concern," *Castanet*
- Oct. 29 "Using rain as resource with climate change" (invu w/ Chris Johnston), *CBC Radio - Daybreak South (morning show)*
- Oct. 29 "Hydrological illiteracy stops utilizing of valuable resource," *Kelowna Capital News*
- Oct. 29 "Municipalities touting rain garden option to developers," *Kelowna Capital News*
- Oct. 29 "Turning rain into a resource," *CHBC News*

- Oct. 29 "Wild weather beating path to B.C.," *Kelowna Daily Courier*
- Nov. 2 "Protect Okanagan Lake from excessive urban runoff," *Kelowna Capital News*
- Nov. 2 "Taxpayers won't feel budget increase," *Kelowna Capital News, Vernon Morning Star*
- Nov. 4 "Divergent interest groups work together on restoration project," *Kelowna Capital News*
- Nov. 4 "Water runoff shouldn't be wasted," *Kelowna Capital News – Judie Steeves column*
- Nov. 9 "Water Board considers cooperation with US groups to battle milfoil," *Osoyoos Times*
- Nov. 10 "OBWB joins group looking to eliminate invasive aquatic weeds," *AM1150, SunFM Penticton*
- Nov. 24 "Economy vs environment," *103.9 The Juice (Kelowna)*
- Nov. 25 "Opinion poll shows fresh water supply a concern in B.C.," *Kelowna Capital News*
- Nov. 25 "Water a precious resource says survey," *Kelowna Daily Courier*
- Nov. 26 "Hip hop environmental plea," *Kelowna Capital News*
- Nov. 29 "UBCO students' rap is number one," *The UBC Phoenix*

**Summary of Upcoming Presentations**

- April 18 BCWWA Annual Conference and Trade Show (Kelowna) – Dr. Warwick Sears, Mr. Jatel

**Recently Delivered Presentations**

- Oct. 28-29 From Rain to Resource workshop/tradeshow (Kelowna) – Dr. Warwick Sears (panel member)
- Oct. 28-29 From Rain to Resource workshop/tradeshow (Kelowna) – Chair Wells, Mr. Jatel and Dr. Warwick Sears (emcee/session chairs)
- Nov. 16 Building Sustain-Able Communities (Kelowna) – Dr. Warwick Sears (panel member)
- Nov. 29 Streamlined Water Use Reporting Tool to BC Ministry of Environment (Victoria) – Mr. Jatel

## MEMORANDUM

File No. 0550.04

To: OBWB Directors  
From: Anna Warwick Sears, Executive Director  
Date: November 30, 2010  
**Subject: OBWB Budget Features for 2011-2012 - revised**

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The following memo outlines the features of the OBWB 2011-12 budget, as revised at the board's request at the November 2<sup>nd</sup> meeting.

### Requisition

Next year's budget focuses on priority water programs and services. The most recent audited financial statements (2009-10) for the delivery of the three primary OBWB services (watermilfoil control, sewage facilities grants program and water management) were presented at this year's AGM in September.

The following recommendations build on current service levels, and emphasize a responsible management framework and efficient operations. Recommendations for Board consideration for 2011-12 have the following features:

- The overall OBWB requisition is \$3,722,850.
- As a percentage of assessments, the requisition is nearly unchanged from that of the previous two years, at about 6.2 cents/\$1000.
- There is a net 4.4% increase over 2010-11, primarily attributable to the commitment for the UBCO Water Research Chair.

### Overhead Charges

The biggest change to our operations budget is an increase in financial administration costs for accounting and auditing services. Under new RDCO policy, we are charged a cost-recovery hourly rate for these services, increasing our fees from \$30,000 to \$75,000. I believe that these charges are reasonable, and we are receiving a very high level of service. We should be able to partly compensate for these costs through external project grants, but have not built this offset into the proposed budget.

RDCO financial services to OBWB include administration of the sewage facilities infrastructure grants program, accounts payable, and employee payroll and benefits. The RDCO CFO functions as the OBWB CFO with respect to the annual audit, and certain government grants. Other overhead costs, including building and IT systems and support, phones, and use of photocopiers, have not increased.

We continue to overhaul our financial systems, with new software and organizational structures that better match the administration of our projects and external grants. The new software should reduce accounting hours and lower costs for 2012-13.

### **Sewage Facilities Grant Program**

The requisition for sewage facilities grants is 3.5 cents/\$1000 assessment, close to that of 2010. The requisition ceiling for this program is 21 cents/\$1000. The reserve fund for sewage facilities grants, as of the 2010 audit, is \$993,212.

We benefited this year by a reduction in interest rates through the Municipal Finance Authority (MFA). We are undertaking a financial review of the program, and revising our grant retirement projections to 2030, based on the information we receive from local governments. We expect a grant application this year for sewerage in West Kelowna.

### **Watermilfoil Control Program**

The requisition for watermilfoil is 0.91 cents/\$1000 assessment, up from 0.86 cents/\$1000 last year. The increase reflects financial administration costs and additional budget to train a new employee to prepare for upcoming staff retirements. No major equipment expenses are expected for the coming fiscal year. There is approximately \$250,000 in the equipment reserve. We will review the tangible capital assets analysis over the next several months to determine the optimal level for the reserve (which is intended to cover replacement costs).

