From: Nelson Jatel [nelson.jatel@obwb.ca]
Sent: April-26-10 2:45 PM
To: Living Water Smart ENV:EX
Cc: Nelson Jatel
Subject: Water Act Modernization Discussion Paper Feedback
Attachments: WAM_OBWB Recommendations_submission.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

To whom it may concern,

Please find attached the Okanagan Basin Water Board (OBWB) recommendations for the BC Water Act Modernization project.

If you have any questions, please don't hesitate to call our office.

Sincerely,

Nelson Jatel

Nelson Jatel, Water Stewardship Director
Okanagan Basin Water Board
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23 April 2010

Water Act Modernization Submission
Ministry of Environment
Water Stewardship Division
PO Box 9362
Stn Prov Govt
Victoria, BC V8W 9M2

Re: *BC Water Act Modernization – OBWB Recommendations to the Province*

The following document is the formal submission on the Water Act modernization initiative by the Okanagan Basin Water Board (OBWB).

The mandate of the OBWB is to provide leadership for sustainable water management and to protect and enhance the quality of life and environment in the Okanagan Basin. The objectives and purpose of the OBWB include: to organize or receive proposals from private interests, organizations or agencies and all levels of government regarding best practices for water use and management; to define water problems and priorities, economic feasibility of solutions, responsibility, necessary legislation and required action; to communicate and coordinate between levels of government and their agencies about water use and management; and to present proposals and recommendations to local or senior governments, according to jurisdiction and responsibility. Consistent with the OBWB's objectives and purpose, this submission in part fulfills our mandate.

To the extent that agreement can be reached by such a diverse body of individuals, the following recommendations may be considered to be achieved via a consensus process. Nevertheless, the ideas expressed in the document do not necessarily reflect the specific opinions and policies of the individual constituent members of the OBWB or the local municipal jurisdictions in the Okanagan Valley.

The document is organized according to the submission guide included in the *British Columbia's Water Act Modernization Discussion Paper*. In addition to submitting this document, the OBWB requests the following of the Ministry of Environment:

1. To provide opportunities to have the OBWB review draft Water Act legislation; and
2. To organize meeting(s) with the OBWB in order to further explore considerations for the modernization of the BC *Water Act*.

The following information sources were considered along with other relevant background information to support the attached document: *Okanagan Sustainable Water Strategy – Action Plan 1.0; Living Water Smart: British Columbia's Water Plan, British Columbia's Water Act Modernization Discussion Paper; March* 2004 – Penticton – *Running on Empty*, a conference organized by the Okanagan Basin Water Board; February 2005 – Kelowna – *Water Our Limiting Resource: Towards Sustainable Water Management in the Okanagan* - a conference organized by the Canadian Water Resources Association; and October 2008 – Kelowna – *One Watershed One Water* – a conference organized by the Okanagan Basin Water Board and the Canadian Water Resources Association.

This document has been the focus of attention at many technical and Board meetings and has been given sober second thought by the Board. It is our intention that the ideas presented here be given due consideration by the Ministry of Environment as you develop one of the most important Acts to support our treasured provincial water resources; supporting sustainable water management today and for future generations of British Columbians.

For more information please contact Nelson Jatel, Water Stewardship Director at (250) 469.6295 or nelson.jatel@obwb.ca.

Sincerely,

Stu Wells, Chair
Okanagan Basin Water Board

Modernizing the BC Water Act – The Okanagan Voice

Water Act Modernization submission to the

Parliamentary Secretary for Water Supply & Allocation

from the

Okanagan Basin Water Board

April 15, 2010

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SUMMARY OF OBWB RECOMMENDATIONS

A *Water Act* Modernization (WAM) process is currently being conducted by the BC Ministry of Environment to address new pressures on BC water resources. The Ministry has specifically asked the Okanagan Basin Water Board (OBWB) to provide input. This request for input is relevant to the stated mandate of the OBWB: to provide leadership for sustainable water management to protect and enhance the quality of life and environment in the Okanagan Basin.

This document contextualizes some of the needs of the Okanagan region for effective water management (Appendix 1); provides responses and preferences to stated questions and options laid out in the British Columbia's Water Act Modernization *Discussion Paper*, released in February 2010 (Appendix 3); and includes a number of additional recommendations that have been developed by the OBWB (Main Document), taking into consideration the perspectives of a broad group of stakeholders in the Okanagan Basin.

This document is informed by the *Okanagan Sustainable Water Strategy* and the *Living Water Smart: BC's Water Plan* and has received considerable input from the Okanagan Water Stewardship Council (OWSC), the technical advisory committee of the OBWB comprised of representatives from a wide-ranging group of stakeholder organizations and constituencies.

In addition to our responses to the questions and options laid out in the WAM Discussion Paper (Appendix 3), the OBWB has the following recommendations for the Ministry to consider for the WAM process.

Protection of Stream Health and Aquatic Environments

1. Accommodate, clarify, and harmonize the ambiguities in jurisdictional authorities as they pertain to stream health and aquatic environments.
2. Develop explicit language in the *Water Act* to support responsible, multi-use of watersheds where source waters for common purposes (e.g., drinking water supplies) are at risk.
3. Establish limited-use 'permits' for purposes such as off-stream livestock watering on fully recorded streams.
4. Allow farmers to construct multi-season storage options. Conservation flows should be based on natural flows not storage volumes.

