City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	February 16, 2022
From:	Peter Russell Director, Sustainability and District Energy	**File:**	10-6125-01/2022-Vol 01
	Milton Chan, P.Eng. Director, Engineering		
Re:	**Provincial Watershed Security Strategy and Fund**		

Staff Recommendation

That the comments outlined in the staff report titled, "Provincial Watershed Security Strategy and Fund", dated February 16, 2022, from the Director, Sustainability and District Energy and the Director, Engineering, be endorsed and submitted to the provincial Ministry of Environment and Climate Change Strategy.

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Att. 1

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Parks Services	☑	
Policy Planning	☑	
Intergovernmental Relations & Protocol Unit	☑	
SENIOR STAFF REPORT REVIEW	**INITIALS:**	**APPROVED BY CAO**

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Staff Report

Origin

The provincial Ministry of Environment and Climate Change Strategy is seeking the City's input to inform a new program defined as the Watershed Security Strategy and Fund. The program intends to mitigate risks and contribute to the continued use, protection, and enjoyment of watersheds across BC. The Province issued *the Watershed Security Strategy and Fund - Discussion Paper* on January 25, 2022 and is currently in the initial stages of consultation to solicit feedback from local governments, Indigenous communities, and stakeholders. Feedback will be used by the Province to improve watershed security in BC and develop options for a future Watershed Security Strategy and Fund.

This report describes the Province's proposed Watershed Security Strategy, evaluates the *Watershed Security Strategy and Fund - Discussion Paper,* and outlines comments for Council endorsement.

This report supports the following strategies within Council's Strategic Plan 2018-2022:

Strategy #1 A Safe and Resilient City:

> *Enhance and protect the safety and well-being of Richmond.*
>
> *1.2 Future-proof and maintain city infrastructure to keep the community safe.*
>
> *1.3 Ensure Richmond is prepared for emergencies, both human-made and natural disasters.*
>
> *1.4 Foster a safe, caring and resilient environment.*

Strategy #2 A Sustainable and Environmentally Conscious City:

> *Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.*
>
> *2.1 Continued leadership in addressing climate change and promoting circular economic principles.*
>
> *2.2 Policies and practices support Richmond's sustainability goals.*
>
> *2.4 Increase opportunities that encourage daily access to nature and open spaces and that allow the community to make more sustainable choices.*

Strategy #5 Sound Financial Management:

> *Accountable, transparent, and responsible financial management that supports the needs of the community into the future.*

5.4 Work cooperatively and respectfully with all levels of government and stakeholders while advocating for the best interests of Richmond.

Analysis

Stormwater Management in Richmond

Watersheds are areas of land where precipitation runoff enters into a common river, lake, stream, or aquifer. Richmond is a unique watershed with stormwater management issues that differ from other areas of the province and, as such, any provincial strategy or regulation must consider those unique issues and ensure compatibility with the City's critical objectives, including flood protection and stormwater management.

The City of Richmond is comprised of a series of islands in the delta of the Fraser River, with the majority of the land mass located on Lulu Island. Richmond has a flat topography and is situated approximately 1.0 meter above mean sea level. The City is protected from flooding by infrastructure that includes 49 km of dikes located around the perimeter of Lulu Island, and stormwater runoff is released to the Fraser River and Strait of Georgia through 39 drainage pump stations.

Lulu Island forms a single watershed with carefully engineered drainage catchments that include channelized watercourses, sloughs, as well as ditches that serve drainage, irrigation and habitat functions. As a floodplain municipality with soft soils, low gradients and a naturally high water table, the City's watershed drainage is slow flowing, and drainage water has elevated temperatures, low dissolved oxygen, and high dissolved iron and other metals compared to traditional watersheds. These distinct characteristics result in unique stormwater management issues and needs for the City of Richmond relative to regional neighbours. This results in an approach that differs from many other municipalities.

Richmond's Integrated Rainwater Resource Management Strategy provides a strategic approach to address Richmond's unique stormwater management issues and needs. The strategy aims to protect and enhance the City's stormwater conveyance infrastructure and ecological assets under more frequent rainfall events, and considers rainwater as a resource to be utilized. The City also manages stormwater through various bylaws, including *Drainage, Dike and Sanitary Sewer System Bylaw No. 7551* and *Watercourse Protection and Crossing Bylaw No. 8441*.

One of the ways Richmond utilizes rainwater as a resource is by providing irrigation supply to agricultural properties, either with stormwater stored in the drainage system or by introducing water from the Fraser River into the system through the City's drainage network and pump stations. This reduces overall water consumption and improves food security by reducing reliance on potable water supply.

In addition, the City regulates and manages the permitting of non-stormwater discharge through *Pollution Prevention and Clean-Up Bylaw No. 8475*, to prevent polluting substances from entering the City's drainage system, as required by the *Water Sustainability Act* and the *Riparian Areas Protection Act*. However, one of the main challenges with respect to having a naturally high water table in Richmond is the need for dewatering and treatment of groundwater discharge from excavations for utility infrastructure works as well as private land development projects.

This dewatering and treatment process can be unnecessarily costly and disruptive, particularly where regulations are being applied to naturally occurring conditions.

The City's Riparian Response Strategy, originally developed in consultation with the Province and the Department of Fisheries and Oceans, was adopted by Council in 2006. It is a modified approach under the *Riparian Areas Protection* Act that meets the unique floodplain ecology within the City Riparian Area Network and assigns setbacks on minor (5m) and major (15m) designated watercourses to protect fish habitat. Being in a flood plain ecosystem, Richmond's riparian conditions differ from other municipalities in the region. Richmond is considered to be a single watershed, and all watercourses flow through flood control pump stations in the perimeter dyke before entering the Fraser River. Watercourses are fed with a significant source of groundwater that is low in oxygen, high in iron and water flows slowly across the relatively flat grade, and warms within the system. Richmond's watercourses are considered fish habitat as they flow immediately into, and support an abundance of fish life in, the Fraser River Estuary. Vegetated riparian setbacks shade and cool water for aquatic organisms, provide nutrients, stabilize banks, control stormwater runoff and can improve water quality. The City's Riparian Management Area network is part of the City's open drainage network. This green infrastructure acts as a corridor connecting hubs and sites within the City's Ecological Network to allow for the passage of fish and wildlife across the island.

