

# **Wetlands and the *Water Sustainability Act*: Opportunities for Wetlands Protection and Conservation**

Discussion Paper  
June 30, 2016

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## **A. Wetlands and the *Water Sustainability Act***

Wetlands are vital ecosystems and are one of the world's most productive natural environments, providing a range of ecosystem services. These include freshwater supply and groundwater recharge, supporting a wide range of biological diversity, flood attenuation, filtering pollutants and mitigating climate change impacts<sup>1</sup>. In addition to their inherent ecological importance, wetlands are of high economic value, providing ecosystem services with an average estimated value in the Fraser River Lowlands of \$9,008 per hectare<sup>2</sup>.

Despite the significant ecological and economic importance of wetlands in British Columbia, prioritizing their protection and conservation has proved difficult, especially in low-land areas where the majority of urban development and economic activity takes place. As such, there is a need to strengthen existing policies and legislation to better protect, restore and conserve wetlands in BC. The *Water Sustainability Act* provides an important opportunity to meet this need through its specific policy areas and associated regulations. In particular, the ecosystem services that wetlands provide align well with the 'Areas of Improvement' identified within the Act, including: environmental flows, water objectives, water sustainability plans, groundwater regulations and the shift towards an overall watershed based approach to management and governance.

This paper explores areas of alignment between wetland ecosystem goods and services and the policy areas and sections of the *Water Sustainability Act* (WSA) to identify opportunities to strengthen wetland conservation and align with existing wetland policies. A summary of existing wetland policies and potential alignment with the WSA is provided in Appendix 1.

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<sup>1</sup> Ramsar Convention. 'The Importance of Wetlands.' Accessed Feb 2016.

<http://www.ramsar.org/about/the-importance-of-wetlands>

<sup>2</sup> David Suzuki Foundation. 'Natural Capital in BC's Lower Mainland, Valuing Benefits from Nature.' p. 48.

[http://www.davidsuzuki.org/publications/downloads/2010/DSF\\_lower\\_mainland\\_natural\\_capital.pdf](http://www.davidsuzuki.org/publications/downloads/2010/DSF_lower_mainland_natural_capital.pdf)

## ***Background on the Water Sustainability Act:***

The *Water Sustainability Act* (WSA) received Royal Assent by the Provincial Legislature of British Columbia in April 2014 and came into force on February 29<sup>th</sup>, 2016. It replaces BC's original *Water Act* from 1909<sup>3</sup> and is the primary piece of legislation regulating BC's water resources. The WSA includes seven new policy directions which are currently undergoing regulation and operational policy development.

The WSA policy directions are:

1. Protect stream health and aquatic environments
2. Consider water in land use decisions
3. Regulate groundwater use
4. Regulate during scarcity
5. Improve security, water use efficiency, conservation
6. Measure and report
7. Enable a range of governance approaches

The following section of this report outlines the linkages between key wetland ecosystem services and the related policy directions and sections of the *Water Sustainability Act* that present significant opportunities to advance wetland conservation in BC.

## **B. Inclusion of Wetlands in the Definition of Streams**

A new definition of streams in the *Water Sustainability Act* is inclusive of some classes of wetlands such as marshes, fens and swamps<sup>4</sup>. Therefore, many of the provisions that were previously only relevant to a more narrow definition of streams – as well as new provisions within the Act – are now applicable to marshes, fens and swamps. There is also potential to expand the definition to include additional classes of wetlands through further regulation development. Other wetland classes recognized in BC<sup>5</sup> that could be included are bogs (Wb), shallow-water (aquatic) wetlands (Wa), Shrub-carr transition class (Sc), low bench flood class (Fl), middle bench flood class (Fm) and high bench flood class (Fh). Wetlands may also be linked to and included within the sensitive stream designation articulated in the first section of the Act<sup>6</sup>.

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<sup>3</sup> Province of BC. '*Water Sustainability Act*.' Accessed Feb 2016.

<https://engage.gov.bc.ca/watersustainabilityact/water101/>

<sup>4</sup> *Water Sustainability Act*, SO 2016, pt 1, s 1. [https://www.leg.bc.ca/Pages/BCLASS-Legacy.aspx#%2Fcontent%2Flegacy%2Fweb%2F40th2nd%2F3rd\\_read%2Fgov18-3.htm](https://www.leg.bc.ca/Pages/BCLASS-Legacy.aspx#%2Fcontent%2Flegacy%2Fweb%2F40th2nd%2F3rd_read%2Fgov18-3.htm)

<sup>5</sup> MacKenzie, W.H. and J.R. Moran. 2004. Wetlands of British Columbia: a guide to identification. Res. Br., B.C. Min. For., Victoria, B.C. Land Manage. Handb. No. 52.

<https://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.pdf>

<sup>6</sup> *Water Sustainability Act*, SO 2016, pt. 1, s.1. [https://www.leg.bc.ca/Pages/BCLASS-Legacy.aspx#%2Fcontent%2Flegacy%2Fweb%2F40th2nd%2F3rd\\_read%2Fgov18-3.htm](https://www.leg.bc.ca/Pages/BCLASS-Legacy.aspx#%2Fcontent%2Flegacy%2Fweb%2F40th2nd%2F3rd_read%2Fgov18-3.htm)

## C. Wetland Ecosystem Services

### (1) *Regulation of Water Flows*

Wetlands such as peatlands and wet grasslands alongside rivers and other watercourses have sponge-like characteristics absorbing rainfall and attenuating the flow of surface water into streams and other tributaries. Wetland vegetation also intercepts and absorbs water helping to slow and reduce surface runoff. When wetland areas are drained and filled for development, they are no longer able to regulate water flow, increasing the risk of flooding while reducing infiltration and recharge of groundwater aquifers. The slow release of surface water from wetlands and the contribution of base flows from aquifers are necessary to support environmental flows in streams and rivers throughout BC. These processes of flood attenuation and groundwater recharge are likely to become even more important as changing climate norms result in changes to seasonal precipitation and hydrology across BC, with climate change models typically forecasting winters to become wetter on average across BC (with more precipitation as rain), as well as hotter, drier summers.