### **UBCO Water Research Chair**

This year, the three Okanagan regional districts passed a consensus resolution to fund a new Water Research Chair at UBC Okanagan, through the OBWB. This is a commitment of \$100,000/yr for 5 years, beginning in 2011-2012 (the current budget). This commitment is equivalent to 0.2 cents/\$1000.

### **Water Management**

The requisition for water management is 1.6 cents/\$1000 assessment, about the same as 2010. As with watermilfoil, some additional budget was needed to cover administration and cost of living. Implementation funding is included for the top priority water management projects reviewed by the Board of Directors and identified in the Sustainable Water Strategy.

Projects for the coming year include drought management, groundwater, water pricing, water education, the water supply and demand project, and funding to host a water science conference in Osoyoos in anticipation of the renewal of operating orders for Osoyoos Lake/Zosel Dam. We anticipate additional matching grants for all our projects from senior government agencies. The ceiling for the watermilfoil, UBC-O water research chair, and water management programs together is 3.6 cents/\$1000, and these currently total 2.7 cents/\$1000.

### **Water Supply & Demand Project**

As of 2010-2011, OBWB has taken over project management of the Water Supply & Demand project. We continue to have strong financial support from senior government, and the project is guided by an interagency management committee. However, now

that we are managing the budget, we are showing these funds in our budget report (previously, these were reviewed by the OBWB under a separate project budget).





**Regional District Provisional Assessment  
Budget For The Year Ending March 31, 2012**

	Central Okanagan	Okanagan Similkameen	North Okanagan	Total
2010 Authenticated Assessments	34,928,708,077	13,054,774,204	11,622,287,913	59,605,770,194
Percentage Share	0.58599542	0.21901863	0.19498595	1.00
<b>REQUISITION</b>				
Water Management	568,451	212,461	189,148	970,060
Aquatic Weed Control	318,723	119,124	106,053	543,900
Sewerage Assistance	1,235,800	461,886	411,204	2,108,890
UBCO Water Research Chair	58,600	21,900	19,500	100,000
<b>Total</b>	<b>2,181,574</b>	<b>815,371</b>	<b>725,905</b>	<b>3,722,850</b>
<i>Total Prior Year Requisition</i>	<i>2,092,554</i>	<i>773,116</i>	<i>694,130</i>	<i>3,559,800</i>



**Budget for the year ending March 31, 2012**

	Water Management	Water Supply & Demand	Water Milfoil	Sewerage Facilities	UBCO Water Research Chair	Consolidated	Consolidated Prior Year Budget	Consolidated 2010 Audited Year End
<b>Revenues</b>								
Requisitions	\$ 970,060	0	\$ 543,900	\$ 2,108,890	\$ 100,000	\$ 3,722,850	\$ 3,559,800	\$ 3,424,301
Grant income	0	50,000	0	0	0	50,000	259,384	821,018
Interest income	3,000	0	0	10,000	0	13,000	55,000	16,265
Sale of services	0	0	0	0	0	0	0	2,674
Transfer from reserve	0	30,000	0	0	0	30,000	327,274	0
	973,060	80,000	543,900	2,118,890	100,000	3,815,850	4,201,458	4,264,258
<b>Expenses</b>								
Assistance grants	300,000	0	0	2,098,890	100,000	2,498,890	2,578,074	2,129,107
Administration	0	0	0	0	0	0	0	0
Amortization	0	0	35,000	0	0	35,000	35,000	34,952
Transfer amortization to tangible capital assets (note 1)	0	0	(35,000)	0	0	(35,000)	(35,000)	(34,952)
Contract services	239,310	69,500	0	0	0	308,810	688,584	872,998
Director's remuneration and expenses	11,000	0	11,000	0	0	22,000	25,000	21,858
Stewardship council expenses	9,000	0	0	0	0	9,000	11,000	8,719
Equipment costs	0	0	90,000	0	0	90,000	86,500	110,314
Insurance	1,500	0	22,500	0	0	24,000	21,000	23,107
Interest charges	0	0	300	0	0	300	0	614
Office	15,250	0	11,350	0	0	26,600	19,700	31,325
Outreach and publicity	32,060	0	4,750	0	0	36,810	43,500	33,654
Overhead allocation	0	0	(20,000)	20,000	0	0	0	0
Professional fees	37,500	0	37,500	0	0	75,000	30,000	52,029
Rental costs	8,500	0	21,600	0	0	30,100	29,800	28,112
Safety	1,000	0	2,500	0	0	3,500	5,000	1,806
Travel, conferences and meetings	45,940	0	4,000	0	0	49,940	52,000	15,540
Utilities, yard supplies and maintenance	400	0	8,100	0	0	8,500	12,900	5,579
Wages and benefits	282,100	0	340,300	0	0	622,400	578,400	549,284
Water management initiative	30,000	(30,000)	0	0	0	0	0	0
Water supply & demand initiative	(40,500)	40,500	0	0	0	0	0	0
Transfer to equipment reserve	0	0	10,000	0	0	10,000	20,000	0
	973,060	80,000	543,900	2,118,890	100,000	3,815,850	4,201,458	3,884,046
Net (deficiency of) revenues over expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 380,212

Note 1: Consolidated 2010 audited year end - effect of amortization restated.