The City's Flood Protection Management Strategy identifies dike raising as a key component of its strategic framework for protection against climate change induced sea level rise. New standards under the provincial Dike Design and Construction Guidelines now discourage constructed features on the landside of dikes, such as channelized watercourses. This will result in a fundamental change to the existing watercourse network. Many of the channelized watercourses adjacent to the City's dikes are now within the City's Riparian Management Area network and are subject to federal and provincial regulatory requirements for proposed works at or near their boundaries due to the riparian habitats that have thrived along the watercourses. Raising the entirety of the perimeter dike will impact these existing watercourses and future provincial guidelines should recognize the need for these changes.

Drinking Water Management in Richmond

Potable drinking water in Richmond is entirely provided by Metro Vancouver from three main reservoirs (Capilano, Seymour, Coquitlam), and is separate from surface and groundwater in Richmond. Regulations and strategies that seek to maintain aquifers and surface water as potable water sources may be pertinent to other jurisdictions but are not generally applicable to Richmond.

Potable drinking water is managed by the City through a comprehensive water conservation program that includes water metering, leak detection, water system pressure management, toilet rebates, and rain barrels. The City also provides outreach activities through public open houses and Project WET, an interactive program which partners with Richmond elementary schools to educate students about the importance of water.

Richmond has invested in water metering and water conservation over the past couple of decades, and is one of the few municipalities in Metro Vancouver that are fully metered for

single-family, industrial, commercial, and institutional properties. Multi-family properties are currently 51% metered and are in the process of being universally metered as well. This has resulted in a significant reduction in consumption, at a much greater rate than unmetered municipalities. This has created a positive impact on watershed security, environmental sustainability, as well as minimizing and deferring large regional supply infrastructure projects and their associated costs.

The City currently manages drinking water through various bylaws, including *Waterworks and Water Rates Bylaw No. 5637* and *Water Use Restriction Bylaw No. 7784*.

Current Regulations

Given the large geographic extent of many watersheds, a variety of municipal, provincial and federal regulations apply, which creates a complex regulatory environment for navigating projects authorizations in Richmond. The primary legislation responsible for managing the province's water resources (lakes, streams, rivers, and aquifers) is the provincial *Water Sustainability Act*. The *Water Sustainability Act* and the *Drinking Water Protection Act* are central to the provincial governance framework from a water allocation or water quantity perspective. The *Water Sustainability Act* was last updated in 2016 due to growing concerns for the protection of the province's water resources. Staff note a variety of operational challenges with the 2016 updates to the Act, including delayed and inconsistent application review times, a lack of provincial enforcement, and ridged permitting requirements that do not necessarily take into consideration Richmond's unique hydrological characteristics.

Provincial Watershed Security Strategy and Fund

The Province identified climate change and extreme weather events as one of the primary reasons to strengthen the protection and restoration of BC's watersheds, in order to ensure healthy ecosystems that can provide communities with secure access to clean water. The 2019 provincial *Preliminary Strategic Climate Risk Assessment* identified seasonal and long-term water shortages as one of the greatest risks to BC.

The provincial Ministry of Environment and Climate Change Strategy is seeking input to inform a strategy to improve the security of BC's water resources, and issued the *Watershed Security Strategy and Fund – Discussion Paper* (Attachment 1) on January 25, 2022 to solicit feedback. The discussion paper identifies ten outcomes and opportunities to inform future actions through discussion. In addition to responding to feedback generated from the discussion paper, the Province is committed to aligning this future strategy with various existing initiatives, including coastal wildlife management, modernized land use planning policy, and the Climate Preparedness and Adaptation Strategy.

Staff Comments

Staff are generally supportive of the provincial direction to develop and implement a meaningful strategy to improve the security of BC's water resources; however, the unique circumstances of the Richmond watershed must be considered not only for the development of this strategy, but also for future updates to the *Water Sustainability Act*.

Staff have reviewed the discussion paper and considered the intended outcomes with respect to Richmond's unique context, and propose the following comments for Council endorsement:

1. Flood protection is integral to protecting the health, safety, and economic viability of Richmond, including approximately $100 billion in assets. The City's Flood Protection Management Strategy identifies dike improvements as well as broad, strategic land raising as an overall long-term objective. As dike improvements are implemented, environmental assets may be relocated and enhanced. The provincial Watershed Security Strategy and Fund needs to be compatible with the City's objectives to mitigate climate change impacts over the next 100 years and beyond.
2. With a naturally high water table in Richmond, current regulations require costly and disruptive dewatering and treatment of groundwater discharge due to naturally occurring groundwater characteristics. Consideration should be given to adapting requirements to relative local and naturally occurring conditions, while still maintaining environmental health and water quality guidelines.
3. Future public engagement opportunities should encourage participation of Richmond residents and provide adequate response times and appropriate access to information. Furthermore, public engagement efforts should promote the use of existing provincial water resource tools, such as the BC Water Tool and the Community Watershed Tool, to inform community land use planning.
4. The City is supportive of a future fund that prioritizes the management of water resources. By design, a future fund should consider:
    a. The unique circumstances, issues, challenges, and needs of each watershed including Richmond;
    b. The unique challenges that local governments have with aging infrastructure and emerging climate change issues; and,
    c. Opportunities to strengthen relationships with local First Nations and Indigenous groups through the advancement of this new program and future funding.
5. The City acknowledges that retrofitting existing infrastructure to become more efficient will be an important tool to managing water and reducing replacement costs. Local businesses and agriculture should be offered incentives to retrofit infrastructure to improve existing water use practices.
6. Potable drinking water in Richmond is entirely provided by Metro Vancouver and is separate from surface and groundwater in Richmond. Regulations and strategies that seek to maintain aquifers and surface water as potable water sources should acknowledge that they are not generally applicable to Richmond.
7. An inclusive public awareness campaign, which promotes water conservation and introduces simple water management practices, such as eco-friendly lawn alternatives, should be considered.
8. Protecting our water resources from contamination is paramount to secure safe drinking water and promote ecological health. A commitment to reduce the introduction of contaminants from industrial, agricultural, and construction practices is needed to reduce regional impacts.
9. Water metering should be encouraged and mandated at the provincial level to improve equity and conservation. Incentives such as subsidies or lower rates could be provided to metered municipalities.
10. Continuing to plan for increasing water supply demands to support population growth.

