FAQ

Water Sustainability Planning

October 21, 2025

Questions and Answers about Goat River Watershed Water Sustainability Planning

1. **What is a Water Sustainability Plan (WSP)?**
   A WSP is a planning and governance tool under BC's Water Sustainability Act. It is developed collaboratively with Indigenous Nations, local governments, and communities to address water challenges such as conflicts between users, risks to water quality, or threats to ecosystem health.

2. **Why would we do a WSP here?**

A WSP is considered when there are clear risks or conflicts that can't be solved by existing tools—such as drought pressures, groundwater declines, or ecosystem damage. It provides a way for governments and communities to work together and create enforceable solutions tailored to the watershed.

3. **What are the benefits of a WSP?**

Benefits include:
- Protecting drinking water sources and aquatic ecosystems.
- Building stronger relationships between Indigenous and non-Indigenous governments.
- Bringing all water users—residents, farmers, businesses—into one conversation.
- Developing enforceable regulations that can actually influence land and water use decisions.
- Creating a long-term plan for sustainable water management that reduces conflict and increases certainty.

4. **Who leads a WSP?**

A WSP must be co-developed with First Nations whose territories are in the watershed. The Province must also be a partner, since the plan has legislative authority. Local governments may be invited to lead parts of the process. Improvement districts, water users, and community groups are invited to participate in shaping priorities and solutions.

5. **What is the legal power of a WSP?**

Once approved by the Minister, a WSP can lead to regulations that are legally binding. These can require decision-makers to consider the plan in issuing permits or land-use decisions, or restrict certain activities that threaten water or ecosystem health. This makes a WSP stronger than voluntary agreements or advisory plans.

6. **How long does it take to develop a WSP?**

Developing a WSP is a multi-year effort (at least 3–5 years). It involves issue identification, building partnerships, co-developing the plan, and setting up monitoring and adaptive management.

7. **How is a WSP different from other water or land use plans?**

Unlike voluntary watershed plans, a WSP is backed by provincial law. It can result in enforceable regulations, apply to both surface water and groundwater, and require provincial and local decision-makers to follow its direction.

8. **What is the reason why the RDCK considers the Goat River a sensitive ecosystem? Is there a report or frame of reference document that you could provide for us to review which outlines the scientific context behind this classification? Any data that you could share with us in this regard would be helpful.**

The Goat River Watershed is considered a sensitive ecosystem because it provides critical ecological and hydrological functions that directly influence community water supply, fish habitat, and agricultural productivity. The watershed supports surface and groundwater systems that are hydrologically connected to the Canyon (0489) and East Creston/Lister (0488) aquifer, both of which are provincially recognized as at-risk drinking water sources and agricultural supply areas. Below is a criteria for understanding the Goat River Watershed as a sensitive ecosystem. Contact us for links to reports and more information (Camille LeBlanc, cleblanc@rdck.bc.ca and Paris Marshall Smith, pmarshallsmith@rdck.bc.ca)

Lens	**Why it matters**	**References on the Goat River Watershed or similar systems**
Low-flow / drought vulnerability / non-stationarity	Watersheds that exhibit shifting low-flow regimes or increasing drought stress are at higher risk of ecological or supply failure under climatic or land use change.	A recent study applied non-stationary extreme value modelling to the Goat River near Creston, showing changing patterns in 5-day low flows relative to precipitation inputs MDPI
Aquifer / stream connectivity and groundwater dependence	If stream flows and ecosystem functions depend on groundwater inflows (baseflow), then impacts to aquifer recharge or interception may more strongly degrade the system.	The “Stream Vulnerability Mapping / Hydraulic Connectivity” literature shows how groundwater abstraction can influence surface stream flows and thus watershed sensitivity. Simon Fraser University
Exceptional water clarity, low turbidity, cold temperature regimes	Watersheds with cold, clear water often support cold-water fish (like trout), sensitive macroinvertebrates, and are less tolerant of disturbance or sediment inputs.	In the Goat River, past water quality monitoring found exceptionally low turbidity and suspended sediments, which supports a sensitivity argument. Environmental Protection BC
Important fish habitat / spawning / migration value	If the watershed supports spawning, rearing, or migratory fish populations, any degradation (sediment, flow alteration, temperature) can disproportionately affect those populations.	The Goat River bull trout telemetry and redd surveys document relatively high quality habitat, connectivity, and mobility of individuals. Environmental Protection BC. Burbot population in Kootenay Lake/Lower Kootenay River is classified as S1- Critically Imperiled, meaning the population is extremely