Improving Water Governance

1. Include First Nations as full partners.
2. Make effective use of existing *Water Act* management tools, including Water Users' Communities, Water Use Plans, and Water Management Plans.
3. Create enabling legislation for watershed-based management to enable the identification and implementation of solutions to shared, multi-jurisdictional water challenges.

4. Add definitions to the *Water Act* including: Large Water Users, Drought, Watershed-based Management, and Priority Watersheds (Areas).

Flexible and Efficient Water Allocation

1. Make the language within the *Water Act* more transparent and intelligible, while also emphasizing the public ownership of water. Simplify the language used and clearly communicate the rights and responsibilities for (a) specific users, and (b) under specific conditions.
2. Review the 'Beneficial use declaration' (Part 3) sub-section of the *Water Act* to accommodate voluntary storage and conservation flow contributions.
    - Water licenses should state: (1) an annual use, and (2) a peak withdrawal demand.
3. Allow flexibility in the duration of the allowable irrigation period and provide partial-season licences.
4. Review the licence fee structure to enable cost recovery for monitoring and enforcement of licence terms and conditions, and for other expenses related to water supply monitoring and prediction.
5. Review the 'First-In-Time, First-In-Right' allocation system to assess strengths and weaknesses relative to alternative systems.
    - Examine the implementation of a transparent system of water allocations (i.e., reserves or trusts) that acknowledges and legislates the fundamental importance of water for such purposes as agriculture (Agriculture Water Reserve), conservation flows (Ecological Water Trust), and basic domestic needs.

Groundwater Regulation

1. Add definitions that include: Groundwater in Direct Hydraulic Connection, and Groundwater Sensitive Areas.
2. Institute a system of licensing for groundwater extraction. Recognize that water (surface and ground) must be accounted for within a connected administrative system to support comprehensive watershed management.
3. Develop a 'grandfathering' process for existing wells to bring them into conformity with the new licensing system.
4. Require that all Water Use Plans and Water Management Plans include a groundwater management component for the watershed.

Modernizing the BC Water Act – The Okanagan Voice

Preamble

The Okanagan Basin Water Board (the Board) is a regional government body comprising nine elected representatives from the three regional districts within the Okanagan and three appointed members who represent the Okanagan Nation Alliance, the Water Supply Association of BC, and the Water Stewardship Council (the technical advisory committee to the Board). The Board was legislated under the *Municipalities Enabling and Validating Act*, and by supplementary letters patent (SLP) to the Okanagan regional districts. Together with policies approved through resolution and basic municipal law, these set out the authority, objectives and purpose for Board activities, which promote effective water management on a basin-wide scale.

This document is informed by the *Okanagan Sustainable Water Strategy* and the *Living Water Smart - BC's Water Plan* and supports an ongoing dialogue with the Provincial government on important water considerations from the perspective of the Okanagan Basin. It has received considerable input from the Okanagan Water Stewardship Council (OWSC). The OWSC membership is diverse, comprising agencies, institutions, professional organizations, and local non-governmental organizations, all with an interest in and knowledge of Okanagan water. [1]

How to Use this Formal Submission

The intent of the OBWB is to provide the BC Government with a formal WAM submission that is clear, practical and informative in (a) drafting specific language for options to improve the *Water Act* and (b) that it supports the benefit-cost analysis proposed in the next phase of the WAM process.

The purpose of this submission is to:

1. Provide responses and preferences to stated questions and options laid out in the WAM Discussion Paper.

2. Provide an Okanagan perspective, related by the Okanagan Basin Water Board's unique experience on water management issues from a semi-arid, international watershed that is heavily influenced by population growth and climate change variability.

3. Support an ongoing discussion with the BC Government to provide comment on the developing WAM process.

The submission is intended to complement the document titled, **British Columbia's Water Act Modernization *Discussion Paper*** released in February 2010. Throughout this submission, we make reference to pages within the document by using parenthesis (). For example, where the reader will see "(p 33)", the content references the information found on page 33 of the WAM Discussion Paper.

[1] For a complete list of Okanagan Water Stewardship Council members visit: www.obwb.ca.

Three types of responses have been generated in this document and organized in the four "Goal" sections identified in the WAM Discussion Paper: (1) Protect stream health and aquatic environments, (2) Improve water governance arrangements, (3) Introduce more flexibility and efficiency in the water allocation system, and (4) Regulate groundwater extraction and use. OBWB WAM recommendations have been organized and presented to coincide with the four goal sections, taking into consideration a broad group of stakeholders in the Okanagan water basin. In Appendix 3, the OBWB provides our level of support for the stated goals that shape the scope and vision of the *Water Act* modernization. Finally, in a table format, specific questions asked in the WAM Discussion paper are answered and commented on. We note a preferred choice made from the options provided or offer an alternate solution as appropriate.

In addition to the formal responses, stating level of support and policy "solution" preferences, Appendix 1 provides further detail and background on Okanagan issues. The appendix is organized in line with the four Goals identified by the BC Government.

Principles Underlying the *Water Act*

The Okanagan Basin Water Board **strongly supports** the proposed principles identified to help guide the policy development process for modernizing the BC Water Act that include:

1. BC's water resources are used within sustainable limits.
2. First Nations social and cultural practices associated with water are respected and accommodated.
3. Science informs water resource management and decision making.
4. Water resource legislation, policy and decision-making processes, as well as management tools are integrated across all levels of government.
5. Rules and standards for water management are clearly defined, providing a predictable investment climate across the province.
6. Flexibility is provided to adapt to extreme conditions or unexpected events on a provincial, regional or issue-specific level.
7. Incentives are created for water conservation that considers the needs of users and investors.
8. Rights to use water come with responsibilities to be efficient and help protect stream health.