11. A future strategy requires active monitoring and assessment to understand the existing and future risks to water resources. Establishing watershed monitoring programs should consider:
    a. Actively assessing the effects of contamination and actively updating regional water quality guidelines;
    b. Developing meaningful, actionable, and enforceable objectives to guide decisions and responses to managing new risks or trends;
    c. The City understands that private companies are subject to the pay structure outlined in the *Water Sustainability Act* for accessing water. Regularly reviewing the commercial pay structure in the *Water Sustainability Act* to ensure the cost of accessing water is reflective of the current and future water demands in BC;
    d. Continuing to understand and forecast regional climate patterns affected by climate change; and,
    e. Encouraging guidelines to address water-related challenges, including preferred or prohibited land uses within watersheds and development setbacks to water resources, to promote and maintain natural and habitat ecological functions paramount to the system.

The Province is currently in the early stages of a phased consultation process and is working towards a final launch of the strategy in mid-2023. If endorsed, the comments above will be forwarded to the Province to inform the preparation of the draft strategy. The draft strategy is expected in the fall of 2022, and will be complemented with a public and Indigenous engagement period.

Financial Impact

None.

Conclusion

The Province is seeking input to inform a new program defined as the Watershed Security Strategy and Fund, and issued the *Watershed Security Strategy and Fund - Discussion Paper* to solicit feedback. Staff recommend that the comments outlined in this report be submitted to the Ministry of Environment and Climate Change Strategy as input to inform further development of the strategy.

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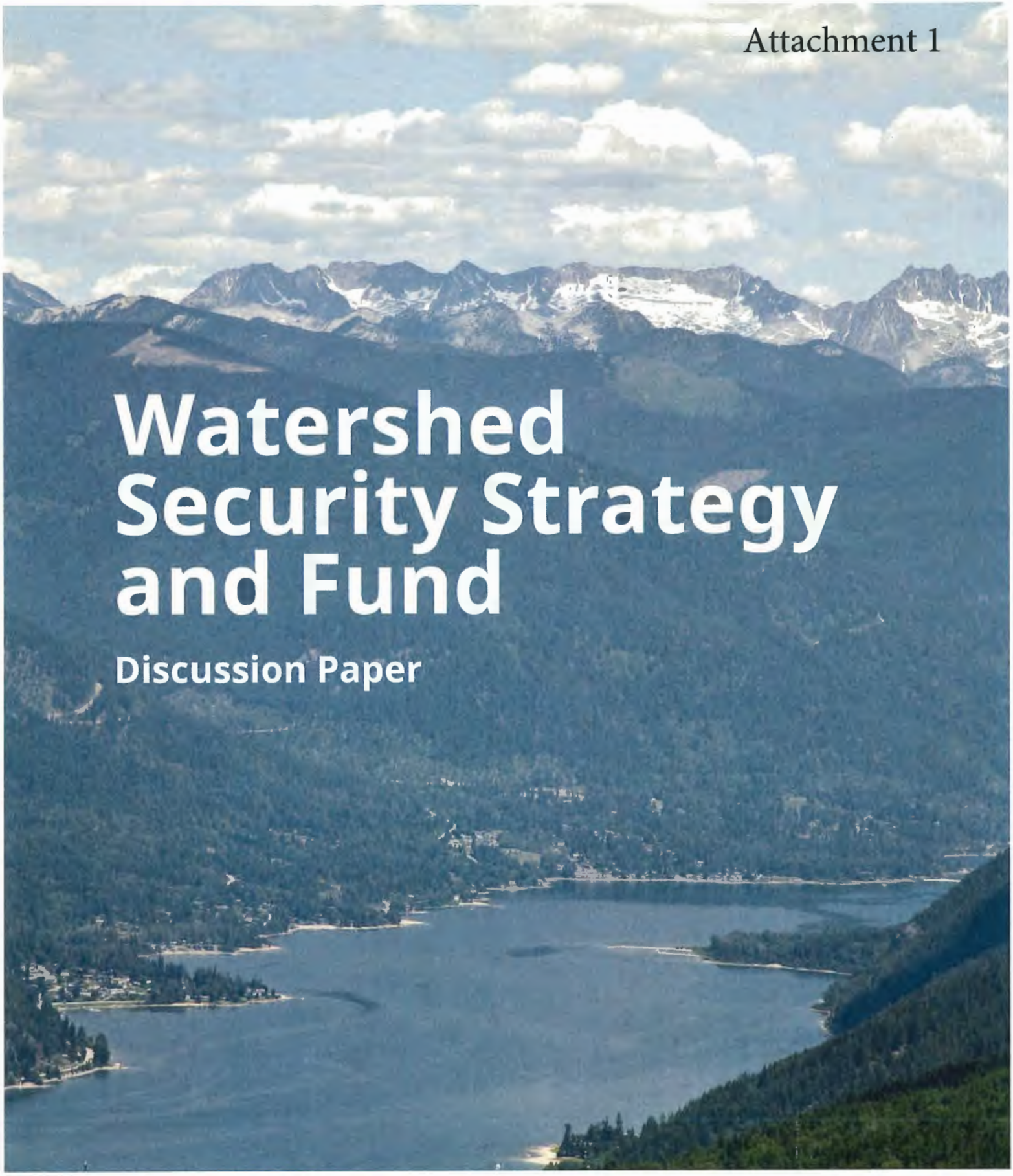
Att. 1: Watershed Security Strategy and Fund – Discussion Paper

Attachment 1



Watershed Security Strategy and Fund

Discussion Paper

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

January 2022

Contents

List of abbreviations and acronyms

Declaration Act	*Declaration on the Rights of Indigenous Peoples Act*
MLUP	Modernized Land Use Planning
UN Declaration	United Nations Declaration on the Rights of Indigenous Peoples
WSA	*Water Sustainability Act*
WQO	Water Quality Objective
WSP	Water Sustainability Plan

Message from Minister George Heyman

Our water is a precious and limited resource. During the last decade, we have witnessed the increasingly dramatic impact that a changing climate is having on British Columbia's water due to extreme heat, floods, drought and wildfires. That is why we urgently need to prepare for future climate conditions and work together to strengthen our water security.

We depend on water for drinking, washing, cooking, growing our food, and recreation. Many small businesses and industries rely on water to support economic growth. It's also essential for aquatic life and sustaining our world class fisheries. Importantly, water has cultural and spiritual significance for Indigenous peoples, which is why we will work together on a shared future for water management.

As the climate crisis continues, watersheds will play an increasingly central role in our lives by providing protection from storms and floods. Healthy watersheds are critical for achieving watershed security and resiliency and are the foundation of healthy communities.

To strengthen the security of our watersheds, we all need to work together. Increasing the role of Indigenous peoples, local governments and communities in watershed governance can help us mitigate the risks to our watersheds.