		vulnerable to extinction, likely due to the loss of spawning sites and habitat alteration. The Goat River is identified as critical habitat for Burbot KR/KL Burbot Conservation Strategy and there is a long history of active conservation measures directed at improving population numbers https://columbiabasinbulletin.org/lower-kootenay-band-to-release-over-one-million-burbot-into-restored-wetland-in-b-c-s-creston-valley/
Slope instability, landslides, geomorphic sensitivity	Watersheds with steep terrain, frequent landslides, or natural disturbance regimes are more sensitive to land use or hydrologic perturbation.	In the Goat River watershed, authors note active landslides, slope seepage, and avulsion risk that can degrade stream habitat or produce sediment pulses. Environmental Protection BC
Hydrologic non-stationarity / climate change stress	If the watershed's hydrologic regime is changing (e.g. shifts in rainfall, snowmelt timing, increased extremes), the system is more vulnerable to thresholds being exceeded.	The Dekker et al. (2024) drought modelling for Goat River explicitly explores non-stationarity in low flows under climate drivers. MDPI

How these apply to Goat River

Here are concrete observations from the scientific literature for Goat River that support a sensitive ecosystem classification:

- Exceptional clarity / low sediment: The Goat River has been measured to have extremely low turbidity and suspended sediment concentrations (often below detection), especially in upstream reaches that are not glacially fed. Environmental Protection BC
- Bull trout life history and connectivity: Radio-telemetry studies showed Bull Trout in the Goat River migrate, spawn, and move long distances. The connectivity and high quality spawning habitat mean that impairment in any reach may affect the population as a whole. Environmental Protection BC
- Slope instability / landslide risk: The Goat River basin is subject to landslides, slope seepage, and avulsions. These processes can introduce sediment pulses or destabilize geomorphic habitat. Environmental Protection BC
- Hydrologic variability and drought trends: The 2024 study "A Case Study of Hydrologic Drought in the Goat River" uses rolling windows and extreme value statistics to show that low flows are influenced by changes in precipitation and climate variables, suggesting increasing vulnerability under non-stationarity. MDPI

Data gap checklist:

And because this is an active area of research, we recognize the following gaps in our information/understanding and will be working to compile the following:

- Understanding what level of groundwater is being used, by who and when – while we have a good understanding of surface water flows, we don't of groundwater and hope to improve that over the course of this study
- Stream–aquifer connectivity studies (isotope work) to assess how much of the watershed is sustained/connected to Canyon (0489) and East Creston/Lister (0488).

9. **In the RDCK's Creston Valley Alternative Water Supply Feasibility Study document there is discussion about the proposed change from using the Goat River and Arrow Creek Watersheds for irrigation sources to the Kootenay River. In the scope of the study, has the quality of water in addition to the quantity required been considered? Has testing of the quality of the water within the Kootenay River been completed before considering this as a water source for the irrigation of crops?**

The Creston Valley Alternative Water Supply Feasibility Study https://engage.rdck.ca/cvstudy examined the technical potential of supplementing irrigation water from the Kootenay River, recognizing that existing allocations from Goat River and Arrow Creek are nearing capacity during low-flow periods.

Key points:

- Water Quantity and Quality Considerations: The study evaluated hydrology, infrastructure feasibility, and water quality. Section 4.3 of the report specifically addresses water quality.
- The guidance document used for agricultural water is the BC Working Water Quality Guidelines: Aquatic Life, Wildlife and Agriculture (2024), developed by WLRS. This document outlines the parameters for agricultural use and is not as stringent as drinking water quality guidelines.
- Available water quality data indicate that quality is good and suitable for irrigation, and it is expected that the raw water quality from the Kootenay River would continue meet these guidelines, although this would need to be confirmed by water sampling in future stages of design.

Water Quality Data:

- CANADA-BRITISH COLUMBIA WATER QUALITY MONITORING AGREEMENT (water quality monitoring near Creston) - https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/monitoring-water-quality/kootenay-wq-docs/kootenay-watershed.pdf
- The BC Water Quality Monitoring Program and Canadian Aquatic Biomonitoring Network (CABIN) provide monitoring data for the Kootenay River.
- The Kootenay River Basin Water Quality Summary (MoECCS) identifies elevated nutrient and metal levels in some reaches, particularly during spring freshet.

These findings underscore that further site-specific testing would be required before making a final selection of the Kootenay River as an irrigation source. The study reference can be found here: The Creston Centralized Water Feasibility Study (2025, DRAFT) details these assessments, including flow modelling and source water analysis. [RDCK Draft Report, Feb 2025]

Additional Resources

BC Water Sustainability Act – Part 3, Division 4: Water Sustainability Plans

Ktunaxa Nation Land Stewardship Vision and Engagement Updates