## MEMORANDUM

Okanagan Basin Water Board  
Regular meeting  
Dec. 7, 2010  
Agenda No: 8.2

File No. 0550.04

To: Board of Directors

From: Nelson R. Jatel, Water Stewardship Director

Date: November 30, 2010

**Subject: Project agreement for Okanagan Groundwater Monitoring Project between Okanagan Basin Water Board, Agriculture and Agri-Food Canada, B.C. Ministry of Environment**

**Project title:** Okanagan Groundwater Monitoring Project: Enhancing monitoring of sensitive aquifers in the Okanagan

### Project Background

The OBWB, in partnership with Okanagan local governments, BC Ministry of Environment, Agriculture Canada, and Environment Canada are working to deliver the Okanagan Groundwater Monitoring Project (OGMP). This project is intended to leverage senior government funding to implement long-term monitoring of fifteen identified sensitive Okanagan aquifers– subject to partner funding. The program will roll out over three years. The selection of aquifers prioritized for long-term monitoring is based on scientific groundwater studies from the Water Supply & Demand Project, and input from the BC Ministry of Environment. Figure 1 shows the identified sensitive aquifers in the Okanagan.

Shared aquifers are a strategic water resource to local government and are closely connected to land use management decisions. Monitoring sensitive local aquifers has been identified as a priority for the OBWB because it provides an opportunity to understand long term trends in sensitive groundwater resources shared by local residents, agriculture and industry. These long term groundwater quantity trends may be impacted by increased population growth and climate change.

Appendix 1 provides a proposed three year budget. Appendix 2 identifies the cost break-down of an average well in the Okanagan. Contributions by the OBWB have already been accommodated in the budget.

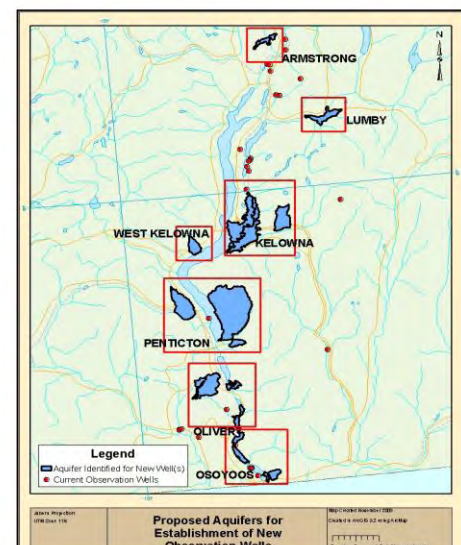


Figure 1 Map of sensitive aquifers in the Okanagan.

**Agreement details**

The attached agreement has been developed in partnership with the BC Ministry of Environment and Agriculture and Agri-Food Canada to ensure that the project expectations and responsibilities are clearly identified. The project steering committee has recommended that the OBWB take the project management support role – possible due to the resources made available through the OBWB’s water management program.

**Recommendation:** *Staff recommends approving the attached project agreement between Agriculture and Agri-Food Canada and the BC Ministry of Environment.*

Appendix 1. Proposed project budget (contingent on annual budget approvals and local government partnerships).

	2010 \$ (1,000's)	Anticipated	
		2011 \$ (1,000's)	2012 \$ (1,000's)
<b>Revenue</b>			
<hr/>			
Ministry of Environment			
Equipment (5 monitoring stations)	40.0	40.0	40.0
On-going data collection / web reporting	5.0	5.0	5.0
Well sighting and consultation	25.0	25.0	25.0
Agriculture and Agri-Food Canada	37.5	37.5	37.5
Okanagan Basin Water Board	30.0	30.0	30.0
Local Government (distributed between 5 sites)	35.0	35.0	35.0
<b>Total Project Revenue (2010)</b>	<b>182.5</b>	<b>182.5</b>	<b>182.5</b>
<b>Expenses</b>			
<hr/>			
Well monitoring stations (x5)	40.0	40.0	40.0
On-going data collection / web reporting	5.0	5.0	5.0
Well sighting and consultation	25.0	25.0	25.0
Well drilling (x5)	112.5	112.5	112.5
<b>Total Expenses</b>	<b>182.5</b>	<b>182.5</b>	<b>182.5</b>
<hr/>			
<b>Project surplus (loss)</b>	<b>-</b>	<b>-</b>	<b>-</b>
<hr/>			

Appendix 2. Example of draft budget to develop one monitoring well.