We are working together in partnership with Indigenous peoples to develop the Watershed Security Strategy and Fund. We are also engaging with the public and consulting with stakeholders. In addition, we are making sure our efforts align with other priorities like fish protection, land-use planning and protection of drinking water.

Management and stewardship of watersheds is a collaborative effort among government ministries, and my ministry is aligned with the important work being done across government to keep our watersheds secure and healthy. The ministries of Agriculture, Food and Fisheries, and Forests, Lands, Natural Resource Operations and Rural Development also have a strong role in managing water resources, and Parliamentary Secretary Fin Donnelly and Minister of State Nathan Cullen will support development of the strategy.

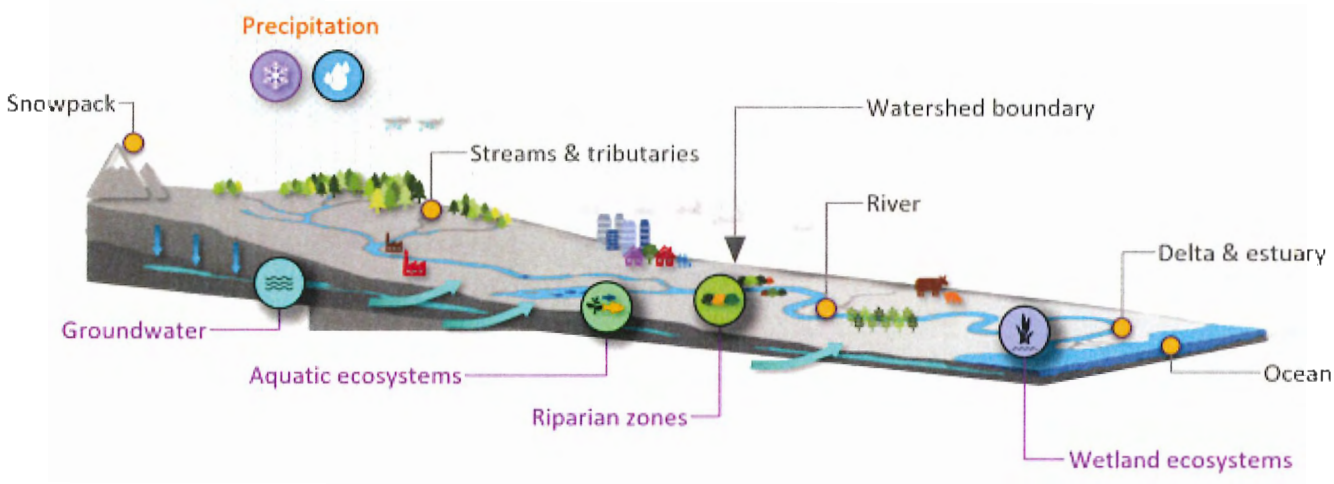
We want to make sure we are listening to people and planning ahead as we develop the Watershed Security Strategy and Fund. This discussion paper is meant to facilitate dialogue and input that will build on the important actions and projects already underway throughout B.C. I am inviting you to join in the conversation and provide input on the ideas presented in the discussion paper. Together, we can build a legacy of healthy and resilient rivers, lakes, streams and aquifers for all living things.

George Heyman
Minister of Environment and Climate Change Strategy

Introduction

Watersheds are areas of land where rain, snow and other types of precipitation run off into a common river, lake, stream, or aquifer. Watersheds are essential for life: they are home to a host of aquatic species, provide water for drinking, for growing our food, have immense cultural and spiritual value for local communities, and afford us opportunities to swim, fish, paddle, and play.

Figure 1: What is a watershed?



During the summer of 2021, B.C. experienced record-breaking temperatures, massive wildfire events, and prolonged droughts throughout the province. Subsequently, in the fall of 2021, extreme rainfall and flooding had a profound impact on our communities—leading to loss of life, damage to property, disruption of critical supply chains, and economic hardship.

The 2019 provincial Preliminary Strategic Climate Risk Assessment identified seasonal and long-term water shortages as among the greatest risks to B.C. Research shows that climate change amplifies not only extreme events like heat waves and wildfires, but also floods. This is threatening the health of watersheds, and by extension the wellbeing of all living things. Increasing the role of Indigenous peoples, local governments and communities in watershed governance can help us mitigate risks and contribute to continued use, protection, and enjoyment of watersheds across B.C.

Watersheds are nested within the traditional territories of over 200 First Nations and the jurisdiction of 162 municipalities and 27 regional districts. Watershed governance involves all levels of government (local, provincial, federal and First Nations), community water users and stakeholders working together to make- and take accountability for decisions affecting their local watershed.

The relationship between the Province and Indigenous peoples, particularly First Nations, is distinct from the Province's relationship with local governments and stakeholders and creates different legal obligations. The Province is committed to developing and implementing a Watershed Security Strategy and Fund with Indigenous peoples, and in collaboration with local and federal governments.

Gathering, sharing, and incorporating Indigenous, community and scientific knowledge in a meaningful way is important for informing management decisions. Understanding the uses and plans for the land base and having the resources to support effective watershed governance are also critical to watershed health. This discussion paper lays out some ideas about how a Provincial Watershed Security Strategy can support these approaches.

What do we mean by watershed security?

Watershed security implies the availability of good quality water for healthy ecosystems and communities. Watershed security will look different from watershed to watershed, and so will best be defined locally. Some elements of watershed security may include:

- Safe drinking water for all,
- Healthy and resilient aquatic, riparian, wetland, and watershed ecosystems,
- Sufficient water to support food security, recreation, jobs, and local economies,
- Sufficient water for First Nations, and
- Reduced risks from water related hazards such as flooding and drought.

QUESTIONS:

- Do you agree with this definition of watershed security?
- If not, how would you describe watershed security?

Water Management in B.C.

While a range of federal, provincial, and local government legislation support water management, the *Water Sustainability Act* (WSA) is the primary law governing freshwater in B.C. Other examples of laws that influence water management and governance include the *Environmental Management Act*, the *Drinking Water Protection Act*, the *Forest and Range Practices Act* and the *B.C. Declaration on the Rights of Indigenous Peoples Act* (Declaration Act).

The WSA significantly reformed water management when it came into effect in 2016. It introduced groundwater licensing and new tools, including Water Sustainability Plans (WSP) and WSA Objectives, to support watershed planning, regional water management and watershed governance. Some of the WSA's tools have yet to be tried out and are described in further detail later in the paper.

Through the WSA, people can apply for a licence to divert and use water for a variety of purposes. Water licences state the rights and responsibilities of water users through terms and conditions (e.g., the purpose of the water use, the amount of water that can be used and the date the licence was issued and takes effect). The WSA also provides tools for managing water during shortages, including temporarily restricting water use to protect essential household needs and flows for the environment.

