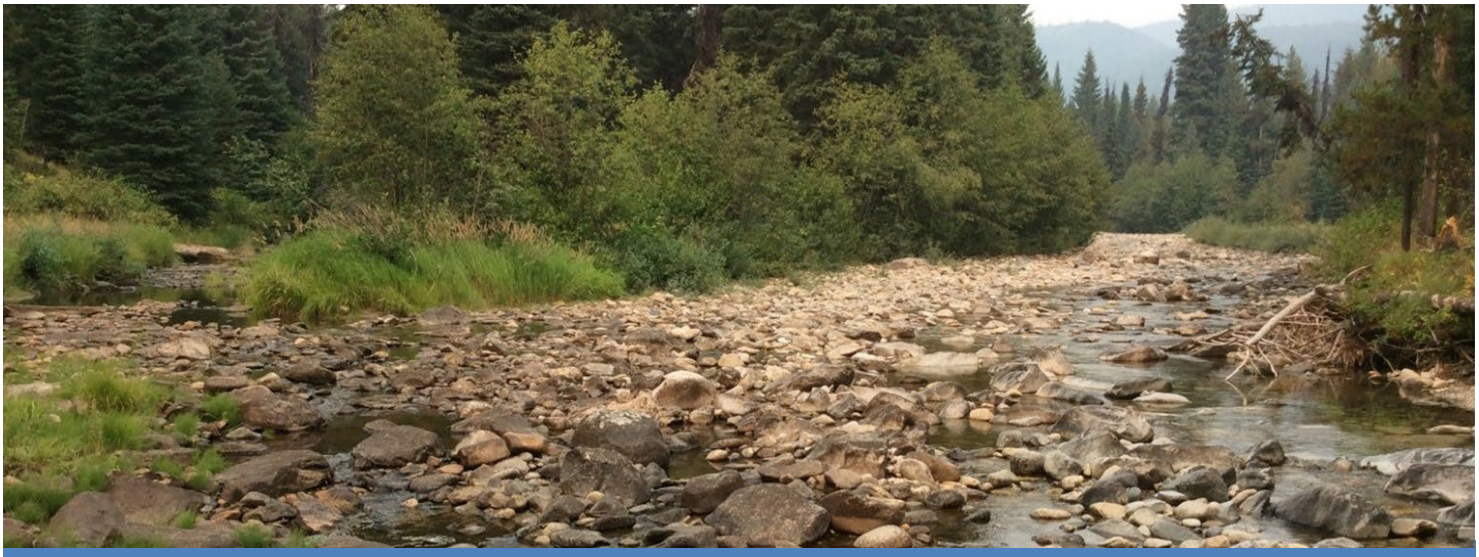
British Columbia Drought and Water Scarcity Response Plan



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Prepared by the Ministry of Water, Land and Resource Stewardship

Authorship and Editions

This plan is considered a living document and may be updated and revised based on experiences and learning. The plan was originally authored in 2010 and is revised annually. As provincial ministry roles and accountabilities change, responsible authors for this plan have changed over time. Provincial approaches to drought monitoring and provincial drought management governance structures have also changed over the years and each revision of this plan reflects those updates. The 2021 edition included changes to drought level definitions and criteria to better align with federal and North American drought monitoring frameworks. Building on those changes, this 2025 edition describes an updated approach to monitoring drought conditions and impacts.

Accessibility

This document has been formatted to maximize accessibility.

Acknowledgements

Thank you to the many agencies and individuals who invested their time in reviewing this year's draft and providing their thoughtful feedback.

Legal Disclaimer

This plan does not address emergency response measures as defined in the Emergency and Disaster Management Act (2023). The declaration of any drought level or condition and subsequent response does not imply municipal or provincial compensation for economic loss.

Many factors may influence local water supply availability, including but not limited to precipitation, topography, geography, microclimates, storage capacity, water utility systems or population demands. The information in this plan is, by design, general in nature and should not be relied upon as specific advice for responding to specific circumstances.

Water suppliers, First Nations, local governments, improvement districts, other authorities and water licensees should consider the appropriateness of the suggestions in this plan and adapt them to suit their specific local conditions and requirements. All readers are invited to consider this information with their specific circumstances in mind and to make their own determinations as to applicability. Please seek professional or legal advice where appropriate, for example, to inform drought plan or bylaw development.