	2010 \$ (1,000's )
<b>Project Revenue (Proposed)</b>	
<hr/>	
Ministry of Environment	
Equipment (monitoring stations)	8.0
On-going data collection / web reporting	5.0
Well sighting and consultation	5.0
Agriculture and Agri-Food Canada	7.5
Okanagan Basin Water Board	6.0
	<b>6.5</b>
Local Government contribution (estimate*)	
<b>Total Monitoring Well Revenue</b>	<b>38.0</b>
<b>Expenses</b>	
<hr/>	
Well monitoring stations	8.0
On-going data collection / web reporting	5.0
Well sighting and consultation	5.0
Well drilling (estimate – depends on well depth)	20.0
Total Expenses	38.0
<hr/>	
Project surplus (loss)	-

\* Drilling of well ranges between \$18,000 and \$30,000 depending on depth. A figure of \$20,000 was used for budgeting purposes.

This Agreement made in triplicate effective the \_\_\_\_ day of \_\_\_\_\_, 2010.

BETWEEN:

**HER MAJESTY THE QUEEN in Right of CANADA**  
as represented by the Minister of Agriculture and Agri-Food Canada  
(“hereinafter called “Canada”)

- and -

**OKANAGAN BASIN WATER BOARD**  
a local government established through supplementary Letters Patent  
in the Province of British Columbia with offices in  
Kelowna, British Columbia  
(“hereinafter called “the Water Board”)

- and -

**HER MAJESTY THE QUEEN in Right of the PROVINCE  
OF BRITISH COLUMBIA**  
as represented by the Minister of Environment  
(“hereinafter called “B.C.”)

**WHEREAS:**

- A. The parties wish to have groundwater observation wells with measuring devices installed throughout various parts of the Okanagan Basin of the Province of British Columbia for the purpose of obtaining data about and monitoring, over time, certain groundwater aquifers situated in the Province;
- B. Canada is willing, on a pilot project for this fiscal year, to contribute up to 50% of the eligible costs associated with the costs of installing and equipping these wells, up to a maximum of \$15,000.00 per well and to a maximum total contribution by Canada of \$35,000.00 this fiscal year;
- C. B.C. is willing to make in-kind contribution to the Project, including by providing ongoing maintenance for some Project Wells or by facilitating the gaining of access rights to provincial Crown land for the siting of particular Project Wells and
- D. The Water Board is also willing to contribute some of its funds to these well projects, where located within the Okanagan Water Basin, and to enter into the contracts with water-well drilling contractors for the installation of such wells;

**NOW THEREFORE THIS AGREEMENT WITNESSES** that in consideration of the mutual covenants set out herein, the parties agree with each other as follows:

## **1. Definitions**

In this Agreement:

- a) “Eligible Costs” means the reasonable costs directly incurred for well-site ground preparation (including, but not limited to, geodetic surveying, locating underground utilities) and the drilling of a ground water observation well, to the depth(s) and to the specifications as provided by Canada and B.C., which costs may include the rental of or charging rate for drilling equipment, actual labour costs, the costs of materials and supplies used, and the costs of monitoring and measuring and communication equipment installed;
- b) “Term” means the fiscal year of April 1, 2010 to and ending on March 31, 2011, unless otherwise extended by mutual agreement of the parties, confirmed in writing;
- c) “Monitor” shall have the meaning contemplated in clause 7 of this Agreement;
- d) “Project” means the drilling of ground water observation wells during the Term of this Agreement, into the various Okanagan aquifers, and various sites selected or approved by B.C. and Canada, to the depth(s) and to the specifications as provided by Canada and B.C. for the purpose of obtaining data about and monitoring, over time, various Okanagan aquifers situated in the Province of British Columbia;
- e) “Project Well” means any well drilled and installed during the term for the purpose of the Project and in accordance with the provisions of this Agreement: and
- f) “Driller’s Report” means a British Columbia Ministry of Environment Well Construction Report.

## **2. Purpose**

- a) The purpose of this Agreement is to set out the rights, responsibilities, contributions and obligations of the parties regarding the drilling and installing of Project Wells.
- b) The purpose of the Project is to obtain data pertaining to and to monitor, over time, various Okanagan aquifers, to provide a case study for aquifer measurement and monitoring, and to assist in the development of protocols and best practices for other ground water observation wells for optimizing the value of data through a local or regional community engagement process.



### **3. Responsibilities of Water Board**

a) The Water Board shall contract with one or more reputable and qualified ground water well drilling contractors through a competitive process to drill and install Project Wells at sites to be approved by B.C. and Canada. The Water Board shall pay the Project Well contractor(s) for the contracted goods and services, and may apply to Canada and/or B.C. for contribution of funds as re-imbusement of Eligible Costs for any completed Project Well. The drilling and installation of a Project Well, and the delivery of the Driller's Report to Canada for any Project Well must be completed by March 31, 2011.

b) Compliance with Water Act and Regulations

The Water Board and its drilling contractors shall drill and install all Project Wells in accordance with the Ground Water Protection Regulations of The Water Act (B.C.). B.C. may have one or more of its Ministry of Environment officials present at any Project Well site to observe and monitor the drilling and well installation work and activities. Canada may also have one or more staff from Environment Canada and/or Agriculture and Agri-Food Canada present at any Project Well site to observe and monitor the drilling and well installation work and related activities.

c) Subject to paragraph b) above, and unless otherwise specified in writing by Canada for any particular Project Well, the Project Wells shall be drilled to the specifications set out in the attached Schedule "A" to this Agreement.