Amendments may be proposed to the WSA as part of the eventual Watershed Security Strategy.

The Province's Relationship with Indigenous Peoples

The Declaration Act establishes the United Nations Declaration on the Rights of Indigenous Peoples (UN Declaration) as the Province's framework for reconciliation. Honouring the spirit, intent, and obligations of the Declaration Act and UN Declaration will be central to the Watershed Security Strategy.

The Province is actively working with First Nations and other Indigenous peoples on numerous priorities, including trying out new watershed governance systems, science and monitoring, and improving engagement processes. Incorporation of Indigenous laws, knowledge systems, values, and responsibilities into the governance of freshwater across Canada aligns with B.C.'s commitments under the Declaration Act and to broad principles of reconciliation.

There is a separate process for progressing legislative changes associated with the alignment of existing legislation, such as the WSA, with the Declaration Act.

Draft Principles that Guide the Province of B.C.'s Relationship with Indigenous Peoples

Principle 10

The Province recognizes that a distinctions-based approach is needed to ensure that the unique rights, interests, and circumstances of Indigenous peoples in B.C. are acknowledged, affirmed, and implemented. The Province respects the distinctions-based rights and diversity of Indigenous peoples—First Nations, Métis and Inuit—in B.C. It also respects the unique needs, interests, and perspectives of intersectional populations, including Indigenous Elders, women, youth, children, 2SLGBTQQIA+ people, peoples with disabilities and Indigenous peoples living in urban settings.

Your Participation

We are in the early stages of a phased process that will help the Province consider potential actions to improve watershed security in B.C. The process will unfold as described below.

At a glance:

Winter 2022	▸ Indigenous peoples will be engaged through multiple pathways (e.g., government-to-government tables, direct engagement). ▸ New processes will be established to support collaborative development and implementation of a Watershed Security Strategy with Indigenous peoples. ▸ Local governments, federal government staff, and stakeholders (e.g., thought leaders, stewardship groups, sector organizations) will be engaged in discussions. ▸ Public input will be gained through feedback on this discussion paper.
Fall 2022	▸ Strategy options that consider engagement feedback will be developed. ▸ A draft strategy will be released for public and Indigenous engagement.
Spring/Summer 2023	▸ Launch the Watershed Security Strategy.

A Watershed Security Strategy for B.C.

The Province is committed to developing and implementing a Watershed Security Strategy and Fund with Indigenous peoples, and in collaboration with local and federal governments.

We will also hear from the public, environmental non-governmental organizations, opinion leaders and industrial water users, all of whom have varied and unique contributions to make on the path to watershed security. This paper looks for your views on how this can be developed, and acknowledges that:

- The relationship between the Province and Indigenous peoples, particularly First Nations, is distinct from the Province's relationship with local governments and stakeholders and creates different legal obligations.
- People who live in and do business in a watershed are most directly affected when issues with water arise, such as water scarcity or drought, flooding, pollution, degraded aquatic and riparian ecosystems, and or other problems.
- Healthy watersheds are critical for achieving watershed security and resiliency and are the foundation of a stable economy.
- Many communities are already doing important work to protect and restore their local watersheds and all people in a watershed have an important role in managing water.

The Watershed Security Strategy will identify a role for all British Columbians in taking care of our watersheds within a broad provincial framework.

How to use this paper

The Ministry of Environment and Climate Change Strategy invites you to contribute your knowledge and ideas on the development of a Watershed Security Strategy.

This paper is designed to promote discussion. We want to hear your thoughts on:

- The engagement approach and how you would like to be involved in the future,
- Questions posed in the proposed outcomes and opportunities section,
- Issues or concerns you think we should be aware,
- Ideas or solutions you or your organization wishes to share,
- Anything you wish to share on the topic of how watershed security can be achieved in B.C.

You are invited to participate in the online discussions and to submit your ideas through www.gov.bc.ca/water until March 18, 2022 at 4:00 p.m., or email livingwatersmart@gov.bc.ca.

Alignment with other government initiatives

The Watershed Security Strategy will focus on freshwater resources, including both groundwater and surface water. Several ongoing initiatives will inform development of the Watershed Security Strategy, including:

- Development of related strategies, such as a Wild Salmon Strategy and Coastal Marine Strategy as well as the Climate Preparedness and Adaptation Strategy.
- Work to implement the recommendations of the Auditor General's report on improving drinking water management and source water protection.
- Ongoing efforts to modernize Land Use Planning and consider cumulative effects.
- Ongoing projects focussed on governance and protection of watersheds, including in the Nicola Valley, the Upper Bulkley and Morice River watersheds, and the Hullcar Valley.

Work is ongoing across government to address biodiversity, conservation, invasive species, and clean energy priorities. Government staff will collaborate to ensure work is coordinated, linked, and aligned.

Proposed outcomes and opportunities

The following list of proposed outcomes and opportunities has been informed by what we have heard to date from Indigenous peoples, internal experts, opinion leaders, industrial water users, and members of the public. The outcomes may inform the objectives of the Watershed Security Strategy and the opportunities may inform future actions. This list is provided as a starting point for discussions.

Outcome One: Support and enable watershed governance.

Governance refers to the processes through which people come together, make decisions, and take accountability for action. Watershed governance is governance at the watershed scale. Currently, watershed governance in B.C. varies—who is involved, what their roles are and what they are accountable for is not always clear. With a renewed focus on area-based planning and tools for area-based water management, all levels of government, Indigenous peoples, local stakeholders, and the public are are more often playing a greater, and more meaningful, role in watershed governance.

For example, local governments (i.e., municipal, and regional governments) have an important role in managing watersheds and achieving watershed security over the long-term. The Watershed Security Strategy may provide them with new opportunities to take a more holistic view of the watershed to understand how different land and water uses may impact local water sources. Supporting governance at a watershed scale could result in changes to how decisions are made, providing a space for local communities and all levels of government to have their voices heard.

As we develop the Watershed Security Strategy, we intend to:

1. Explore provincial options for watershed governance,
2. Understand how we can best support variations in watershed governance approaches, and
3. Work with Indigenous peoples to ensure that watershed governance initiatives are designed to advance reconciliation by protecting Indigenous rights and interests.

The Province has a unique constitutional relationship with First Nations. Treaties and government-to-government agreements may provide a basis for some watershed governance arrangements.

OPPORTUNITIES

The Watershed Security Strategy may...

