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To: Living Water Smart ENV:EX
Subject: Water Act Modernization Discussion Paper Feedback

Below is the result of your feedback form. It was submitted by
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Principles_Support: Support

Principles_Comments: Sustainability should be considered an overarching principle.

Additional principles that should be considered:

Transparency in water management decisions.

Water management decisions should be guided by the precautionary principle

Goal1_Support: Strongly Support

Goal1_Comments: WWF-Canada strongly supports the objectives proposed. WWF-Canada recommends the adoption of the Brisbane Declaration definition of environmental flows: "Environmental flows describe the quantity, timing and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on these ecosystems." WWF-Canada recommends that environmental flows are protected not just for stream health but also aquatic ecosystems more broadly including groundwater and wetlands.

EnviroFlow_Comments: The question and response options as worded do not provide appropriate framing to articulate WWF-Canada's perspective. WWF-Canada supports the idea of standards for environmental flows as this would provide legal

protection, but does not believe that a single province-wide standard is appropriate.

WWF-Canada recognizes the diversity of British Columbiaâ s streams and their environmental flow requirements. Therefore, although they are attractive from a management efficiency perspective, a single set of environmental flow standards or guidelines will not provide the same level of protection for all of the provinceâ s streams. Regionally specific environmental flow prescriptions are better suited to provide long-term protection of aquatic ecosystems as they reflect the local ecological context. However, WWF-Canada believes that all regionally specific standards should contain the same key elements and be guided by the environmental flow science principles discussed below.

Maintenance of the natural flow regime is widely recognized as critical to providing for the long-term sustainability of aquatic ecosystems (Poff et al., 1997). The natural flow paradigm is based on the concept that aquatic ecosystems have adapted to the inter- and intra-annual variability in flow timing, magnitude, duration, frequency of occurrence, and rate of change. The sustainability boundary approach (Richter, 2009) serves to set limits on the extent to which water withdrawals and discharges, water infrastructure operations and land uses can alter natural flow variability. In addition to limits on modifications during periods of average and high flows, a fundamental component of environmental flow recommendations is the concept of an ecosystem base flow (also known as subsistence flow, instream flow reservation, low flow cut-off, etc) which specifies a flow below which further water diversion is not allowed in order to protect the aquatic ecosystem during periods of low flow. Lastly, in order to adequately protect the aquatic ecosystem environmental flows must have priority and legal standing (Annear et al., 2004).

For these reasons WWF-Canada believes that regional specific environmental flow standards should include (1) critical elements of the natural flow regime, (2) sustainability boundaries, (3) ecosystem base flows, and (4) legal standing and priority. In addition, environmental flow recommendations should also consider (5) projected hydrological scenarios to ensure that the aquatic ecosystem will be protected if climate change results in alteration of the timing or magnitude of flows in the system. WWF-Canada accepts the need for flexibility on the part of regulators, provided that regulators are transparent and accountable in any decisions that deviate from environmental flow standards.

Lastly, WWF-Canada recommends that British Columbia establish an expert committee to develop regional specific environmental flow standards, and regional multi-stakeholder committees to ensure local knowledge and values are reflected.

Annear, T., Chisholm, I., Beecher, H., Locke, A., and 12 other authors. 2004. Instream Flows for Riverine Resource Stewardship, Revised Edition. Cheyenne, WY: Instream Flow Council.

Poff N.L., Allan J.D., Bain M.B., Karr J.R., Prestegaard K.L., Richter B.D., Sparks R.E. and J.C. Stromberg. 1997. The natural flow regime: a paradigm for river conservation and restoration. BioScience, 47, 769â 784.

Richter, B. D. 2009. Re-thinking environmental flows: from allocations and reserves to sustainability boundaries. Short Communication. River Research and Applications (online).

WaterAllocationPlan: Required

DecisionMaker: Must Consider

DecisionMaker_Comments: Watershed-based water allocation plans provide a means of protecting and restoring environmental flows by managing cumulative water allocations. This approach also provides clarity for water users and transparency in water allocation decisions. Due to their environmental, social, and economic benefits, WWF-Canada supports the required development of water allocation plans (Option B). Plans should be developed province-wide but this can be accomplished in phases following a priority system. WWF-Canada accepts the need for flexibility on the part of regulators, and so supports Option C (the decision maker must consider the water allocation plan) on condition that regulators are transparent and accountable in any decisions that deviate from the water allocation plans. Watershed water allocation plans should also consider projected hydrological scenarios to ensure that environmental flows will be protected if climate change results in alteration of the ti
ming or magnitude of flows.