### **4. Applying for Reimbursement of Eligible Costs**

To apply for reimbursement of Eligible Costs for a completed Project Well, the Water Board shall submit the Driller's Report, to Canada's and to B.C.'s satisfaction, on the completion of a Project Well, as well as copies of all invoices and billing records in respect of the Eligible Costs for that Project Well, and shall set out the total amount of contribution funding sought from Canada and from B.C.

### **5. Responsibilities of Canada**

a) Reimbursement of Eligible Costs

Upon receipt of the Water Board's application for partial reimbursement of Eligible Costs, with all supporting materials, Canada shall review same, and when satisfied as to the amount of Eligible Costs qualified for that Project Well, shall make payment as reimbursement for same, up to a maximum of 50% of the Eligible Costs incurred, but not to exceed a maximum total payment of \$15,000.00 per Project Well, and provided that, during the fiscal year expiring March 31, 2011, Canada's maximum total contribution under this Agreement shall not exceed \$35,000.00. Canada may report

to B.C. on the amount of contribution paid or proposed to be paid to the Water Board for any and all Project Wells.

In the event that Canada contributes measuring devices, monitoring equipment, or other related necessary equipment or supplies to a Project Well, the value or purchase price of such devices and equipment shall be counted as part of Canada's contributed reimbursement of Eligible Costs for that Well.

b) Technical Assistance

During the period that a Project Well is drilled and installed, Canada may provide to the Water Board and its drilling contractor, Her technical personnel for on-site technical advice and assistance, free of charge or cost, to a maximum of the equivalent of 15 person-days per fiscal year.

**6. Responsibilities of B.C.**

a) Provision of Well-Site Lands

B.C. will assist the parties in gaining access rights to provincial Crown land for the siting, installation, inspection, maintenance, repair, servicing and replacement of particular Project Wells on provincial Crown land by pursuing applications for the disposition of provincial Crown land for such purposes in particular cases, provided always that the proposed provincial Crown lands are suitable for such purposes and are not required for other purposes in the public interest. The parties acknowledge that the issuance of tenures for provincial Crown land is a matter of statutory discretion and that this provision is not intended to fetter nor influence the exercise of that discretion.

b) B.C. shall be given credit for the value of B.C.'s in-kind contribution in respect of the Project Wells, as well for any payment, at the sole discretion of its Minister, to reimburse the Water Board's Eligible Expenses in respect of any of the Project Wells. B.C. shall be responsible for the design of the Project Wells. B.C. shall also be responsible for monitoring the drilling contractors during the drilling and installation activities.

c) Unless otherwise agreed by the parties, B.C. shall become the owner of each Project Well, and be responsible for its future operation, maintenance, repair, and replacement, and eventual closing, all without any future fee, charge, cost, or other liability to Canada or to the Water Board.

**7. Reporting Duties of Well Monitor**

a) B.C. shall be designated as the Monitor for each particular Project Well.

- b) The Monitor shall collect near-real-time data, including water levels (the “raw data”) from that Project Well’s measuring and monitoring equipment, and shall promptly make that raw data available, by data report in electronic format, to the other parties.
- c) Unless otherwise agreed by the parties, none of the raw data collected at any of the Project Wells shall be considered confidential and may be made accessible to the public.
- d) Subject to section 8, none of the parties shall have or shall claim intellectual property rights in, to, or over any of this raw data.

## **8. Intellectual Property**

- e) All intellectual property rights, including copyright, in any publication (including any report, graph, website, training manual or other thing) produced from or created using the raw data obtained from any of the Project Wells shall vest in the party that produced or created the publication.
- f) Each party grants the other parties a non-exclusive, irrevocable, world-wide, free and royalty-free licence in perpetuity to use or sublicense the use of any publication produced from or created using the raw data obtained from the Project Wells for non-commercial purposes.

## **9. Environmental Assessment**

The Water Board and B.C. acknowledge that in order to be entitled to receive any contribution funding from Canada, an environment assessment for each Project Well must, unless otherwise excluded by federal law, be conducted in accordance with the Canadian Environmental Assessment Act, as soon as practicable, and that Canada must be satisfied that the project to be carried out is unlikely to cause any significant adverse environmental effects, or alternatively, if the implementation of any mitigation measures, as may be specified by Canada, are implemented, that the project is then unlikely to cause any significant adverse environmental effects. Where Canada does specify in writing any mitigation measures in respect of a particular Project Well, or group of wells, the Water Board shall implement same, at its expense. Canada agrees that the reasonable cost of a project environmental assessment, and the reasonable costs of implementing the specified mitigation measures shall also qualify as Eligible Costs for the purpose of this Agreement. The parties expressly acknowledge that Canada’s contribution towards any particular Project Well shall be conditional upon compliance with this provision. Canada shall have the right, at all reasonable times, upon prior notice, to enter upon any Project Well site lands to inspect same for the purpose of examining the status of the implementation of any specified mitigation measures.