Related policy directions and corresponding sections of the *Water Sustainability Act*<sup>7</sup>:

- Protect stream health and aquatic environments
  - **Section 15: Environmental Flow Needs** bring in the requirement to consider environmental flow needs (EFN) in new water allocation decisions.
  - **Section 86: Declaration of a significant water shortage** provides for restrictions to all water users to protect the critical environmental flow threshold.

**Connection to wetlands:** Given the ability of wetlands to retain water and regulate flows, their conservation would help ensure the environmental flow threshold is maintained, potentially avoiding or delaying water use restrictions.

- Regulate during scarcity
  - **Section 22: Precedence of rights sets out the priority of rights system called ‘ first in time, first in right’ (FITFIR).** Section 22 maintains the fundamental concept of FITFIR, but allows a basic amount of water use for essential household needs, and provides for the protection of critical environmental flows. Under Section 22, priority of right is based on the date of precedence of an authorization, with the most senior water licensee having the superior right.
  - **Section 86-88: Temporary Protection Orders** allows for the declaration of a significant water shortage, which is the first step in taking action as outlined in subsequent sections 87 and 88 to restrict water rights in order to protect aquatic ecosystems.
  - **Section 87: Directs the comptroller** to determine the critical environment flow threshold for streams within an area for which a significant water shortage has been declared (under Section 86). Once determined, the critical environmental flow threshold is given precedence under section 22(9) and

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<sup>7</sup> Province of BC. (2014). ‘2014 *Water Sustainability Act*.’ Accessed March 2016.  
<https://engage.gov.bc.ca/watersustainabilityact/act/>

- o authorizes the decision maker to issue critical environmental flow protection orders.
- o **Section 39:** The Lieutenant Governor in Council may **retain the reserved water in a stream or aquifer.**

**Connection to wetlands:** Conserving wetlands enables river basins to be more resilient during periods of scarcity. By storing and slowly releasing both surface and groundwater resources, wetlands help to ensure that the environmental flow threshold is better protected, potentially avoiding or delaying water use restrictions or Temporary Protection Orders during times of scarcity. Water reservations can also be enacted for conservation purposes.

- Measure and report
  - o **Section 131:** regarding measuring, testing, and reporting expands on the current provisions in the *Water Act* and provides authority for making regulations about measuring, calculating and reporting on the quantity and quality of water diverted and used.

**Connection to wetlands:** Measuring and reporting could include data based on the creation and/or removal of wetlands to identify its estimated impact on water quantity and flow.

- Consider water in land use decisions
  - o **Section 43: Water Objectives** provides authority to establish objectives in a regulation to provide a more consistent approach to considering water in natural resource decisions and local government planning. The objectives would support decision making to help reduce impacts to water and help sustain water quantity, water quality and aquatic ecosystems.

**Connection to Wetlands:** Water objectives could include the conservation of wetlands as wetlands provide valuable water quality, quantity and wildlife habitat services. Conversely, water objectives focused on protection of water quality, quantity and aquatic ecosystems could be achieved or advanced through enhanced protection and conservation of wetlands.

## **(2) Provision of Waste Treatment and Water Quality Improvement**

In addition to their sponge-like quality, wetlands also act as filters that retain sediment and other pollutants and improve water quality. For example, by slowing the flow of surface water, suspended sediments settle out of the water column. Dissolved nitrogen is absorbed by wetland vegetation as a nutrient or is eliminated by converting it into nitrogen gas, which decreases the chances of eutrophication<sup>8</sup>. Wetlands also trap phosphorous, heavy metals and other toxins in sediments and during peat development<sup>9</sup>.

Related policy directions and corresponding sections of the *Water Sustainability Act*:

- Protect stream health and aquatic environments

<sup>8</sup> North Carolina University. (2016). 'Functions of Wetlands.' North Carolina Water Quality Program. Accessed March 2016. <http://www.water.ncsu.edu/watershedss/info/wetlands/function.html>

<sup>9</sup> World Wildlife Fund. (2016). 'The value of wetlands.' Accessed March 2016. [http://wwf.panda.org/about\\_our\\_earth/about\\_freshwater/intro/value/](http://wwf.panda.org/about_our_earth/about_freshwater/intro/value/)

- **Section 46: Prohibition on introducing foreign matter into a stream** provides additional protection to the current Environmental Management Act and Waste Discharge Regulation for streams by prohibiting dumping of debris and by creating associated penalties.
- **Section 47: Remediation orders in relation to foreign matter in a stream** provides instructions on how remediation can be carried out.

**Connection to wetlands:** Though it is crucial that regulations are developed to prevent the introduction of foreign matter into a stream, the conservation of wetlands can ensure that impacts of these occurrences are mitigated. For example, soil erosion from a farm or construction site could settle out of the water column when water enters a wetland.

- Consider water in land use decisions
  - **Section 43: Water Objectives** provides the authority to establish objectives in a regulation to provide a more consistent approach to considering water in natural resource decisions and local government planning. The objectives would support decision making in order to reduce impacts and help sustain water quantity, water quality and aquatic ecosystems.
  - **Division 4, (Sections 64-85): Water Sustainability Plans** bring in many of the existing provisions of the *Water Act* and expands the framework for planning to be more comprehensive.

**Connection to Wetlands:** Water objectives can include the conservation of wetlands which ultimately impact water quality, quantity and wildlife habitat. Water Sustainability Plans can incorporate the values of wetlands and provide grounds for their protection and conservation. Given the wide range of ecosystem services that wetlands provide to communities and the natural environment, it is anticipated that wetland protection and conservation would help advance many of the objectives associated within Water Sustainability Plans.