The Okanagan Water Stewardship Council has additional principles that provide an operational framework upon which it evaluates specific water management policies or proposals. . These five core principlesare intended to be applied equally and in tandem, and the OBWB believes that they may be instructive to the WAM process.

1. Think Regionally and Think Long-Term: *Water management decisions will place priority on the long-term sustainability of the Okanagan region, protecting and enhancing water quality and supply for current and future generations.*

2. Protect Nature for the Benefit of All: *Natural processes in healthy watershed ecosystems are the most effective and cost-efficient means to maintain water quality and quantity. Restoring degraded lands and protecting surface and groundwater source areas are the essential cornerstones of an overall strategy for sustainable water resources in the Okanagan.*

3. Anticipate Change – Plan Accordingly: *Successful water management strategies must be flexible – adapting to new information and anticipating annual variation in water supply as well as long-term changes in climate and land use. This adaptive approach relies on careful monitoring of resources and continued research for new and better management strategies.*

4. Balance Multiple Priorities: *Water is a finite resource that is essential to the ecological, economic and social wellbeing of the Okanagan, and must be shared between all human uses and the needs of the natural environment. Communities must work together to prioritize how water is allocated during times of short supply, basing decisions on science, as well as social and economic values.*

5. Everyone Speaks – Everyone Listens: *Clear and open communication is essential for sustaining public commitment to water stewardship. Water management in the Okanagan must involve all stakeholders and partners – from citizens and business interests to decision makers at all levels of government, including First Nations – taking action and coordinating efforts throughout the watershed.*

Protect Stream Health and Aquatic Environments

General Considerations

Water is essential to human life, but also to the well-being and proper functioning of ecosystems. Wetlands and riparian systems provide critical ecological services that benefit humans in many ways, not the least of which are natural water purification processes. Animals and plants depend on water, and their needs must be considered appropriately alongside those of humans. In respect of these complex interdependencies, a modernized *Water Act* should be sensitive to the following imperatives:

- **Protect and enhance ecological stability and biodiversity.** Natural processes in healthy watershed ecosystems are the most effective and cost-efficient means to maintain in-stream water quality and quantity. A watershed-based strategy identifies and protects the natural features that are essential to maintaining water quality and quantity (e.g., wetlands, waterways, adjacent uplands, and riparian areas) through due consideration in land and water management decisions.
- **Integrate land use planning and water resource management.** Integrated water resource management means recognizing the interrelationship between land use and water quantity and quality. Land-use decisions must work to minimize the impact of urbanization and reduce the human footprint on the environment, which will in turn reduce the impact on water resources. Many water resource management outcomes (both positive and negative) are, in fact, driven and mediated through land-use decisions made at the local level.

These principles are particularly important to source water protection, which is broadly defined as watershed management to control or prevent the contamination of water bodies and aquifers. Source protection extends beyond drinking water to encompass land use, ecosystem protection, and the entire hydrological cycle.

Source protection provides benefits on a watershed scale. All downstream uses, including non-consumptive uses such as ecosystem function, water-based recreation, and aesthetic values, benefit from clean water. New York City is an excellent example of the multiple benefits of source water protection – the City's effective watershed protection program, coupled with two forms of treatment and an extensive water quality monitoring program, was so successful that it earned a filtration waiver from the EPA and has saved the City billions of dollars in operational costs.

OBWB Recommendations

1. The BC *Water Act* necessarily interfaces with other legislation that pertains to stream health and aquatic environments (e.g., Fisheries Act), and the modernization process should recognize, accommodate, clarify, and harmonize these ambiguities in jurisdictional authority through a transparent articulation of priority uses. In particular, conservation flows for ecosystem functioning should be addressed explicitly in the modernized *Water Act*.

2. To support the responsible management of multi-use watersheds, in particular those where source waters are or may be used for potable water and may directly impact human health and safety, the *Water Act* should state that, in Priority Watersheds, the Crown lands proximal to drinking water

reservoirs or functional wetlands should remain in the public domain so as to maximize the potential for flexible management strategies of these critical lands with the intent of ensuring a sustainable supply of high quality water in perpetuity.

3. Include explicit language that allows a rancher with established grazing rights on Crown land to obtain a limited-quantity, limited-duration permit to divert surface water that flows through the designated grazing area, for the sole purpose of off-stream watering of livestock, presuming that:
    - a notification for the purpose of off-stream watering is submitted to the Ministry of Environment by the rancher who has a legal right to graze livestock on Crown land, and
    - fencing or other appropriate measures be implemented to exclude livestock from the riparian zone.

Improve Water Governance Arrangements

General Considerations

There are **many levels of water governance**, including federal, First Nations, provincial, regional, and local jurisdictions, each with specific mandates, purposes, interests, practices, and corporate cultures. This can be a hindrance to effective water stewardship if there is mistrust, segregation, and lack of cooperation. However, this can be a benefit when there is effective communication and a willingness to grant 'authority to manage' at the level that best accommodates the issue or opportunity. The modernization process should be informed by the manner in which **the *Water Act* intersects and interacts with other provincial and federal Acts**, and help to identify the areas of overlap as well as **recommend mechanisms by which controversial issues can be addressed expeditiously and effectively**.