## **10. Pilot Project/Extension of Agreement**

The parties agree that this Project shall serve as a pilot project for a future, prospective enlarged project for more Project Wells for up to two additional years. After the completion

of this Project, and prior to the expiration of the Term, the Parties shall assess the performance of and the results derived from this Project, and determine whether and to what extent it may be extended. The Parties may extend this Project by entering into a written Project Extension and Amending Agreement.

## **11. Contact Persons/Address for Notice**

The respective Contact Persons and the respective address for notices for this Project are as follows:

For Canada: Agriculture and Agri-Food Canada  
3015 Ord Road  
Kamloops, B.C. V2B 8A9  
Attention: Doug Edwards  
Regional Water Resources Engineer  
Pacific Region  
Fax: (250) 554-5204

For B.C.: Ministry of Environment  
102 Industrial Place  
Penticton, B.C. V2A 7C8  
Attention: Oleg Ivanov  
Groundwater Hydrologist  
Fax: (250) 490-2231

For the Water Board:  
Okanagan Basin Water Board  
1450 KLO Road  
Kelowna, B.C. V1W 3Z4  
Attention: Anna Warwick Sears  
Executive Director  
Fax: (250) 762-7011

## **12. Miscellaneous**

The interpretation and application of this Agreement shall be governed by the laws of British Columbia and the applicable laws of Canada.

**13.** This Agreement may be amended at any time by the parties, by mutual consent expressed in writing.

IN WITNESS WHEREOF the respective parties have caused this Agreement to be signed or executed by their duly authorized officers, under corporate seal where applicable, on the dates set opposite each signature.

**HER MAJESTY THE QUEEN in Right of CANADA**  
as represented by the Minister of Agriculture and  
Agri-Food Canada

\_\_\_\_\_, 2010

Per:

\_\_\_\_\_  
on behalf of the Minister

**OKANAGAN BASIN WATER BOARD**

\_\_\_\_\_, 2010

Per:

\_\_\_\_\_

**HER MAJESTY THE QUEEN in Right of the  
PROVINCE OF BRITISH COLUMBIA**  
as represented by the Minister of Environment

\_\_\_\_\_, 2010

Per:

\_\_\_\_\_  
on behalf of the Minister

**SCHEDULE "A"**  
Project Well Specifications

## MEMORANDUM

Okanagan Basin Water Board  
Regular meeting  
December 7, 2010  
Agenda No: 8.3

File No. 0550.04

To: OBWB Directors  
From: Anna Warwick Sears, Executive Director  
Date: December 1, 2010  
Subject: **Meadowlark Festival Sponsorship Request**

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The Meadowlark Festival in Penticton is an annual event that attracts a wide variety of visitors. The festival has an environmental focus, and includes partner groups from many non-profits and environmental agencies (e.g. Environment Canada). This year, their festival theme is “water,” and we have received a request for sponsorship and to be an active partner in the event.

Each year, the OBWB budgets \$3,000 to sponsor water-oriented conferences or outreach events. Past sponsorships have included the Mayor’s Environmental Expo in Kelowna, and the Environmental Mind Grind programs in all three regional districts. With the WaterWise program getting off the ground, we now have more activities and materials available for these events.

The Meadowlark Festival organizers have submitted the attached sponsorship request letter. I believe that this is a good outreach opportunity for us – especially for reaching the public in the South Okanagan. We have the funds in the budget, and I recommend sponsoring in the range of \$750-\$1000.

**Recommendation:** *That the OBWB sponsor the 2011 Meadowlark Festival.*

November 30th, 2010

Anna Warwick Sears  
Executive Director  
Okanagan Basin Water Board  
1450 KLO Road  
Kelowna, BC  
V1W 3Z4

## Meadowlark Festival

Phone ☎ (250) 492-5275

Fax ☎ (250) 492-5295

Email ✉ [meadowlarkfestival@osca.org](mailto:meadowlarkfestival@osca.org)

Agenda No: 8.3



Regular:  In-Camp:

Date: Dec. 7, 2010

Dear Anna.

### Re: Meadowlark Festival Partnership 2011

**OBWB**

It was great talking to you on the telephone and thank you for your valuable help and advice.

The Okanagan Similkameen Conservation Alliance (OSCA) is a charitable non-profit society with a mission to conduct educational outreach initiatives promoting community environmental awareness, and land management practices that benefit species and habitats at risk in this region. The charity was established in 1997 and organizes the annual Meadowlark Festival; Spotlight on Species Events; EcoManagement Industry Workshops; and EcoStudies School Programs.