### (3) *Recharge of Groundwater Supplies*

Wetlands help maintain water table levels through groundwater recharge<sup>10, 11</sup>. The rate of recharge depends on soil type, vegetation, site location, permeability of surface area, and the water table gradient<sup>12</sup>.

Related policy directions and corresponding sections within the *Water Sustainability Act* include:

- Regulate groundwater use
  - **Sections 5-6:** Vesting water in government and regulating use of groundwater ensures both surface and groundwater are managed as a single resource.

**Connection to wetlands:** As key sites supporting groundwater recharge, wetlands are an important component of the integrated surface and groundwater system. As such, wetland

<sup>10</sup> O'Brien, A. L. (1988). 'Evaluating the cumulative effects of alteration on New England wetlands.' *Environmental Management*, Vol 12, Issue 5, pp 627-636.

<sup>11</sup> Winter, T. C. (1988). 'A conceptual framework for assessing cumulative impacts on the hydrology of nontidal wetlands.' *Environmental Management*, Vol 12, Issue 5, pp. 605-620.

<sup>12</sup> Verry, E. S. & R. Timmons. (1982). 'Waterborne Nutrient Flow Through an Upland-Peatland Watershed in Minnesota.' *Ecology*, Vol 63, Issue 5, pp. 1456-1467.

protection and conservation can support seasonal availability of both surface and groundwater for human use and for environmental flows.

#### **(4) Protection of Shorelines**

Wetlands can mitigate the impacts of strong weather events as well as reduce the risk of flooding and erosion, particularly on lakeshores and estuaries. Wetland vegetation can help to prevent erosion as well as provide a barrier to coastal storm surges.

Related policy directions and corresponding sections of the *Water Sustainability Act*:

- Consider water in land use decisions
  - **Section 43: Water Objectives** provides authority to establish objectives in a regulation to provide a more consistent approach to considering water in natural resource decisions and local government planning. The objectives would support decision making to help reduce impacts to and to help sustain water quantity, water quality and aquatic ecosystems.

**Connection to wetlands:** Conserving wetland ecosystems can help protect shoreline areas of communities from flooding and erosion on lakeshores and estuaries. Therefore, wetland conservation can reduce vulnerability of buildings, properties and infrastructure from flooding and erosion. This can be an important consideration in local planning and development processes.

#### **(5) Provision of Habitat for Fish and Wildlife**

Wetlands are sites of significant biological diversity, estimated to support more than 40% of all the world's species and 12% of all animal species<sup>13</sup>. They are an important habitat for migrating birds providing refuge and food for these species.

Related policy directions and corresponding sections of the *Water Sustainability Act*:

- Consider water in land use decisions
  - **Section 43: Water Objectives** provides authority to establish objectives in a regulation to provide a more consistent approach to considering water in natural resource decisions and local government planning. The objectives would support decision making to help reduce impacts to and to help sustain water quantity, water quality and aquatic ecosystems.
  - **Division 4 (Sections 64-85): Water Sustainability Plans** bring in many of the existing provisions of the *Water Act* and expands the framework for planning to be much more comprehensive.

**Connection to wetlands:** Protecting wildlife habitat and biodiversity is an important consideration for local planning and development processes. Incorporating wetlands into Water Objectives and Water Sustainability Plans would ensure that these values are protected.

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<sup>13</sup> World Wildlife Fund. (2016). 'The value of wetlands.' Accessed March 2016.  
[http://wwf.panda.org/about\\_our\\_earth/about\\_freshwater/intro/value/](http://wwf.panda.org/about_our_earth/about_freshwater/intro/value/)

## **(6) Provision of Important Recreational and Cultural Functions**

Wetlands have both recreational and cultural values for communities. For First Nations in BC, wetlands are the sites of traditional food and medicines and have important spiritual, historical and archaeological value.

The *Water Sustainability Act* does not currently consider these wetland values; however, community-based Water Sustainability Plans may aspire to protect or enhance these values and wetland conservation may be an effective way of achieving these aspirations.

## **(7) Area-Based Regulations and All Wetland Ecosystem Services**

In the legislative proposal for the *Water Sustainability Act*, Area-Based Regulations were proposed to address the range of climatic and geographic conditions and water supplies that are under stress from urban development, frequent drought or scarcity. Under the *Water Act*, the Province could only manage and regulate water diversion and use through individual licences or on a stream basis. In the *Water Sustainability Act*, licencing exemptions may be modified under an area-based regulation or in a Water Sustainability Plan area. This would provide a useful tool that would enable water managers to respond to ongoing and emerging issues in a timely manner and at a variety of spatial scales that could include wetland ecosystems.

## **D. Conclusions**

As noted in this paper, there are several opportunities within the provisions of the *Water Sustainability Act* to strengthen protection and conservation of wetlands in BC. Although wetlands are not an explicit focus of the WSA, one of the expressions of the integration of wetlands is in the following policy direction of the Act:

“Protect stream health and aquatic environments”

The Act includes an expanded definition of streams, which includes marshes, fens and swamps. Therefore, this policy direction can be interpreted as ‘protect wetland health’.

In addition, the protection of wetlands can help to advance many of the other policy directions of the WSA such as:

- Consider water in land use decisions
- Regulate groundwater use
- Regulate during scarcity
- Improve security, water use efficiency, conservation

In reviewing the WSA, there are few, if any, provisions of the Act that are designed specifically for wetland protection and conservation. However, there are provisions that could be used to strengthen wetland protection and conservation depending on how they are developed and implemented on the ground. Some examples include:

- Water Objectives
- Water Sustainability Plans
- Area-Based Regulations

Lastly, the ecosystems services provided by healthy, functioning wetlands are relevant to many of the desired outcomes of the WSA such as:

1. Regulation of water flows
2. Provision of waste treatment and water quality improvement
3. Recharge of groundwater supplies
4. Protection of shorelines
5. Provision of habitat for fish and wildlife
6. Provision of important recreational and cultural functions

With time British Columbian’s will develop a better understanding of the degree to which the policy directions and provisions of the *Water Sustainability Act* will support the protection and conservation of wetlands across the province. From this initial review of the Act, there is certainly potential. This will become clearer as the regulations, policies and procedures of the Act are developed and implemented in different regions of the province.