- Propose a provincial framework for watershed governance that could:
  - Clarify and coordinate the roles and responsibilities of different actors within a watershed (e.g., all levels of government, water users, thought leaders, environmental non-governmental organizations),
  - Prioritize transparent and accountable decision-making,
  - Acknowledge all uses, interests and values associated with water in the watershed,
  - Provide options for the structure, composition, and procedures of watershed governance initiatives,
  - Support coordination and collaboration across all levels of government (federal, provincial, local and First Nations) to achieve shared water management goals, and
  - Strengthen First Nations' capacity to govern and advance shared decision making.

- Explore opportunities related to:
  - Capacity building within local communities to deliver watershed initiatives (e.g., facilitating formal and peer-to-peer learning opportunities, building connections between local water leaders, providing opportunities to get involved in planning initiatives).
  - Enabling Indigenous-led water initiatives, collaborating through Treaty or government-to-government processes, and capacity building for Indigenous peoples with respect to water and watersheds.
  - Connecting Treaty and government-to-government processes to other watershed governance initiatives to facilitate collaboration, identify shared values and priorities and promote good relations.
  - Co-managing of watersheds with First Nations.

QUESTIONS

- What could the Province provide to better enable watershed governance initiatives?
- How can the Province facilitate and support government-to-government arrangements that help improve watershed health and security and advance reconciliation?
- How can watershed governance protect provincial, regional, Indigenous, and local values?

Outcome Two: Enhance our understanding of watersheds and the risks they face.

Our knowledge about managing our shared watersheds is ever expanding thanks to the work of community groups, NGOs, academic institutions, Indigenous peoples, local governments, industrial water users, and many others across the province. Yet, there is always a need for more data and better methods for understanding trends or watershed health. This will help us make informed decisions to improve the health of surface water and groundwater in B.C.

Coordinating monitoring and scientific activities among all efforts within a watershed would improve our ability to characterize the attributes of watersheds in B.C. that really matter, and to identify risks to water values. Having a transparent and shared understanding of our watersheds will allow us to identify knowledge gaps, prioritize the right water monitoring programs in the right places, and support good watershed governance through evidence-based decisions. Improving our understanding of watershed health will enable us to assess whether actions work and inform adaptive management actions.

OPPORTUNITIES

The Watershed Security Strategy may...

- Evaluate ways to build a common approach to characterizing watersheds in B.C. that are place-based and practical for protecting water values and improving watershed security.
- Evaluate opportunities to review and coordinate monitoring programs to maximize the value of investments in managing water resources and to support watershed characterization efforts.
- Assess options for identifying risks to watershed health and use monitoring to inform adaptive management approaches and activities designed to avoid or mitigate risks.
- Ensure watershed governance arrangements have access to the necessary data, software tools and professional expertise needed to characterize the status and risks to water in watersheds.

QUESTIONS

- What does your organization, government or community need to be successful to access, collect, and share water data?
- Do you use watershed characterizations to help understand the status, drivers, and stressors in your watershed? If so, what do you use watershed characterizations to understand (e.g., land use pressures, climate and climate change, status of fish and aquatic health, etc.)?
- What is preventing you from characterizing the status and risks to water in your local watershed and what can be done to fix this?

Outcome Three: Progress reconciliation with Indigenous peoples using new and improved mechanisms for collaboration on provincial water priorities.

Indigenous peoples are seeking to improve engagement and collaboration on provincial water priorities, including policy, regulations, and strategies. Many First Nations are facing multiple engagement requests from the Province, which limits their capacity to meaningfully collaborate on provincial initiatives. Article 19 of the UN Declaration requires governments to engage Indigenous peoples in a way that promotes free, prior, and informed consent when developing policy that may affect them. The Declaration Act also sets out a framework for reconciliation that requires the Province to align new provincial policy with the UN Declaration and, in time, bring existing provincial policy into alignment with the UN Declaration. Implementation of the Watershed Security Strategy may require additional policy and legislation. Developing the Watershed Security Strategy with Indigenous peoples will help ensure that future engagement and collaboration are consistent with the UN Declaration.

OPPORTUNITIES

The Watershed Security Strategy may...

- Evaluate solutions to reduce engagement fatigue though co-ordination of Indigenous engagement on provincial initiatives related to water.
- Identify innovative approaches to effectively engage First Nations, Métis, Inuit, urban Indigenous peoples, Indigenous youth, and Indigenous elders for developing provincial-scale policy, legislation, and strategies.
- Evaluate opportunities for provincial-level Indigenous-led water initiatives and advance self determination.
- Evaluate ways to educate and support those involved in watershed governance to progress reconciliation and the implementation of the UN Declaration and Declaration Act.
- Assess opportunities for the Province and Indigenous peoples to develop unique watershed-based approaches to implement and co-manage the actions contained within the Watershed Security Strategy.

QUESTIONS FOR INDIGENOUS PEOPLES

- How can engagement fatigue be addressed for provincial water policy development?
- How would you or your organization like to be engaged in provincial scale water policy and legislation development?
- What is needed to help ensure Indigenous-led water initiatives are successful?

QUESTIONS FOR ALL AUDIENCES

- What would be helpful for your organization to better understand the Province's obligations to Indigenous peoples for water policy development (e.g., written materials, webinars, videos)?

Outcome Four: Achieve healthy water for everyone.

Drinking water refers to water that is safe for human consumption, cultural uses, and domestic purposes. Access to a sufficient quantity of good quality water is central to the wellbeing of communities. In B.C., drinking water comes from streams, rivers, lakes, and aquifers. Protecting current and future sources of drinking water is very important because it can be costly and difficult to treat poor quality water. Risks to drinking water are increasing due to climate change, industrial development and population growth, and the risks are intensified for small water systems. Coordinating and prioritizing the protection of source water in decision-making through effective watershed governance will benefit our health, and ensure water is safe for drinking, ceremonies, food gathering and bathing.

OPPORTUNITIES

The Watershed Security Strategy may...

- Assess how the protection of drinking water sources could be prioritized in decision-making and planning processes that may impact water quality and quantity.
- Assess opportunities to support regional groups to protect drinking water sources (e.g., through collecting data, or piloting projects, providing guidance on policy tools such as Drinking Water Protection Plans or Water Sustainability Plans).
- Evaluate how improved management of natural assets, such as wetlands, aquifers, and aquatic ecosystems, could contribute to the protection of drinking water sources.
- Assess ways to improve mapping of water sources (including groundwater) and identifying risks and hazards to support source protection planning.