The Meadowlark Festival is both a cultural and environmental education event that provides local people and visitors to the Okanagan and Similkameen Valleys the opportunity to experience lessons in conservation, awareness and stewardship in a fun and interactive way. Over 80 workshops, field trips, school and cultural programs, art and First Nation activities - all led by respected experts and knowledgeable people in our communities - allow people to get involved and learn about our richly diverse area. At a time when climate change, water issues, sustainability, species at risk and loss of habitat are all topics which we read about in newspapers and magazines, or hear about through media, this Festival provides an opportunity for local people and visitors from across Canada to actually learn, first-hand, the impact and significance of these topics within our natural environment.

The Festival is heavily promoted with a 12-page program (30,000 copies) printed and distributed throughout the region by the Penticton Herald and Kelowna Daily Courier. Posters, flyers and programs are also distributed from libraries, schools, visitor information centres, local businesses, outdoor recreation groups and clubs and many other outlets.

The Festival is also promoted online with its own dedicated website ([www.meadowlarkfestival.bc.ca](http://www.meadowlarkfestival.bc.ca)) and through social media sites such as Facebook and Twitter. Targeted e-flyers and a program of events are sent out across the country and many email marketing campaigns take place too. Information is also distributed through Festival Partners to their membership.



The Festival receives a huge amount of publicity, and its media Partners include the Penticton Herald, Kelowna Daily Courier/Okanagan Today, Western News, CBC Radio, CHBC News, Giant FM, Astral Media and more! Other key Partners include the City of Penticton, the RDOS, Environment Canada, the En'owkin Centre, Penticton and Wine Country and Thompson Okanagan Tourism Associations, Fortis BC and Okanagan Similkameen Parks Society. The Festival also works with the South Okanagan Similkameen Conservation Program and its many Partners including BC Nature, The Nature Trust of BC and BC Ministry of Environment.

In 2010 the Festival attracted more than 2500 participants from across Canada (please see attached geographical graph) and its awareness and promotional material was read and the information absorbed by thousands more!

As discussed, OSCA would like to introduce a 'Water' theme throughout the 2011 Meadowlark Festival and specifically highlight the connection between water and life. The aim will be to help raise general awareness and educate people, where possible, about the impacts of water through its 80 plus environmental events.

OSCA would like, if possible, to launch the 2011 Festival with a formal event and ticketed presentation from Okanagan Basin Water Board (OBWB) experts and a guest speaker. It would be fantastic if OSCA could join with the OBWB to host this event and for the OBWB to be included as a funder/supporting Partner for the entire Festival.

Monies received through possible funds (for example \$1000) would be directed to the delivery of the launch event, including guest speaker, and many components of the Festival including: educational programs for all ages (including youth); providing experiences focusing on water and climate change and how it is affecting our environment.

Thank you for considering this request and I hope that OSCA can be provided with the opportunity to work with the OBWB to help raise awareness of these important issues.

I look forward to hearing from you, and please do not hesitate to contact me if you require any further information.

Yours sincerely,



**Anita Dunford**  
**OSCA Meadowlark Festival Coordinator**

Encl.



November 5, 2010

File: 77515-40/Okanagan  
Collaboration Agreement

Okanagan Basin Water Board  
1450 KLO Road  
Kelowna, BC V1W 3Z4

Attention: Nelson Jatel

Re: Okanagan Lake Collaborative Monitoring Agreement


I am pleased to provide you with a copy of the recently signed Memorandum of Understanding between the Province of BC, the City of Kelowna, the Regional District of Central Okanagan, and the District of Summerland, to join in a Collaborative Monitoring Agreement for Okanagan Lake.

This agreement will initially fund data collection to determine Okanagan Lake status relative to lake specific targets for nutrients, water clarity and other key measures established in 2005. Sampling under this agreement complements on-going Basin-wide work by the Ministry and replaces sampling required of the municipalities through specific authorizations under the *Environmental Management Act*.

The primary intent of this Agreement is to provide integrated high quality and timely water quality information to enable sustainable environmental management of Okanagan Lake, and guide Liquid Waste Management Planning at the Basin level. Over time this agreement may be broadened to include other partners, other main-stem lakes within the Basin, and provide a forum for addressing information gaps with respect to Okanagan lakes and their response to changes within the Basin.

I would be pleased if you could bring this Agreement to the attention of the Board, as I believe it is in keeping with some of the Board's Sustainable Water Strategy key aspirations, such as fostering collaborative partnerships, and developing accessible and shared Basin-wide information.

Sincerely,



Vic Jensen, M.Sc., RPBio,  
Senior Impact Assessment Biologist

VJ/js  
Enclosure

**MEMORANDUM OF UNDERSTANDING**

**BETWEEN**

**MINISTRY OF ENVIRONMENT  
GOVERNMENT OF THE PROVINCE OF  
BRITISH COLUMBIA**

**AND**

**THE CITY OF KELOWNA**

**AND**

**THE REGIONAL DISTRICT OF CENTRAL OKANAGAN**

**AND**

**THE DISTRICT OF SUMMERLAND**

***RESPECTING***

***THE Okanagan Lake Collaborative Monitoring Agreement for 2011***

**BETWEEN:**

Government of the Province of British Columbia  
As Represented by  
Vic Jensen, Senior Impact Assessment Biologist of the  
Environmental Protection and Assurance Division  
Ministry of Environment