Local problems often require local solutions. Provincial and federal authorities have their purpose and serve specific needs with legislation that supersedes the local. Local (watershed or sub-watershed) stakeholders are directly impacted by water use decisions, and often have better information about the consequence of such decisions. In contrast, local stakeholders can be poor representatives of large, diffuse interests that are relevant to the collective and extend outward beyond the local area. A nested system of jurisdictional authorities works most effectively when a reasonable balance of authority is achieved across all levels.

There are many provincial entities that have authority over water, often with **competing jurisdictional interests**. For example, the Ministry of Environment allocates water licences, Interior Health enforces drinking water standards, the Ministry of Forest governs livestock grazing regulations, and the Ministry of Tourism, Culture and the Arts controls recreational uses of Crown Lands. These jurisdictional authorities intersect when considering appropriate stewardship of upland headwater zones that serve as source areas for water supplies. **Effective communication among these many authorities is a key element to effective water stewardship in the Province**.

OBWB Recommendations

1. Engage First Nations as full participants throughout the WAM process and resolve the uncertainties surrounding First Nations water interests. Rational watershed planning for the future cannot reasonably proceed without allocating water to accommodate these outstanding interests.

2. Create enabling legislation that facilitates the establishment of regional-based governance entities (Water Boards or Water Authorities), where desirable and appropriate. Despite having limited jurisdictional authority, these Boards (Authorities) can provide information exchange, conduits for communication, and opportunities for watershed-based decision making. Such entities should have regional mandates and interests that are at the scale of a large watershed comparable to the

Okanagan Basin. They need the ability to generate a stable base funding source to maintain their administrative and operational mandates without depending on senior government grants.

3. As a complement to the creation of Water Boards (Authorities), it is desirable to enhance and make more effective use of **Part 3** of the existing *Water Act* pertaining to ***Water Users' Communities***. Many water purveyors have enjoyed success in managing water within their irrigation districts or service areas, even under times of stress. The modernized *Water Act* should:
    - encourage water purveyors to facilitate voluntary, user-driven reallocation systems because some local solutions may not be obvious to Province-level managers, and
    - encourage development of Water Use Plans and Water Management Plans that may or may not be legally binding and transfer authority to the regional water manager or the comptroller during times of extreme drought, as defined explicitly within the Water Management Plan.

Introduce More Flexibility and Efficiency in the Water Allocation System

General Considerations

Many streams in the province have been fully allocated for withdrawal licences. It is not always clear how historical decisions were reached regarding the capacity of a stream to accommodate withdrawals during critical periods so there is great uncertainty surrounding the reliability of a licensed allocation (especially junior licences) relative to in-stream conservation flows (as mandated by Section 9 of the *Fisheries Act*) and in regard to the outstanding claims of First Nations. There is urgent need to resolve these uncertainties, preferably in the context of Water Use Plans and Water Management Plans that are developed with strong regional stakeholder input and sound scientific knowledge.

Climate change and population growth will impose extreme pressures on water supply systems in the near and distance futures. Individuals and groups will find mechanisms to adapt to these new conditions, and the role of government is to enable these transitions to achieve positive and beneficial outcomes serving the collective good. What worked 50 years ago is unlikely to work 50 years from now.

Different regions have different needs, which may require different water allocation strategies. There are many people—both individuals and groups—whose interests in water management are not adequately represented. The Province, through the *Water Act*, must speak for these interests. Similarly, the **Province has to remain attentive to the 'public interest,' while respecting the rights of the individual**.

The current *Water Act* defines several 'purposes' for which a withdrawal licence may be approved, and in Section 15 (Precedence of licences on same stream) the respective rights exercisable under two licences with the same precedence date are prioritized as follows, from highest rank to lowest rank: domestic, waterworks, mineral trading, irrigation, mining, industrial, power, hydraulic, storage, conservation, conveying, and land improvement purposes. Given the increasing importance of developing water storage capacity for future shortages, of maintaining in-stream flows for environmental sustainability, and of maintaining wetland environments, this ranking should be reviewed.

OBWB Recommendations

1. A modernized *Water Act* should:
   - assert that all surface and ground water in BC belongs to the people—the government—of BC
   - ensure that licensees understand that water use rights do not imply ownership of the resource
   - communicate to licensees the implications of 'reliability of supply' in relation to licence precedence

2. Re-examine the 'Beneficial use declaration' sub-section of the Act, with a view to expanding the operational definition of 'beneficial use' to accommodate long-term planning strategies that provide flexibility and buffer capacity when appropriate. For example, voluntary contributions to in-stream

conservation flows without diversion or in-stream storage (or to a common pool or water reserve or to groundwater recharge via artificial means) could be accommodated as a 'beneficial use' and allowed without threat of licence suspension or cancellation, but only in streams that are fully allocated or over-allocated and where base conservation flows are likely to be critically threatened during drought conditions.

3. Allow greater flexibility in the length of the irrigation season and provide partial-season licences
    - Extend the closing date of the licence (into October), without increasing total allocation, to benefit farmers wishing to supply winter soil moisture to crops after a lengthy dry period in late summer when irrigation was not permitted or reduced.
    - Provide partial-season licences to manage the seasonal distribution of water application in sub-basins according to crop needs (e.g., early versus late season).