## Appendix 1 - Wetland ecosystem services and related policy areas and sections in the *Water Sustainability Act*

Wetland Ecosystem Services	Policy Areas & 'Areas of Improvement' <sup>14</sup> of the <i>Water Sustainability Act</i>	Section of <i>Water Sustainability Act</i>
Regulation of water flows, flood protection	<p>Environmental Flows</p> <ul style="list-style-type: none"> <li>• Protect stream health and aquatic environments</li> <li>• Regulate during scarcity</li> <li>• Measure and report</li> </ul> <p>Water Objectives</p> <ul style="list-style-type: none"> <li>• Consider water in land use decisions</li> </ul>	<p>Section 15 – <i>Environmental Flow Needs</i> (Sensitive Streams Mitigation – Section 2, Part 17)</p> <p>Section 86 – <i>Declaration of a significant water shortage</i></p> <p>Section 22 – <i>Precedence of rights</i> Section 86-88 – <i>Temporary Protection Orders</i></p> <p>Section 131 – <i>respecting measuring, testing and reporting</i> (on water quality and quantity)</p> <p>Section 43 – <i>Water Objectives</i></p>

<sup>14</sup> BC Ministry of Environment. 'Water Sustainability Act.' <https://engage.gov.bc.ca/watersustainabilityact/the-proposal/>



	<ul style="list-style-type: none"> <li>Consider water in land use decisions</li> </ul>	
Carbon storage, climate regulation	Water Sustainability Plans (?)	
Recharge groundwater	Wells and Groundwater Protection <ul style="list-style-type: none"> <li>Regulate groundwater use</li> </ul>	Section 5-6- <i>Vesting water in government &amp; Use of water</i>
Protect shorelines	Water Objectives	Part 3, Division 1
Habitat for wildlife	Water Objectives,  Water Sustainability Plans  *Consider water in land use decisions	Section 43 – <i>Water Objectives</i> Part 3, Division 2 (Stream Protection)  Section 64-85 – <i>Water Sustainability Plans</i>
Serve important recreational and cultural functions	Water Sustainability Plans (?) <ul style="list-style-type: none"> <li>Consider water in land use decisions</li> </ul>	Section 64-85 – <i>Water Sustainability Plans,</i>

## Appendix 2 – Other provincial legislation relating to wetland conservation

Although the Province is responsible for resource management on the majority of the land base in BC, and although many of the applicable statutes affect wetland management, no single statute directly addresses wetland loss. All of the following provincial legislation and regulations may affect wetland conservation or be applied to help protect BC wetlands<sup>15</sup>:

- Agricultural Land Commission Act – Agricultural Land Reserve Use, Subdivision and Procedure Regulation
- Agriculture Land Reserve Act
- Columbia Basin Trust Act
- Community Charter – Spheres of Concurrent Jurisdiction – Environment and Wildlife Regulation
- Dike Maintenance Act
- Drainage, Ditch and Dike Act
- Drinking Water Protection Act – Drinking Water Protection Regulation
- Ecological Reserve Act and Regulations
- Environmental Assessment Act – Reviewable Projects Regulation
- Environmental Management Act - Contaminated Sites Regulation; Municipal Sewage Regulation; Agricultural Waste Control Regulation
- Farm Practices Protection (Right to Farm) Act
- Fish Protection Act – Riparian Area Regulation; Sensitive Streams Designation and Licensing Regulation
- Fisheries Act – Fisheries Act Regulations; Aquaculture Regulation
- Flood Relief Act
- Forest Act
- Forest and Range Practices Act
- Greenbelt Act
- Heritage Conservation Act

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<sup>15</sup> Wetland Stewardship Partnership. (2010). 'A Wetland Action Plan for British Columbia.' Accessed March 2016. p. 19 [http://bcwetlands.ca/wp-content/uploads/BCWetlandActionPlan\\_WSP\\_2010.pdf](http://bcwetlands.ca/wp-content/uploads/BCWetlandActionPlan_WSP_2010.pdf)

- Islands Trust Act – Islands Trust Regulation; Islands Trust Natural Area Protection Tax Exemption Regulation
- Land Act – Land Use Objectives Regulation
- Land Title Act
- Local Government Act
- Local Services Act
- Mineral Tenure Act
- Mining Right of Way Act
- Motor Vehicle (All terrain) Act
- Muskwa-Kechika Management Area Act
- Park Act – Park, Conservancy and Recreation Area Regulation
- Petroleum and Natural Gas Act – Drilling and Production Regulation; Geophysical Exploration Regulation
- Plant Protection Act
- Protected Areas of British Columbia Act
- Public Health Act – Sewerage System Regulation; West Nile Virus Control Regulation; Health Act Communicable Disease Regulation
- Range Act and Range Regulation
- Significant Projects Streamlining Act
- Transportation Act – No Net Loss Wetland Policy
- *Water Act* – Water Regulation
- Weed Control Act – Weed Control Regulation
- Wildlife Act – Wildlife Management Areas Regulation; Tofino Mudflats Wildlife Management Area Regulation; Wildlife Management Areas (e.g. Serpentine and Bert Brink) Regulation; Wildlife Management Areas (Squamish Estuary) Regulation