(hereinafter referred to as the "MOE")

**AND**

City of Kelowna  
As Represented by  
Mike Gosselin, Supervisor Wastewater Treatment Operations

Regional District of Central Okanagan  
As Represented by  
Angela Lambrecht, Water and Wastewater Process Technologist

District of Summerland  
As Represented by  
Kevin McLuskey, Supervisor Wastewater Treatment Operation

(hereinafter referred to as the "local governments")

**WHEREAS:**

- A. This Memorandum of Understanding (MOU) serves to enable collaboration of the MOE and the local governments to provide high quality, integrated and timely water quality information to enable sustainable environmental management of Okanagan Lake, and guide Liquid Waste Management Planning at the basin level.
- B. The local governments will reimburse the Ministry for costs incurred as described in Section 3 and Appendix 1.

## SECTION 3.0

## SUBJECT MATTER

### 3.1 Collaborative Monitoring and Reporting Program

- 3.1.1 A collaborative monitoring and reporting program is to replace receiving environment monitoring and environmental impact assessment programs required under existing Municipal Sewage Regulation Operational Certificates or permits.
- 3.1.2 Monthly sampling and associated field measurement collection from March through September, and analysis of water chemistry for 4 sites and plankton taxonomy for 2 sites on Okanagan Lake as per Appendix 1.
- 3.1.3 Annual reporting of Okanagan Lake Trophic Status, trends, and attainment of water quality objectives through the MOE or other suitable web sites.

### 3.2 Operational Certificates and Lake Monitoring

- 3.2.1 Lake monitoring requirements under the Operational Certificates ME 12211, PE 11652 and ME 13627 for the City of Kelowna, Regional District of Central Okanagan, and District of Summerland respectively, are waived while the named local governments participate in this Collaborative Monitoring MOU. The MOE will provide written confirmation following MOU sign-off.
- 3.2.2 Effluent monitoring requirements and compliance with all other terms and conditions of the Operational Certificates will remain in effect.

### 3.3 Cost Estimates of Program:

- 3.3.1 Costs of this program include laboratory and sample collection costs.
- 3.3.2 Laboratory expenses are as per Appendix 1: \$12,000 (full program 2 sites + 2 sites chemistry only: Okanagan Centre, Armstrong Arm)
- 3.3.3 Sample collection contract: \$10,000
- 3.3.4 Total projected annual costs: \$22,000 (costs based on 18M m<sup>3</sup> effluent discharged per year = \$0.0013/m<sup>3</sup>).

### 3.4 Roles and Responsibilities

- 3.4.1 The Ministry will contribute program coordination and contract management for sample collection and reporting of results.
- 3.4.2 The local governments agree to provide the Ministry with funds sufficient to cover costs as described in Section 5.0 and detailed in Appendix 1.

- 6.3 Surplus funds at the end of the sampling season will be reviewed by the Technical Advisory Group and will be returned to local governments or reallocated through renewal of this MOU for the following year.

## **SECTION 7.0**

### **LIABILITY**

- 7.1 Each participant and personnel by association, waives all claims against the other participants in respect of damage caused to its personnel and/or its property by personnel or agents (excluding contractors) of that other participant arising out of, or in connection with the implementation of this MOU.
- 7.2 The provisions of sections 7.1 will survive the termination of this MOU for any reason whatsoever.

## **SECTION 8.0**

### **DISPUTE RESOLUTION**


- 8.1 Any new issue, matter of general concern or dispute arising from this MOU will be dealt with by Technical Advisory Group or their delegates.
- 8.2 The dispute or disagreement will not be submitted to a third party for resolution.

## **SECTION 9.0**

### **TERM OF AGREEMENT**

- 9.1 This MOU will begin January 1, 2011 and end December 31, 2011.
- 9.2 This MOU may be amended by mutual written agreement by the Participants to this MOU.
- 9.3 Prior to the termination of this MOU, it may be renewed for an additional period on terms agreed to by participants to this MOU.
- 9.4 Any of the participants to this MOU may terminate participation in this agreement upon provision of sixty (60) days written notice to the other participants of their intention to terminate participation in this MOU.
- 9.5 On the date of termination of this MOU or termination of participation in this agreement, the lake monitoring requirements under local government operational certificates or permits as noted above, are reinstated. Regardless of the reason for termination or the participant who gives

**Signed on behalf of the MOE:**



\_\_\_\_\_  
Vic Jensen  
Ministry of Environment  
Province of British Columbia

Oct 26 / 2010  
Date

**Signed on behalf of local governments:**



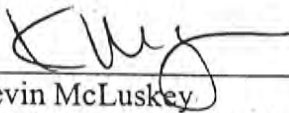
\_\_\_\_\_  
Mike Gosselin  
City of Kelowna

Oct 26 / 2010  
Date



\_\_\_\_\_  
Angela Lambrecht  
Regional District of Central Okanagan

Oct 26, 2010  
Date



\_\_\_\_\_  
Kevin McLuskey  
District of Summerland

Oct 26, 2010  
Date