4. Re-consider the licence fee structure with the following improvements:
    - ensure that water rents are charged at a rate that reasonably covers: (a) the cost of monitoring water use as defined in the licence; (b) the costs related to enforcement of licence terms; and (c) costs associated with hydrometric monitoring in the watershed so that accurate assessments of available supply relative to projected demand can be made;
    - institute rental surcharges for licensed users that do not meter/report their water use; and
    - ensure a base portion of the licence fee is fixed, asserting the right to access the stated volume of water—a second portion of the fee will vary depending on the proportion of the total allocation that is actually used.
        - This requires monitoring (either through metering or reporting of power consumption) and allows better tracking of use statistics, but the costs are recovered through the volume-based surcharge.

5. Re-examine the **'First-in-Time, First-in-Right'** (FITFIR) system of water licence allocations with a view to evaluating its strengths and weaknesses regarding anticipated challenges to water resources management in the near future (e.g., drought events, development pressures, stream over-allocations). Assess whether an alternative allocation system could be used in complementary fashion to FITFIR so as to yield greater efficiencies, greater equity, and enhanced net benefits for the public good.

   The following issues might inform the reconsideration process:
    - An alternative water allocation system (not rooted in FITFIR) would produce a new set of 'winners' and 'losers', and therefore it is imperative that those individuals and groups that are adversely impacted by a new system be compensated in a fair and equitable manner.

- FITFIR is essentially a drought management plan that prioritizes water allocations according to licence seniority during times of reduced supply. However,
  - the rights are not absolute and other powers may be asserted as dominant (The Constitution Act of Canada accords certain explicit powers to the Government of Canada—such as fisheries—as well as certain residual powers for the Peace Order and Good Government of Canada in respect of matters not specifically enumerated in favour of Provincial Governments—e.g., environment, economy);
  - the FITFIR system does not encourage conservation measures because the 'Beneficial use declaration' sub-section of the Act poses a threat to licence holders who do not typically use their entire allocation but believe they will require access to the fully licensed allocation during periods of enhanced drought or as a consequence of altered cropping patterns;
  - the system ascribes most of the risk to junior licences, regardless of end use of the water; and
  - the broad scope of public interest is not adequately represented since the priority of use is based on licence seniority rather than societal values.

6. Create a transparent system of water allocations (i.e., reserves or trusts) that acknowledges and legislates the fundamental importance of water for such purposes as agriculture (Agriculture Water Reserve), conservation flows (Ecological Water Trust), and basic domestic needs, and that is complementary to the existing FITFIR-based system. For example, the creation of an Agricultural Water Reserve in certain high-priority watersheds would recognize the importance (and value) of water to agricultural production, and discourage the transfer of agricultural water licences to other purposes, and would assure a basic level of food security for the province into the future.

Regulate Groundwater Extraction and Use

General Considerations

Groundwater is a critical component of the hydrologic cycle and it is integrally connected to surface water. Many regions are experiencing critical aquifer de-watering problems that have led to irreversible damage, including permanent reductions in aquifer yield. Groundwater must be managed as part of the entire watershed.

BC is one of the last jurisdictions in North America that does not have a system of groundwater licensing. Groundwater is too valuable a resource for it to continue to be extracted without controls, especially in arid regions where surface supplies are not dependable. In other jurisdictions, a user-pays principle has been adopted to recover the expenses associated with monitoring, regulation, and enforcement. For example, a one-time fee can be collected by well drillers from the property owner and passed on to the regulatory agency whenever a new well is drilled or when existing wells are altered (deepened, etc).

OBWB Recommendations

1. Institute a system of licensing for the extraction of groundwater in Priority Areas (consistent with the BC *Living Water Smart* Plan), and harmonize groundwater and surface water regulations when appropriate. Groundwater and surface water should be administered through the same government office/agency.
    - Groundwater licences should specify the allowable use of the water, the total volume of annual extraction, the maximum extraction rate (gal/min or L/min), and conditions on timing of extraction, if any.
    - A system of well classification should be developed to differentiate high priority from low priority wells. The following terms and definitions are provided **as examples only**:
        - **MAJOR** and **MINOR** wells should be classified according to rate (volume) of extraction, with additional constraints on daily and annual volumes of extraction.
        - Wells in **SENSITIVE** aquifers or locations (those with limited storage or recharge; those with extreme pressure due to large extractions; those with water quality issues; those with drawdown interference effects on adjacent wells or surface streams) should be treated separately. **DOMESTIC** wells should be defined as serving domestic purposes as currently defined in the *Water Act* (i.e., "the use of water for household requirements, sanitation, and fire prevention, the watering of domestic animals and poultry and the irrigation of a garden not exceeding **1,012 square metres** adjoining and occupied with a dwelling house").
    - All newly drilled MAJOR and SENSITIVE wells should require a licence prior to undertaking extraction. MINOR and DOMESTIC wells, including those used for geothermal systems, should be required to register their well, and even though a licence may not be required, owners should be encouraged to apply for a licence to record their user rights, if any. Note that all withdrawals from surface waters require licences, although a Quick Licensing system

is available for domestic purposes less than 500 gal per day and for irrigation purposes less than 2,500 gal per day.

- All MAJOR and SENSITIVE wells should be subject to metering and reporting requirements to demonstrate conformity with the terms of the licence. Frequency of reporting would depend on extraction volume and use, and could be prescribed in the licence. Groundwater quality in MAJOR and SENSITIVE wells that supply large populations should be tested at least annually by the local health authority. A surcharge could be imposed on non-conforming wells.
- Submission of the driller's well log is required for all MAJOR, MINOR, SENSITIVE, and DOMESTIC wells that are newly drilled.