## Appendix 3 – Wetland Legislation in British Columbia <sup>16</sup>

### 3.1 Land Use Designation Tools to Protect Wetlands

Designation	Legislation (Lead Agency)	Applies to:	Implemented by:	Effectiveness	Limitation	Who May be Impacted?
<b>Provincial</b>						
Wildlife Management Areas (WMA)  Critical Wildlife Areas (CWA)  Wildlife Sanctuaries	Wildlife Act  Ministry of Environment (MoE)	Land under the administration of the Minister responsible for the Wildlife Act (e.g., Provincial Crown land, or private land leased to Minister)	Minister, with Cabinet's approval	Provides reasonably strong protection, enforceability, and flexibility due to regional manager's authority over all activities in a WMA; strong degree of decision-making by agency responsible for wildlife habitat; example is Columbia River Wetlands WMA.	Requires formal act of designation in order for wetlands to be protected; requires high level (Cabinet) consent for Minister's designation decisions; may be difficult for agency to acquire "administration" of land as prerequisite for WMA designation; cannot regulate all activity impacting wetlands	Expanding WMA designations could affect licensed users of the Crown land gaining WMA status; however, some uses could be accommodated depending on the impact to wetlands.

<sup>16</sup> Wetland Stewardship Partnership. (2010). 'A Wetland Action Plan for British Columbia.' Accessed March 2016. p. 43-52. [http://bcwetlands.ca/wp-content/uploads/BCWetlandActionPlan\\_WSP\\_2010.pdf](http://bcwetlands.ca/wp-content/uploads/BCWetlandActionPlan_WSP_2010.pdf)

					(e.g., boating restrictions)	
Provincial Parks	Park Act	Provincial Crown land	Legislature, or Cabinet	Strongest “protected area” designation, because many require Act of Legislature to change boundaries.	Park Act has strong recreation focus; requires high level approval to designate; may not be suitable for wetlands that require active interventions; not well-suited to small designations of specific wetlands.	None
Ecological Reserves	Ecological Reserves Act (MoE)	Provincial Crown land	Cabinet (some require the Legislature to modify boundaries)	Strong legislation for protection of ecosystems; takes priority over all other legislation	Science-based research and education focus; good for many wetlands, but not for those that require active management.	None
Ad Hoc designations	Environment and Land Use Act	All land in BC	Cabinet	Good, flexible legislation that can be tailor-made to special circumstances, where other tools are a poor fit; prevails over other legislation.	Protection and enforcement is only as good as the Order in Council (OIC) that is passed by Cabinet in a given situation. Past enforcement problems were addressed under s.6 of the Park Act, but that might not fit every situation.	Depends on the Cabinet OIC – potentially anyone
Wildlife Habitat	Forest and Range	Crown forest land,	Minister of	WHAs are probably	WHAs only apply to	Would mostly affect

<p>Areas (WHAs) Wildlife Habitat Features (WHFs)</p>	<p>Practices Act (Government Actions, Forest Planning and Practices, Range and Woodlots Regulations)</p>	<p>range land, and private land in a Tree Farm Licence area, Community Forest Area, or Wildlife Management Area</p>	<p>Environment (delegated to Deputy Minister of Environment)</p>	<p>of limited use for wetlands, but may provide additional protection, e.g. where general wildlife measures prohibit activity that might occur in smaller wetlands coincidentally with no reserve zone. See Table 6.2 below for other provisions for wetlands. WHFs are mentioned as a possibility where the Minister of Environment (Deputy Minister) could identify specific localized features of a wetland habitat to protect a species at risk. Practices requirement for a WHF, once established, is “must not damage or render ineffective” the WHF.</p> <p>WHAs can be put into WMAs</p>	<p>identified wildlife (but some, e.g., spade foot frog and tiger salamander) are wetland species; depends on strength of general wildlife measure for the identified wildlife; not very flexible; implementation is highly constrained by occurrences of species and timber impacts</p>	<p>forest or range licensees carrying out forest or range practices</p>
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Reserves, notations, and transfers	Land Act ss.15, 16, 17	Crown land (reserves are sometimes referred to as wildlife habitat management areas, natural environment areas, recreation conservation mgmt areas)	Ministry of Forests and Range - Integrated Land Management Bureau (ILMB)	Effective in withdrawing Crown land from disposition; could be important tool in implementing a provincial policy in which important Crown wetlands are not sold; serves to notify	Not necessarily effective in protecting wetlands habitat from land use practices, because there are no enforceable measures to protect habitat per se; seen more as an interim designation to preserve conservation opportunity until more appropriate designation is made.	Possibly potential purchasers of Crown land
Federal						
Migratory Bird Sanctuaries	Migratory Birds Convention Act  (Canadian Wildlife Service, Environment Canada)	Any land in Canada (in theory)  Mostly where hunting regulation is main objective	Federal Cabinet	Used extensively in northern Canada; in southern Canada used more on private lands. Potentially useful designation that can provide protection for wetlands where there are nationally significant migratory bird populations.	Primary focus is hunting regulations; poor to no protection for habitat other than nests while active; would not protect wetlands outside of nationally significant migratory bird habitat	Depends on whether regulations apply only in sanctuaries, or in any areas frequented by migratory birds
National Wildlife Areas (NWAs)	Canada Wildlife Act  (Canadian Wildlife Service, Environment	Land under the "administration" of the Minister of Environment	Federal Minister of Environment	Flexible, open-ended designations for areas required for wildlife conservation; good	Regulations do not have habitat focus, but prohibit many activities that harm habitat; there	Depends on areas designated NWA