QUESTIONS

- Which principles do you think should underlie source water protection?
- How can communities, all levels of government (local, provincial, federal and First Nation), as well as industrial water users work together better to protect drinking water for human health and well being, for now and in the future?

Outcome Five: Integrate water more efficiently and effectively into Land Use Planning.

Modernized land use planning (MLUP) defines the kinds of activities that can occur on provincial public land and waters. MLUP is distinct from planning undertaken by local governments and does not define the uses of federal lands, private lands, or provincially designated Agricultural Land Reserve lands. Considering the use of these lands should be addressed through watershed governance arrangements. Unsustainable land use practices can have serious impacts on the health of watersheds. Urban development, forestry, mining, and other industries that remove vegetation within watersheds can contribute to flooding, pollution, and harm aquatic ecosystems and drinking water sources. Integrating water planning, programs, and initiatives into MLUP will help ensure water is considered in decision-making and watershed values are protected.

OPPORTUNITIES

The Watershed Security Strategy may...

- Assess options for identifying common values and objectives early so processes are strategically aligned where water planning and MLUP initiatives overlap.

- Evaluate ways to identify aquatic ecosystems and drinking water sources early so that they are considered at all collaborative planning tables.
- Assess opportunities to share and collaboratively manage land and water decisions with First Nations and local governments.
- Provide guidance on how to address water-related challenges using WSA tools within or outside of MLUP, including: WSA Objectives, WSPs, and other (WSA) area-based regulations.

QUESTIONS

- What do you value most about your watershed (e.g., water for drinking, water for aquatic species, water for recreation, water for business, wild food harvesting, etc.)? Are any of these values threatened by development in your watershed? If so, how could the Watershed Security Strategy help people in your watershed protect those values?
- What is the best way to communicate information about WSA tools with you (e.g., written materials, webinars, videos, etc.)?
- How do you think that water should be considered in land use planning?

Water Sustainability Act Tools

- **WSA Objectives**—WSA Objectives are enabled under Section 43 of the WSA. They are an area-based planning tool that can promote positive outcomes for water and communities across a range of land and water planning and decision processes. They can be established to sustain water quality and quantity for specified human uses of water and for aquatic ecosystems.
- **Water Sustainability Plans**—WSPs are enabled under Sections 64-85 of the WSA. They are initiated by a ministerial order and can provide for extensive change in how a watershed is managed. A planning area can include both public and private land.
- **Area-based regulations**—Area-based regulations provide government with the ability to customize solutions for watersheds in response to site, region, or watershed-level issues. There are several area-based tools under the WSA, such as WSA Objectives and WSPs. Other tools include requiring new users of groundwater to obtain a drilling authorization before constructing a well where groundwater supplies are under pressure.

Outcome Six: Reset the water supply and demand relationship.

Many parts of B.C. are dry in the summer, and this is only expected to continue and worsen due to climate change. Government has policy tools in place to protect water for essential household use, aquatic ecosystems, and fish populations during both short- and long-term periods of water scarcity. However, everyone has a role in enhancing supply and managing demand within watersheds. Finding alternative sources of water (e.g., rainwater harvesting) and reducing the amount of water we use (e.g., drought tolerant landscaping) will mitigate the impacts of water scarcity. Climate change, reconciliation, and changing social and economic priorities mean British Columbians also need to start looking at ways to reallocate water in some watersheds. Resetting the water supply and demand relationship will not only contribute to a more stable economy, but also a more resilient future for all living things.

OPPORTUNITIES

The Watershed Security Strategy may...

- Evaluate the use of potential new water sources such as greywater and wastewater reuse, and storage and recovery of stormwater runoff for purposes other than drinking.
- Assess how water reallocation within the existing legal framework could be used to optimize environmental, economic, and public benefits.
- Increase the participation of Indigenous peoples, local governments, agriculture, industrial water users and residents in planning to manage water scarcity and inform the provincial response to temporary periods of water scarcity.
- Evaluate the ability of WSA Objectives, WSPs and other regulatory tools to reduce water scarcity.

Case Story: The Cowichan Watershed

In the Cowichan watershed, water supply has long been a source of concern. Lower snowpacks and hotter, drier summers have reduced the quantity of water flowing into Cowichan Lake, at the same time as demand for water downstream of the lake has increased. In many years there is no longer enough water to support the collective needs of fish, residents, industrial water users and other users. Climate change will likely lead to further reductions in snowpack, in spring and early summer lake inflows, and in summer rainfall. The Cowichan Watershed Board, a formal regional partnership of government, industrial water users, First Nations and community interests, worked together to explore options to ensure water supply can meet current and future needs and guide the implementation of a comprehensive Water Management Plan (WMP) for the Cowichan Basin.

To help guide implementation of the WMP the Board collaboratively developed seven interlinked targets that focus on water quality, estuarine health, salmon stability, wise water use, watershed connection, water supply/flows, and riparian habitat protection. The targets are aspirational initiatives that tie into the community's socio-cultural values and desires. Working towards this target means the continued provision of jobs and recreation opportunities. It also means supporting the lifecycles of fish species and respecting the cultural values of local Indigenous people.

QUESTIONS

- What can water users in your watershed do to reduce the amount of water they use?
- How could the Watershed Security Strategy help implement these solutions?

Outcome Seven: Improve habitats for aquatic ecosystems.

People and aquatic ecosystems require a similar quality of water for survival. That means that aquatic ecosystems are also vulnerable to contamination that results from activities on, and changes to, the land base. Aquatic ecosystems also require appropriate volume and timing of streamflow to remain healthy. Climate change is threatening aquatic life—droughts, fires and increased temperatures all degrade the habitat of fish and other aquatic species. Mitigating stressors is important to all life—human and non-human. The knowledge and understanding to identify these stressors now is crucial for the health and resilience of aquatic ecosystems.

OPPORTUNITIES

The Watershed Security Strategy may...

- Assess opportunities for:
  - the collection of knowledge and data, and development of decision-support for environmental flows, critical environmental flow thresholds, and groundwater-surface water connectivity.
  - science, research, and long-term monitoring at sites that are actively assessing the connection between land use (e.g., resource extraction, urban development, forestry and agriculture) and the health of aquatic ecosystems and drinking water sources.
  - the management of natural assets and implementation of nature-based solutions, such as building rain gardens (sunken gardens designed to treat stormwater runoff), and protecting forests, aquifers, and wetlands.
- Identify ways in which we can increase our understanding of the services that aquatic ecosystems provide, and the financial, ecological, social and health benefits of protecting, restoring, and managing aquatic habitats.
- Assess opportunities to use economic tools to balance the wellbeing of ecosystems with food security and economic prosperity (e.g., investigate the opportunities for managing ecosystems services).