2. A system of 'grandfathering' of **existing wells** should be considered
    - The terms of the licence for MAJOR and SENSITIVE wells should conform to the requirements of a new licence and should reflect to the greatest degree possible the recent historical use and volume of extraction (e.g., based on data records, well pump capacity or existing water distribution infrastructure). Requests to enhance the capacity beyond the historical use should be handled as a new licence request.
    - Submission of a driller's well log, if available, should be required of all existing wells
    - Only MAJOR and SENSITIVE wells should be required to apply for licences. MINOR and DOMESTIC wells do not require a licence, but they should be registered and the submission of a driller's well log, if available, should be required.
    - Existing wells that are not registered as part of the grandfathering process should be registered upon the sale or change of ownership of the property on which the well appears (as part of the Land Title process).

3. Consider requiring all **Water Use Plans** or **Water Management Plans** to include groundwater explicitly as a component of the overall strategy to manage water resources in the watershed. Ideally, such plans would:
    - be based on the results of an updated supply and demand study,
    - create maps of critical groundwater recharge and groundwater-limited areas, so local governments can use these in land-use plans,
    - link the plan to regional land-use plans (OCPs, Growth Strategies) so recharge areas are protected and limited-areas are avoided for development, and
    - outline the impacts of geothermal activities on aquifer conditions, if pertinent.

    In regions with ample groundwater resources, the Plan might simply provide a short paragraph that justifies why groundwater management need not be included in the overall strategy, whereas in groundwater sensitive regions, the Plan should be comprehensive in its treatment of groundwater relative to surface water resources.

APPENDIX 1 – Okanagan Issues to Consider in *Water Act* Modernization Process

Protection of Stream Health and Aquatic Environments

- Riparian and wetland ecosystems once covered a significant portion of the valley bottom in the Okanagan. Rapid urban development, forestry activities, agricultural expansion, road building, river channelization, drainage management, off-road recreation, and natural events like storms and fires have resulted in the loss and fragmentation of 85% of valley bottom wetlands and riparian areas (BC Ministry of Water, Land and Air Protection, 1998).

- Protecting and restoring ecosystems and ecosystem functioning is a key component of watershed management, especially source water protection. The loss of natural purification systems has increased the risk of contamination for drinking water supplies and harmed aquatic ecosystems. Successful restoration and enhancement efforts will require strong partnerships between property owners, local government, water purveyors, Provincial ministries, local associations, and stewardship groups.

- Cattle grazing in riparian zones, wetland margins, and source areas poses a significant risk to water quality. Off-stream water stations with riparian exclusion fencing have been shown to reduce the time spent by livestock in riparian areas by more than 90 percent. The Ministry of Environment is currently working with Greater Vernon Water to apply a "Transfer of Appurtenancy" that will allow Greater Vernon Water to give a small part of their water licence to the Ministry of Forest and Range for stock watering. However, with most streams in the Okanagan already fully recorded, water licences are generally not issued for any new purpose, and alternative solutions must be found.

- The recent enabling of Section 9 of the Fisheries Act provides a tool for fisheries managers to prioritize in-stream conservation flows. However, this prioritization often creates conflict with junior water license holders who must forgo their legal access to water in favour of the environment. Water Use Plans or Water Management Plans should be encouraged as a vehicle for applying hydrological science to the management of precious water resources.

Improving Water Governance

- The OBWB is an effective vehicle for addressing regional-scale issues and long-term challenges. The success of the OBWB is attributed, in part, to: (a) the willingness of the various stakeholders to engage in a process that is transparent and equitable; (b) the sense of ownership and empowerment that a regional entity such as the OBWB provides to the community as regards water management and decision-making; and (c) a secure and stable source of revenues that allows the OBWB to sustain its primary functions.

- There have been several instances where local jurisdictions have been frustrated by provincial policies and decision-making that conflict with local issues or watershed management ideals. For

example, allowing private ownership of leased reservoir lots on Crown land is counter to municipal efforts for source area protection, as does encouraging expanded trail networks for bikes and ATVs in the vicinity of critical riparian habitat. Similarly, the inability to easily provide off-stream watering licences confounds our ability to manage livestock exclusions from streams and stream corridors.

- The Southern Interior Regional Drinking Water Team is viewed as a healthy first step toward facilitating communication among the various Ministries that have jurisdiction over water, and especially in resolving potential issues that might arise as a consequence of Ministry-level policies that lead to conflict between water stewardship and land use.

Flexible and Efficient Water Allocation

- The Okanagan is an **arid region**, where water management issues increasingly revolve around balancing **competing demands** within a framework of limited supplies. The primary consumptive and non-consumptive demands include:
    - Agriculture (crop irrigation, processing, stock watering)
    - Environmental (stream, wetland, and lake waters)
    - First Nations (elements of all other demands, together with unique cultural value)
    - Urban (residential, commercial, industrial and institutional)

- **Water and land-use decisions are intimately inter-connected in the Okanagan**. The iconic landscape of the region is dominated by natural ecosystems that are highly prized for their scenic beauty and ecological value as well as by agricultural land that is both productive and pleasing to the eye. Both land-use types are highly sensitive to water availability. The regional economy is strongly dependent on this land-water interrelationship (e.g., wineries, orchards, tourism).