	Canada)			enforcement provisions for NWAs; less difficult to establish and more flexible than National Park designations.	should be stronger protection for NWAs from outside activity; requirement for federal “administration” of land requires provincial cooperation (purchase, donation or transfer).	
National Parks	Canada National Parks Act  (Parks Canada)	Lands owned by Canada, or agreed to by Province	Federal Cabinet	Generally strong protection for wetlands in national parks, but broad exceptions available; good ecological integrity requirements.	Purpose is not protection of wetlands; would be of ancillary benefit only; low penalty for environmental damage; long process to designate National Parks in legislation.	N/A
Marine Protected Areas	Oceans Act  (Fisheries & Oceans Canada)	Internal waters of Canada (e.g., tidal wetlands which support fisheries	Federal Cabinet	Unproven, but shows promise for marine wetlands of federal and joint jurisdiction.	Premature to say at this time; main gap will be the limits on where MPAs apply	N/A
<b>Local Government</b>						
Environmentally Sensitive Areas (ESAs)	Local Government Act	Potentially any land in a municipality, regional district, or area under Islands Trust jurisdiction	Municipal councils, regional district boards, local committees of the Islands Trust	Local governments have the capacity to declare wetlands as ESAs in official community plans and regional growth strategies, and to restrict use of	Enabling only – no provincial direction, policy or model to guide local governments; potential for wide discrepancy in results.	Owners of wetland properties

				wetlands through zoning bylaws, development permit areas, etc.		
Development Permit Areas (DPAs) and Environmental DPAs	Local Government Act	Private and public land within a municipality	Local Governments	Attempts to control the form and character of development so as to preserve, protect, restore or enhance wetland values. DPAs provide an implementation option for the Riparian Areas Regulation (RAR)	Depends on local government willingness to designate DPAs, and quality of requirements in each development permit.	Local governments; property owners

### 3.2 Regulation of Specific Land Use Activities That Could Impact Wetlands

Activity	Legislation	Tools	Effectiveness	Limitations	Who is Impacted
<b>Provincial</b>					
Coordinated impact assessment of proposed major development in BC.	Environmental Assessment Act (Bill 38)	Certain types of proposed projects must undergo environmental impact assessment & obtain an EA certificate in order to proceed. Major groundwater extraction or water diversion projects may be reviewable under EA Act.	The Reviewable Projects Regulation defines the types and sizes of projects that are automatically subject to EAA process. The Minister has power to designate a project as reviewable even though it is not included in Reviewable Projects Regulation.	Act's application is discretionary; increased threshold for review; no guaranteed participation for communities, First Nations, local governments, or the public; government may decide that economic interests prevail over environmental protection.	Major project proponents
Forest practices (including forestry, range, some oil & gas activities) on Crown forest and range land, and some private land within tenures	Forest and Range Practices Act (FRPA)	Riparian classification includes management area, management reserve zone and management zones with varying restrictions and buffers with well-developed discretionary management guidelines.	Effective because it requires classification of all wetlands with associated restrictions and buffers on wetlands as small as 0.25 ha in specific biogeoclimatic zones. Also provides restrictions and buffers for smaller wetlands within 60 m of each other with a combined size of 5 ha or larger.	Restrictions and buffers do not apply to all small wetlands some of which may have high habitat values. Restrictions and buffers are discretionary and only apply in the absence of an approved forest stewardship plan that does not include a result or strategy to meet the objective for water, fish, wildlife, and biodiversity set out in	Forest and range tenure holders

				the Forest Planning and Practices Regulation.	
Forest practices on private land classified as “identified land”, also known as “managed forest land” under the Assessment Act	Private Managed Forest Land Act and Regulations	Regulations that specify management requirements for timber harvesting, silviculture & road-related activities.	Not effective for wetlands; may be some minor benefit to wetlands associated with fish streams	This is a voluntary tax exemption program that has limited protection for wetlands.  Anyone who intends to cut trees on lands covered by FRPA require a cutting licence and have to comply with the FRPA and associated regulations, or in the case of the oil and gas industry require a master licence to cut and the provision of the Forest Practices Code applies	Owners of private forest reserve land
Mineral & coal exploration activities	Mines Act, Mineral Exploration (MX) Code	Regulatory Code of Practice with some restrictions according to size of wetland	Discourages road construction and exploratory work in most wetlands (those 0.25-0.5 ha, depending on biogeoclimatic zone)	Not as protective of wetlands as Forest and Range Practices Act; many discretionary exceptions and some contradictions; numerous small and some large wetlands would not be protected.	Coal and mineral exploration
Dike construction and maintenance	Drainage, Ditch and Dike Act (Part 1 of Act repealed by Bill 8, 2002)  Dike Maintenance Act	None – but s.63 requires compliance with <i>Water Act</i>	Establishes authority for activities that can impact wetlands, but does not impose accountability for wetlands impacts;	May have considerable impact on wetlands, yet does not address wetlands at all. However, most diking is historic; new diking is	Local governments, Ministry of Transportation

			under the BC Environmental Assessment Act, new dikes that protect areas >10 km <sup>2</sup> from flooding are reviewable projects.	undertaken by local government or Ministry of Transportation.	
Agricultural land practices	Agriculture Land Commission Act Agricultural Land Reserve Use, Subdivision and Procedure Regulation	Regulated soil removal and fill in ALR BC  Brownfield Removal Strategy	Variable		
Invasive species	Weed Control Act	The B.C. Weed Control Act imposes a duty on all land occupiers to control designated noxious plants	Works for designated species that have an impact on agriculture	Designated species list is out-of-date and does not reflect invasive species that are impacting non-agricultural lands	
Protection of Crown lands	Environment and Land Use Act	Orders-in-Council can be made respecting the environment or land use.	Government has used this provision to establish 81 protected areas. Environment and Land Use Committee of Cabinet has broad powers to ensure that all aspects of the preservation and maintenance of the natural environment are fully considered in the administration of land use and resource development.	Management direction for protected areas is provided by any special conditions included in the establishing order in council and specified provisions of the Park Act and Park and Recreation Area Regulation as identified in the order in council.	N/A