WaterAllocationPlan_Conditions: Watershed based water allocation plans should be developed province-wide. The development of water allocation plans can be accomplished in phases following a priority system. Priority watersheds for water allocation plans may be watersheds where current conditions or projected trends indicate that human and environmental values will be threatened by limited availability of water. The Fisheries Sensitive Watershed Assessment tool is a useful example of how this could be applied. However this needs to consider more than stream habitats. It should also include things such as groundwater dependent wetlands and flood forests.

DumpingProhibition: Amend

DumpingProhibition_Comments: WWF-Canada believes that option B is preferable in this section. However this section does not go far enough though in outlining measures for protecting habitat. For instance the impact of de-watering on groundwater and wetlands would not be considered by these limited changes. In addition commitment should be made to align this section with Fisheries Act "deleterious substances" Section 36. Finally consideration should be given to emerging issues such as temperature sensitive watersheds and the impacts of reduced flow on water temperature.

Goal2_Support: Support

Goal2_Comments: Overall, WWF-Canada supports the objectives for improving water governance in the province. Our key concern is that implementation of these objectives lead to outcomes consistent with the fundamentals of sustainable water use: securing environmental flows requirements; securing water to meet human

needs; ensuring equitable access to water resources; and facilitating efficient use of water resources to support sustainable economic development activities. WWF-Canada supports a delegated approach to water governance. In moving to a delegated approach it will be critical to ensure devolution of planning, decision-making and any management functions is supported by the required human and financial resources required to deliver sustainable water management outcomes.

Goal2_Options: Delegated

ScaleForWatershedPlanning: WWF-Canada supports a delegated approach focused on the watershed scale, whereby Watershed Agencies would be empowered and resourced to deliver on broader provincial scale goals. Such a shift to the watershed scale would integrate decision making and planning to a scale consistent with the ecological context, functions and processes that support social, cultural and economic development.

GovernanceFundingSolutions: Solutions for funding the implementation of a delegated, watershed-based framework include:
â ¢ Cost-sharing by all levels of government (federal, provincial, municipal) who share responsibility for water management.
â ¢ Development of watershed funds based on payment for ecosystem services approaches that generate revenue from actors who derive profit from the use and degradation of water resources and water-dependent ecosystem services pay into a watershed fund.

Accountability: â ¢ Clear and agreed upon roles and responsibilities of Watershed Agencies and provincial authorities.
â ¢ Clear lines of accountability and mechanisms such as oversight bodies that ensure decisions taken by delegated authorities can be traced to legal institutions (i.e., the Water Act or other legal mechanisms) and democratically elected officials (i.e. Provincial government Minister).
â ¢ Planning processes, management function s and dispute resolution mechanisms capable of maintaining equity among upstream and downstream interests and jurisdictions.

WWF-Canada suggests that the BC government consider formally adopting the principle of the Public Trust Doctrine through its Water Act modernization in order to protect ecological functions and services and to ensure water security for future generations.

Goal3_Comments: While WWF-Canada generally supports the introduction of greater flexibility and efficiency in the water allocation system, we have chosen not to indicate a level of support as we are uncomfortable with the language in Objective 3. As noted in Goal 1 and Goal 4, WWF-Canada believes that the sustainability of the provinceâ s water resources requires province-wide integrated management of groundwater and surface water. WWF-Canada believes that integrated management is also necessary to achieve the other goals of British Columbiaâ s Water Act Modernization (particularly Goal 1 as groundwater is critical to sustaining the environmental flow requirements of aquatic

ecosystems). Second, water conservation should be practiced whenever the health of aquatic ecosystems are threatened and not just stream health.

WaterUseEfficiency_1: Government determines actual needs

WaterUseEfficiency_2: Use of incentives and economic instruments

WaterUseEfficiency_Comments: The key to success in achieving this objective is to provide government with authority of revisiting the terms, conditions and duration of water licences as context dictates. To this end Option A and C are preferred choices. As increased flexibility is going to be required in future years due to the impacts of climate change on water availability it may also be prudent to follow-up with Option D.

AdminEfficiencyOptions_SelfReg: Required self-registration

AdministrativeEfficiency_Comments: While WWF-Canada recognizes the benefits of administrative efficiency in terms of use of scarce public financial and human resources, we suggest that any designation of permitted uses be limited to those outlined in the discussion document (reasonable domestic uses, stock watering, short-term uses below a threshold, and other small or low risk uses). Importantly, any permitted uses would need to be provided from a consumptive pool of water resources which should be defined by reservation of water to protect environmental flows and ecosystem functions

PermittedUseConsiderations: Measures are needed to ensure that permitted uses do not impact established protected environmental flows.