- **Agriculture is by far the largest user of water** in the valley with approximately 70% of licensed allocations and accounting for 54% of total use. The industry has been proactive in implementing conservation measures (e.g., drip irrigation, leak detection, scheduling, voluntary metering) to provide better management in times of water shortage, but licensees typically feel threatened that their allocations may be suspended or cancelled if the full allocation is not used consistently, as might happen through the 'Beneficial use declaration' that currently exists in the *Water Act* (Sub-section 22.01).

- There is a sense within the Okanagan that land in the ALR (and land held in First Nations reservations that has the potential to grow crops profitably) is of little value for agriculture if reasonable access to water is not assured. **Food security for future generations is a key concern**.

- Existing senior licensees will be very reluctant to relinquish their legal rights—either wholly or in part—under times of stress unless there are mechanisms that: (a) protect those historical licences while also encouraging conservation and temporary re-allocations; (b) provide appropriate compensation for relinquishing the historical right to use; or (c) create a mechanism through which

new licences can be acquired at some future date that will guarantee water allocations of a comparable priority in a manner that assures equitable access.

Groundwater Regulation

- Very little is known about the hydrogeology of the Okanagan, especially aquifer extent and connectivity. It will be difficult to manage groundwater resources without a more thorough understanding of how the subsurface plumbing operates and how it is connected to surface systems.

- Groundwater recharge of unconfined aquifers tends to be localized, and the quantity and quality of recharge is influenced by land-use practices that are easy to discern. However, recharge to deep, confined aquifers typically occurs in distant upland areas that are poorly mapped and vaguely understood. Land cover changes associated with logging, mining, recreational uses, and climate change (e.g., mountain pine beetle, forest fires) will have important consequences for the distribution of groundwater recharge versus surface runoff and evapotranspiration.

APPENDIX 2 – BC Water Act Modernization Discussion Paper – Submission Guide

9.3 Submission guide

Protecting stream health and aquatic environments

Goal One, Resources 10.2

- Indicate your level of support for the proposed objectives for protecting stream health and aquatic environments.
- Which options do you prefer, and why? Are there others?
- Under what conditions should a water allocation plan be developed and how should it be applied?

Improving water governance

Goal Two, Resources 10.4, 10.5, 10.6

- Indicate your level of support for the proposed objectives for improving water governance.
- Which approach do you prefer, and why? Are there others?
- What scale of watershed is most appropriate for water planning and management?
- What funding solutions might help to implement the approaches?
- What are the important considerations for accountability, transparency and dispute resolution processes in any delegated or shared approach?
- What are the benefits and implications of sharing roles for water stewardship?

Introducing more flexibility and efficiency into the water allocation system

Goal Three

- Indicate your level of support for the proposed objectives for introducing more flexibility and efficiency into the water allocation system.
- Which options do you prefer, and why? Are there others?
- What considerations would help determine which water uses and extraction rates could be a permitted use (no water licence required)? What controls are needed? How should permitted use status be protected?

Regulating groundwater extraction and use

Goal Four, Goal Three, Resource 10.3

- Indicate your level of support for the objective proposed for regulating groundwater extraction and use.
- Which thresholds do you prefer, and why?
- What are the appropriate criteria for determining the priority areas for groundwater extraction and use?

Additional input requested.

- Your views are welcome on the proposed principles (pg 5).
- Are there additional opportunities for the modernization of the *Water Act* to integrate with other federal and provincial legislation?
- What are the appropriate criteria for determining at risk or priority watersheds?
- How will these proposals specifically affect you or your community?
- How can we improve the proposals so your interests are taken into account?
- What kinds of collaborative processes would you like to see for future water stewardship?
- Will the possible solutions adequately equip future generations to manage water sustainably?
- What have we missed?

APPENDIX 3 - British Columbia Water Act Modernization discussion paper: Support for proposed objectives & stated preferences to questions.

5.1 Objectives for protecting stream health and aquatic environments.

In order to better protect stream health and aquatic environments the following objectives are proposed for a modernized Water Act:

1. Environmental flow needs are considered in all water allocation decisions to protect stream health
2. Watershed or aquifer-based water allocation plans include environmental flow and the water available for consumptive use.
3. Habitat and riparian area protection provision are enhanced.

STRONGLY SUPPORT

Preferred Options

Objective 1. Environmental flows are considered in all water allocation decisions to protect stream health.

Options for how environmental flow is to be considered in decisions (p 9)

OBWB Preferred Option (s)	Reason (s)
A. Environmental Flow Guidelines	• Requires explanation/justification of variance. • Promotes flexibility.

Objective 2. Watershed-based water allocation plans include environmental flow needs and the water available for consumptive use.

Options for including water allocation plans in the Water Act (p 11)

OBWB Preferred Options	Reason (s)
B. The development of water allocation plans is required in priority areas. AND C. The decision must consider the water allocation plan.	• Requires explanation/justification of variance. • Promotes flexibility.

Question (p 11)	OBWB Answer(s)
Under what conditions should a water allocation plan be developed and how should it be applied?	• See OBWB recommendations.

Objective 3. Habitat and riparian area protection provisions are enhanced.

Options for protecting habitat and riparian areas (p 12)

OBWB Preferred Option (s)	Reason (s)
B. Amend the Water Act to include a prohibition against dumping of a wider range of debris and materials into streams, with a requirement for the person responsible for dumping to restore stream health.	• Supports personal responsibility of water use. • Fiscally responsible. Damaged to water bodies and riparian areas caused by individual activities should be rehabilitated at user's expense. Polluter pay.

6.1 Objectives for improving water governance.

In order to improve BC's water governance arrangements the following objectives are proposed for a modernized Water Act.