### 3.3 General Environmental Protection Regulations Affecting Wetlands

Mechanism	Legislation	Lead Agency	Effectiveness	Limitations	Who is Impacted?
<b>Provincial</b>					
<p>Ministerial Authority to set guidelines/ standards.</p> <p>Permitting and prohibitions relating to deposit of waste</p>	<p>Environmental Management Act</p> <p>Municipal Sewage Regulation under EMA</p>	(MoE)	<p>Provides good authority to order environmental protection for any existing or proposed work, undertaking, product use or resource use that has or potentially has a detrimental environmental impact; used to protect wetlands in Cowichan Estuary Environmental Management Plan. Provides protection for wetlands impacted by the deposit of waste into the environment. The Municipal Sewage Regulation encourages use of reclaimed water and identifies permitted uses, together with a code of practice. Local governments have a number of powers under EMA, e.g., Regional districts can, for the purposes of implementing an approved waste management plan, pass bylaws regulating the transportation and management of solid waste and recyclable materials. Bylaws can potentially be used to require landfills to install pollution prevention works</p>	N/A	Industry, developers and landowners.

			or to follow codes of practice that avoid harm to the environment.		
Regulation of hunting	Wildlife Act	(MoE)	Limited ability to help wetland species through hunting regulations, s.9 (beaver dams) and s.34 protection for birds, eggs, and some nests; ability to designate threatened and endangered species, and provide for critical wildlife areas within WMAs (see above)	Focus on “take” regulation is a limiting means of managing wildlife; habitat provisions are limited, usually requiring formal designation, but available; threatened & endangered provisions under-utilized.	Depends on approach taken. Presently, affects mainly hunters, some farmers.
Protection of fish & fish habitat	Fish Protection Act	(MoE)	Currently in force are sections dealing with designation of sensitive streams, recovery plans, and no new dams on specified rivers. Sections not yet in force provide for: issuance of stream flow protection licences; orders for temporary reduction in water use in case of drought; identify fish & habitat considerations in water management plans; authorize reduction of water rights in accordance with water management plans. Sec. 9 in force for orders for temporary reduction in water use in case of drought to protect threatened fish populations.	Not yet in force: s. 5 - fish and fish habitat considerations in licensing decisions; s.8 - streamflow protection licences; s. 10 - fish and fish habitat considerations in water management plans; s.11 - reduction of water rights in accordance with plan; Transitional pending <i>Water Act</i> applications s. 36	Not yet in force: s. 5 - fish and fish habitat considerations in licensing decisions; s.8 - streamflow protection licences; s. 10 - fish and fish habitat considerations in water management plans; s.11 - reduction of water rights in accordance with plan; Transitional pending <i>Water Act</i> applications s. 36
Riparian Areas Regulation and Sensitive Stream Designation	Fish Protection Act (Section 12)	(MoE) Local governments	Directives will help fish-associated wetlands, especially if they are critical to maintaining mean annual discharge (MAD)	Fish-stream focused; limited ability to address agricultural impacts to wetlands;	Local governments, land owners, some water licence applicants, developers/

			and base-flow requirements under a recovery plan; wetlands expressly addressed in regulations; provides provincial guidance for local governments; regulations incorporate no net loss approach; restricts licensing under <i>Water Act</i> ; Sensitive Stream designation allows for recovery plans that may help associated wetlands. Varied. Some local governments (e.g., Islands Trust local trust committees) have failed to implement as required by the Regulation	local governments must establish streamside protection and enhancement areas within 5 years of the Regulation being proclaimed.  Only applies to urbanized areas of the province.	industry
Prohibitions on bulk water removal	Water Protection Act	(MoE)	Confirms provincial ownership of Crown surface water and groundwater. Province has right to ensure its protection & sustainable use. Prohibits bulk water removal from BC, and diversion of water between major watersheds within BC.		Water licence applicants, developers
<b>Federal</b>					
Prohibitions on deposit of deleterious substances & harmful alteration to fish habitat	Fisheries Act	Fisheries & Oceans Canada	Strong federal laws that may help wetlands associated with fish habitat; enforcement provides deterrent, and creative sentencing may require remediation.	Reactive and rarely applied	
Environmental assessment where federal government has authority	Canadian Environmental Assessment Act	Canadian Environmental Assessment Agency	Casts a broad net over many of the potential ways that the federal government can affect wetlands; the primary means of		

			implementing the Federal Policy on Wetland Conservation		
Regulation of toxic wastes & substances	Canadian Environmental Protection Act	Environment Canada	Provides indirect benefits to wetlands by regulating release of toxic substances, pollutants, and wastes into the environment.		
Protection of international boundary waters	International Boundary Waters Treaty Act	International Joint Commission  (Canada Ministry of Foreign Affairs)	Act created in 1909 with a focus on the Great Lakes. Boundary waters are bodies of fresh water that the U.S.-Canada border flows through. Addresses conflicts and rights arising between the two countries over the use of waters that crossed the borders of the two countries, in particular pollution and dams or other structures.	Does not include transboundary marine waters such as the Salish Sea. Doesn't include trans-boundary rivers, although the treaty has provisions related to such rivers, e.g., dams.	

## 2.4 Other Laws Affecting Wetlands

Legislation	Lead Agency	Relevance	Effectiveness	Limitations (Gaps)	Who is Impacted?
<b>Provincial</b>					
Agriculture Land Commission Act	Agricultural Land Commission	Regulates use of agricultural land	Allows for ecological reserves and wildlife habitat uses of agricultural land if surface is not subject to substantial works; very limited allowance for considering environmental values (ss. 43.1, 44), but always subordinate to farm use and no net loss principle for agricultural capabilities.	Strong priority given to agriculture (e.g., drainage of wetlands); no consideration of environmental impacts such as loss of wetlands for most decisions; assumes agricultural land is more scarce than wetlands; could impede ability to implement mitigation measures	Property owners in Agricultural Land Reserve (ALR)
Land Act	Integrated Land Management Bureau (ILMB)  (MoE - for habitat acquired under s.106)	Governs the sale and granting of rights to use Crown land	Has provisions that could help wetlands by: -withdrawing wetlands from disposition, -requiring reservations and conservation covenants on Crown land sold; environmental assessment on Crown land before sale, -regulating activity in	When it comes to the ex- traction of natural resources, the Province normally retains ownership of the land, but grants resource extraction rights through other legislation.	