AdminEfficiencyWaterUse_Comments: All of the above options are desirable. Monitoring and reporting of actual water use are critical components of any water allocation system. Furthermore, the environmental impacts of water use should be monitored over time.

Flexibility_Support: Strongly Support

Flexibility_Comments: The ability for decision makers to seek amendments to the terms and conditions on water licences is critical to restore and protect environmental flows, particularly in the context of climate change. In addition to the management triggers indicated above, WWF-Canada would support moving towards a standard review period for all licences. Water licences issued without environmental considerations that do not expire or do not come up for review are inconsistent with sustainable water resource management. In other jurisdictions pre-existing water rights often limit the ability to protect or restore environmental flows â British Columbia has the opportunity through the Water Act Modernization to avoid this limitation and provide adequate long-term protection of environmental flows.

WaterAllocationSystem_Options: Priority use

WaterAllocationSystem_Comments: The FITFIR system was developed in an era with hydrological conditions and water use priorities that no longer exist. WWF-Canada

supports a switch to the "Priority of Use" option. However, groundwater must be regulated province-wide.

WWF also recommend that the province consider implementation of a â consumptive poolâ approach to water allocation whereby recognized (i.e. licensed) water users equitably share a volume of water, defined seasonally and established based on first reserving water for environmental flow requirements.

WaterScarcityTemporary_Options: Hierarchy of uses

WaterScarcityTemporary_Comments: The preferred option is to develop a hierarchy of uses that allows for province wide standards on Domestic Use followed by Environmental Flows and then allows localized bodies to rank uses below this.

WaterScarcityPermanent_Comments: The preferred option would be mandatory Water Management Plans at the request of watershed authorities. This needs to be one of the tools available to watershed authorities.

Goal4_Comments: The question and response options as worded do not provide appropriate framing to articulate WWF-Canada's perspective. WWF supports the regulation of groundwater extraction and use â but rather than designating only priority areas for such regulation, we believe that, like surface water, groundwater extraction and use should be regulated province-wide. The separation of groundwater and surface water ignores the reality that they are a single resource and function as a single system. The regulation and allocation of water should recognize the hydrological interconnectivity between groundwater and surface flows. Groundwater and surface water should be conjunctively managed to provide long-term protection for environmental flows and the stream and riparian fishery and wildlife resources that are dependent upon them. Other jurisdictions are beginning to recognize and manage the interconnectivity and potential impacts of groundwater extraction on stream health â
British Columbia has the opportunity to adopt and build on this approach through the Water Act Modernization.

Thresholds_Comments: The question and response options as worded do not provide appropriate framing to articulate WWF-Canada's perspective. Although British Columbia has undertaken a systematic delineation of its aquifers, an understanding of the amount of groundwater stored in the provinceâ s aquifers and their sustainable yield and role in ecosystem functioning remains limited. Groundwater should be regulated province-wide, but it should be recognized that different areas may require different extraction thresholds to reflect the diversity of the provinceâ s hydrology and aquatic ecology. While broadly applicable thresholds are attractive from a management efficiency perspective, they may fail to reflect the local ecological context and impacts that are critical to effective water management. WWF-Canada would prefer scientifically based and supported thresholds for groundwater extraction. The importance of groundwater in sustaining critical stream and wetland habitats throu
gh the provision of base flows, moderation of temperature fluctuations, and transportation of nutrients is well recognized, but quantification of the amount of groundwater that can be removed before affecting stream health remains largely unknown.

WWF-Canada suggest that, between the two thresholds options presented above, Option B is preferred. Lower groundwater extraction thresholds are better suited to manage the cumulative effects of multiple groundwater withdrawals and are also consistent with a precautionary approach to sustainable long-term management of water resources. These thresholds should be seen as minimum standards, and emphasis should be placed on research (including aquifer dynamics such as recharge, yield, discharge) and monitoring (including aquifer levels and use) to determine if more stringent site-specific thresholds are required for certain aquifers to protect or restore ecosystem function.

PriorityAreas_Comments: The question and response options as worded do not provide appropriate framing to articulate WWF-Canada's perspective. The role of groundwater in supporting ecosystem functions must be considered in the identification of priority areas for establishing site specific thresholds. As indicated above, groundwater should be regulated province-wide but region-specific thresholds may be more applicable in certain areas. All groundwater sources that are connected to surface water provide important supporting ecosystem services, and there is invariably a trade-off between groundwater extraction and the ecological benefits of stable outflow to groundwater discharge areas. The conception of groundwater without ecosystem considerations is only useful in discussions about specific confined aquifers.