QUESTIONS

- In your opinion, what actions would best support the restoration, rehabilitation and improvement of water and aquatic habitats in your local watershed? Please provide more details on your answers and include examples where possible (e.g., if you included "provide training", please discuss what support for this would look like and the types of training or subject areas that would be most useful.)

Outcome Eight: Integrate Indigenous Knowledge into decision-making and management.

Indigenous Knowledge systems have been developed by communities over millennia and combine spiritual, ethical, inter-generational and ecological learnings together in a holistic world view. Indigenous Knowledge is owned by Indigenous peoples, communities, and family groups—it cannot be separated from Knowledge Keepers and is only shared with their permission. The UN Declaration underscores the importance of respecting indigenous knowledge, cultures, and traditional practices in sustainably managing the environment. Integrating Indigenous knowledge in decision-making includes valuing and considering it alongside scientific knowledge, and ensuring that Indigenous Knowledge is used with appropriate consent and is appropriately governed.

OPPORTUNITIES

The Watershed Security Strategy may...

- Identify opportunities for training for watershed governance initiatives on how to recognize and align the value of Indigenous knowledge systems and science.
- Share examples of where science and Indigenous Knowledge have both been used to inform water management in B.C. and beyond.
- Identify opportunities for Indigenous-led efforts related to Indigenous Knowledge (e.g., projects related to the use, revitalization and sharing of Indigenous Knowledge).

QUESTIONS FOR INDIGENOUS PEOPLES

- What is needed to help ensure Indigenous-led efforts related to Indigenous Knowledge are successful?
- How can the Province support the inclusion of Indigenous Knowledge Keepers and Indigenous Knowledge in water management decisions?

QUESTIONS FOR ALL AUDIENCES

- What do you or your organization need to foster respectful sharing and consideration of science and Indigenous Knowledge within your organization?
- Does your organization practice the respectful sharing of knowledge? If so, do you have any lessons you may share?

Case Story: Burrard Inlet Water Quality Objectives

Water quality objectives (WQOs) for Burrard Inlet represent a collaborative effort led by Tsleil-Waututh Nation with the Ministry of Environment and Climate Change Strategy to inform water quality management and to protect the water values associated with the Burrard Inlet and its freshwater tributaries.

The Burrard Inlet WQOs have been co-signed by the Province and the Tsleil-Waututh Nation, establishing a first-of-a-kind government-to-government initiative that weaves western science with Traditional Indigenous values and knowledge. The WQOs are for the protection of human consumption of shellfish and finfish, aquatic life, wildlife, cultural practices, recreational uses, and institutional uses.

With over 25,000 km of coastline, the interaction of freshwater with marine environments adds an important dimension to freshwater management in B.C. Many anadromous fish species contribute to healthy freshwater ecosystems and are of great importance to Indigenous cultures.

Outcome Nine: Strengthen education and outreach about managing water in B.C.

Water quality and water use is affected by the thousands of decisions that are made daily by watershed residents, governments, industries, and urban, land, and water planners. These decisions can have a range of consequences for watershed security. Strengthening education and outreach about water and our human-induced changes will increase awareness of our shared water values, threats facing watersheds, and the importance of protecting water quality and conserving water.

Purposeful education and outreach must reflect the audience and knowledge being shared. Water-related knowledge is held by governments, Indigenous peoples, local stewardship groups, university researchers, watershed scientists and other professionals, and many citizens who live, play and work in our watersheds. Communicating this knowledge in an accessible way will inform watershed stewardship behaviours and awareness, facilitate collaborative monitoring programs, support watershed governance efforts and improve decisions made by all.

OPPORTUNITIES

The Watershed Security Strategy may...

- Identify audiences that would benefit from, or are looking for, education and outreach about water and understand what knowledge they need (e.g., about floods, droughts, pollution, how to avoid development impacts or improve the health of surface water and groundwater, how to monitor surface water and groundwater).

- Evaluate a range of methods for education and outreach, acknowledging the diversity of audiences and their needs (e.g., websites, reports, videos, presentations, training).
- Identify opportunities for:
  - partnering with different levels of government, Indigenous and non-Indigenous community groups to deliver education and outreach on water and monitoring.
  - sharing methods, lessons learns and management strategies amongst individuals and parties gathering knowledge in watersheds across B.C.

QUESTIONS

- What is the best method for you, your community or organization to receive and share information?
- Please list what additional watershed knowledge and/or tools would be most useful to you.

Outcome Ten: Create a Watershed Security Fund.

The Minister of Environment and Climate Change Strategy's mandate letter includes a commitment to establish a fund related to the Watershed Security Strategy and dedicated to the goal of protecting clean water. This fund could complement existing funding programs and help support a range of watershed governance arrangements and activities that contribute to watershed security.

QUESTIONS

- How would you prioritize investments in watershed security if more funding is directed toward supporting a Watershed Security Strategy?
- What do you see as the main benefit(s) British Columbians would obtain through government investment in watershed security?
- What opportunities and priorities do you think a Watershed Security Fund could focus on?

Case Story: The Healthy Watersheds Initiative

The Healthy Watersheds Initiative (HWI) is a $27M fund created through StrongerBC to support over 60 projects throughout B.C. This funding gets people back to work in B.C. in roles that protect species, restore watersheds and ecosystems, and prepare for climate change impacts. Projects involve restoration of fish spawning and rearing habitats, important fish passageways, wetlands, and riparian areas. Many projects are led by or implemented in partnership with Indigenous communities.

The Real Estate Foundation of BC administers this funding with support from Watersheds BC and an Indigenous Leaders Advisory Circle. The Indigenous Leaders Advisory Circle, among other things, helps ensure that HWI projects are strengthening relationships with Indigenous communities and are hearing and sharing Indigenous knowledge in a respectful way.

Conclusion

We want to hear from you.

If you have any thoughts on:

- The engagement approach and how you would like to be involved in the future,
- Questions posed in the proposed outcomes and opportunities section above,
- Issues or concerns you think we should be aware,
- Ideas or solutions you or your organization wishes to share, and/or
- Anything you wish to share on the topic of how watershed security can be achieved in B.C.

Please participate in the online discussions and please submit your ideas through www.gov.bc.ca/water until March 18, 2022 at 4:00 p.m., or email livingwatersmart@gov.bc.ca.