			designated areas, -enforcing against trespass on Crown wetlands, -allowing for land exchanges (e.g. Crown land for important private wetlands), -allowing any ministry to acquire and manage land (s.106).		
Land Title Act (LTA)	Land Title Office (LTO); Agricultural Land Commission; Approving Officers under LTA (e.g. local government, Islands Trust, Ministry of Transportation officials)	Allows registration of s.219 conservation covenants on land title; specifies terms for subdivision approval	Good tool for protecting wetlands values through encumbrances (rather than outright ownership) on titles that survive ownership changes; allows approving officer's discretion to refuse or impose conditions on subdivision of land.	Land Title Office policy requires approval of Agricultural Land Commission for ALR land (but not for FLR). This raises issues about weakness of ALC Act regarding wetlands values (see above). -Enforcement is problematic -Cost issues (e.g. survey for LTO, affordability for NGOs) -Discretion re subdivision approvals is adequate, but policy guidance on wetlands would improve consistency	Property owners, and conservation agencies seeking to negotiate and register conservation covenants
Local Government Act (LGA)  Community Charter	Local governments  Ministry of Community and Rural Development	Zoning and bylaw actions affect land use	In addition to ESA and DPA designations mentioned in Table 3.1, local governments have	Recognizes that a purpose of local government is to foster the "current and future	Local governments, landowners, and constituents

(CC)			<p>delegated authority to identify land use zones and pass bylaws affecting land use that could impact wetlands, for both public and private land. This can have both a positive or negative effect on wetlands.</p> <p>Wetland areas prone to flooding can be protected by bylaw (s.910 LGA)</p> <p>Forested wetlands could be protected from tree cutting by bylaw (s.50 CC)</p>	<p>economic, social, and environmental well-being of a community.”</p> <p>Does not provide a definition of “environment”, and protection of wetland environments, wetland habitats, and wetland species including species at risk is discretionary rather than mandated (“may” instead of “must”).</p> <p>Local governments are constrained by some provincial legislation, e.g., Farm Practices Protection (Right to Farm) Act, in their desire to protect wetlands as the highest use for a property.</p>	
<i>Water Act</i>	Ministry of Environment - Water Stewardship Division	Water Use Planning, Water Use Plans (WUPs)	WUPs define the proposed day-to-day operating parameters to be applied at all BC Hydro hydroelectric facilities. Based on a consultative process, WUPs recognize multiple water use objectives by balancing		BC Hydro, other water stakeholders

			<p>the social, economic, and environmental uses of water. The goal is to find a better balance between competing uses of water, such as domestic water supply, fish and wildlife, recreation, heritage, and electrical power needs.</p> <p>Once a WUP is accepted by the Comptroller of Water Rights, operational changes, monitoring studies and physical works outlined in the plans are implemented by the Comptroller through orders under the <i>Water Act</i>.</p>		
<p><i>Water Act / Water Sustainability Act</i></p> <p>Groundwater Protection Regulation</p>	<p>Land and Water BC Inc. (for dispositions)</p> <p>(MoE - groundwater technical standards and water management planning)</p>	<p>Issuance of water licences</p> <p>Groundwater protection</p>	<p><i>Water Act / Water Sustainability Act</i> requires provincial approval for diverting or storing water, or changes in &amp; about a stream (definition includes wetlands to some extent).</p> <p>New water licence applications with</p>	<p>Wetland conservation issues are not effectively addressed in <i>Water Act</i>; some important wetlands have allegedly been harmed by licence approvals. Groundwater under the <i>Water Sustainability Act</i> is regulated. Mitigating the risk of wetlands</p>	<p>Water Licence applicants/holders. With respect to groundwater, well owners, drillers and pump installers are impacted. Consultants may also be impacted in that they may be required to make alternate specifications for well installations.</p>

			<p>proposed diversion rate of &gt;25,000 gpd (1.32 lps) must complete a Development Plan. Diversion of water can be harmful to wetlands, and is regulated under the <i>Water Act</i>. Under s.9, approval is required to divert water from a wetland.</p> <p>Exemptions in Part 7 of Water Regulation do not appear to have been drafted with wetlands in mind. Groundwater regulations (Part 5 of <i>Water Act</i>) protect wells/aquifers from contamination and thus afford some protection for wetlands that are groundwater-fed. Part 4 of <i>Water Act</i> provides for legally binding water management plans tailored to address local issues.</p>	<p>connected to groundwater going dry.</p> <p>Definition of stream includes wetlands such as fens, marshes and swamps.</p>	
Drinking Water Protection Act (DWPA)	Ministry of Health Services	Multi-barrier approach to protecting drinking water (source to tap)	Protection of wetlands is incidental to the core function of drinking water protection because the DWPA is	The DWPA is reactive and more focused on threats to human health. Comprehensive source assessment is	<p>Directly – water purveyors</p> <p>Indirectly- anyone undertaking activities</p>

			focused on threats to human health. A Drinking Water Protection Plan could be ordered by cabinet that may afford broader source protection that would include wetlands.	discretionary	that can negatively impact drinking water
<b>Federal</b>					
Canada Shipping Act	Coast Guard	Allows for boating restrictions	Good tool for regulating boating-related water impacts on wetlands (e.g. no motors, or setting horsepower limits on access to waters of Canada).	Implemented by the Coast Guard, which doesn't have a wetlands conservation mandate; lack of clear role for federal agency with wetlands expertise (e.g. CWS).	Recreational boaters
Income Tax Act	Revenue Canada	Provides tax incentive for ecological gifts, such as wetlands	Fosters use of voluntary land donations and conservation easements in return for tax deductions against income (from "Wetlands and Government")	N/A	Everyone, potentially