1. Governance roles and accountabilities are clarified in relation to the allocation of water and the protection of stream health
   This includes roles for First Nations, industry, local communities and non-government organizations in planning and decision making
2. Governance arrangements are flexible and responsive to future needs and values.
3. Management is coordinated with neighbouring jurisdictions across all levels of government and those with a major interest in the watershed.

STRONGLY SUPPORT

Preferred Options

Options for improving water governance (p 17)

Preferred Option (s)	Reason (s)
B. Shared approach	• Supports strong centralized BC Government framework. • Promotes flexibility and responsiveness to local watershed management issues.

Questions (p 19)	Answer(s)
What scale of watershed is most appropriate for water planning and management?	• **Watershed** (region where people commute to live, work and play). The Okanagan Basin is an appropriately sized watershed management unit. The Columbia Basin is too large and diverse.
What funding solutions might help to implement the approaches?	• BC Government (i.e., tax base). • Regional District levied property tax targeted for watershed management. • Watershed (regional) sales tax. • Develop watershed water fund. • Permit (i.e. boat use permit, etc.)
What are the important considerations for accountability, transparency, and dispute resolution processes in any delegated or shared approach?	• All water licensing decisions must be made at the provincial level. • There is only one tax payer and water is a provincially managed resource. Increased funding support to Ministry of Environment is required.

7. 1 Objectives for introducing more flexibility and efficiency in the water allocation system

In order to introduce more flexibility and efficiency in the water allocation system the following objectives are proposed for a modernized Water Act:

1. The water allocation system emphasizes and encourages efficiencies in both water use and the administration of water as a natural resource.
2. Water users and decision makers have flexibility to quickly adapt to changing environmental, economic and social conditions.
3. The water allocation system integrates the management of groundwater and surface water resources where required in problem areas.
4. Water users conserve water during drought or when stream health is threatened.

STRONGLY SUPPORT

Preferred Options

Objective 1. The water allocation system emphasizes and encourages efficiencies in both water use and the administration of water as a natural resource.

Options to encourage water use efficiency (p 22)

Preferred Option (s)	Reason (s)
Province Wide: B. Codes for efficient infrastructures and practices AND C. The use of incentives and economic instruments **In Priority Watersheds:** A. Government determines actual needs AND D. Review rules for the transfer and apportionments	• Provide incentives for water conservation, both regulatory and market based. Ensure appropriate life-line and agricultural water pricing. • Support required water science and information management to ensure that water limited areas have important tools to manage water conflicts during low-flow conditions.

Options to encourage administrative efficiency (p 24)

Preferred Option	Reason (s)
E. Permitted uses would be defined and allowed under the Act in accordance with regulations applied in a **consistent** manner throughout the province.	• Supports certainty of water management and promotes clarity in expectations for reporting and use.

Question (p 24)	Answer(s)
What considerations would help determine which water uses and extraction rates could qualify as permitted use (no water licence required)? What controls are needed? How should permitted status be protected?	• See OBWB recommendations.

Options to encourage administrative and water use efficiencies (p 25). Any and all options (O) to encourage administrative and water use efficiencies (p 25) are **strongly supported**.

Objective 2. Flexibility is provided to water users and decision makers to quickly adapt to changing environmental, economic, and social conditions.

The OBWB strongly supports the option to provide water users and decision makers the flexibility to adapt (p 25).

Objective 3. The water allocation system integrates the management of groundwater and surface water resources where required in problem areas.

Options for the water allocation system (p 26)

Preferred Option (Alternative)	Reason (s)
RE-EXAMINE the 'First-in-time, First-in-right' (FITFIR) system AND Expand the operational definition of 'beneficial use'	• See section titled "Introduce More Flexibility and Efficiency in the Water Allocation System" p 16

Objective 4. Water users will be required to conserve water during drought or when stream health is threatened.

Options to address temporary water scarcity (p 27)

Preferred Option	Reason (s)
IF FITFIR (s 15 and 88, *Water Act*): D. Priority Date OR IF Priority Use: C. Hierarchy of uses	• Support certainty and clarity of process during drought. • Support efficient management decision making during drought periods.

Options to address long term water scarcity (p 28)

Preferred Option	Reason (s)
F. At the request of water users or communities AND **In Priority Watersheds:** E. Through a mandatory Water Management Planning Process	• Promotes flexibility.

8.1 Objective for regulating groundwater extraction and use

In addition to the objectives outlined in the Goal Three the following groundwater specific objective is proposed for a modernized Water Act:

1. Groundwater extraction and use is regulated in priority (critical) areas and for all large withdrawals.

STRONGLY SUPPORT

Preferred Options

Objective 1. Groundwater extraction and use is regulated in priority (critical) areas and for all large withdrawals.

Options for determining the thresholds for large groundwater withdrawals (p 31)

Preferred Option	Reason (s)
B. The threshold for large could be **250 M^3/day** for wells drilled in unconsolidated, sand and gravel aquifers or if otherwise determined to be large by a Water Management Plan.	• See OBWB recommendations.

Options for determining priority areas to regulate groundwater extraction and use (p 32)

All (any combination) of the priority criteria are preferred:

a. Heavy groundwater extraction and use
b. Area of known quantity concern
c. Groundwater in direct hydraulic connection
d. Significant population that is reliant on groundwater
e. Trans-boundary aquifers
f. Basins where surface water is at or near the allocation limit