While best effort is made to provide accurate information in this plan at the time of publication, the B.C. Government cannot guarantee its currency, accuracy, completeness, or its applicability to or suitability for individual circumstances. **Readers of this plan are encouraged to take steps to confirm information that is critical to their circumstances.**

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Acronyms Used in this Document

AAFC	Agriculture and Agri-Food Canada
ADM	Assistant Deputy Minister
ADMEC	Assistant Deputy Ministers' Emergency Committee
ADMCDREM	Assistant Deputy Ministers' Committee on Disaster Risk and Emergency Management
ADMWF	Assistant Deputy Ministers' Water Forum
AF	British Columbia Ministry of Agriculture and Food
B.C.	British Columbia
BCAC	BC Agriculture Council
BCER	British Columbia Energy Regulator
BCWC	B.C. Water Committee
CEFT	Critical Environmental Flow Threshold
DAT	Drought Advisory Table
DFO	Fisheries and Oceans Canada
DMCDREM	Deputy Ministers' Committee on Disaster Risk and Emergency Management
DMCNR	Deputy Ministers' Committee on Natural Resources
DWPA	Drinking Water Protection Act
ECCC	Environment and Climate Change Canada
EDMA	Emergency and Disaster Management Act
EMCR	British Columbia Ministry of Emergency Management and Climate Readiness
ENV	British Columbia Ministry of Environment and Parks
FITFIR	First-in-time, First-in-right
FNHA	First Nations Health Authority
FNESS	First Nations' Emergency Services Society
FOR	British Columbia Ministry of Forests
GCPE	Government Communications and Public Engagement
HLTH	British Columbia Ministry of Health
IIABC	Irrigation Industry Association of British Columbia
ISC	Indigenous Services Canada

FN/LG/WS	First Nations, Local government, and/or water suppliers
LGA	Local Government Act
LGIC	Lieutenant Governor in Council
(M-DEC / DM-EC)	Ministers' – Deputies' Emergency Council / Deputy Ministers' Emergency Council
TT	British Columbia Ministry of Transportation and Transit
HMA	British Columbia Ministry of Housing and Municipal Affairs
NDMC	National Drought Mitigation Centre
NIDIS	National Integrated Drought Information System
OPHO	Office of the Provincial Health Officer
PECC	Provincial Emergency Coordination Centre
PREOC	Provincial Regional Emergency Operations Centre
PTDWG	Provincial Technical Drought Working Group
RFC	River Forecast Centre
RHA	Regional Health Authority
RTDWG	Regional Technical Drought Working Groups
SARA	Species at Risk Act
TPO	Temporary Protection Order
WHSC	B.C. Water Committee Water Hazards Sub-Committee
WLRS	British Columbia Ministry of Water, Land and Resource Stewardship
WSA	Water Sustainability Act

1 Overview

1.1 What is Drought?

Drought is a naturally reoccurring period of abnormally dry conditions that may result in water scarcity or other adverse impacts on people, aquatic ecosystems, wildlife or vegetation. Drought can be characterized according to the state of dryness (e.g. meteorological or hydrological drought), or the effects of that dryness (e.g. ecological, agricultural or socio-economic drought).

Definitions for different types of drought were developed in conjunction with other western and northern provinces and territories through the Western Water Stewardship Council and can be found in Appendix 1. While there are many types of drought, they all occur as a temporary deviation from normal, or expected, conditions. Individual drought events vary in their magnitude and duration. While most droughts develop slowly and have no obvious start and end dates, rapid-onset flash droughts can also occur.

In British Columbia (B.C.), combinations of insufficient snow accumulation, earlier or rapid snow melt, prolonged hot and dry weather or a delay in rainfall may lead to drought conditions, including low flows in a river or stream. Analysis of previous droughts in the province indicate that there are three major factors typically involved with drought occurrence: low winter snow accumulation (as measured in early spring), low spring precipitation (May and June) and low summer precipitation (July and August). For significant drought to occur, two of the three factors often occur. For severe drought (as in 1929, 1931, 1955, 2003, 2009, 2015 and 2023), all three factors often occur in addition to consecutive years of reduced precipitation. Other factors including early or rapid snowmelt, low groundwater recharge and high spring or summer temperatures can also be major drivers of drought.

In many watersheds, low flows occur periodically and are a natural component of the hydrology of the area. For example, low flows typically occur seasonally during the summer dry season on the south coast of B.C., or during winter in cold climates throughout the interior, mountainous areas or the north. While drought results in low flows, a seasonal low-flow event is not necessarily a drought.[1] Drought occurs when low flows are much below seasonal normal for an extended period of time. Drought can also impact groundwater levels. Aquifers provide baseflow for streams which can make up a large proportion of streamflow during low-flow seasons. Aquifers, particularly those at shallow depths, may

[1] United States Environmental Protection Agency. Definitions and Characteristics of Low Flows. Accessed at https://www.epa.gov/ceam/definition-and-characteristics-low-flows#drought, accessed April 22, 2021.

develop a lower water table due to drought, in any given year and from previous drought seasons, as there may not be enough water to recharge the aquifer.

Drought may result in an imbalance between the amount of water naturally available and the demand for water. This imbalance is sometimes referred to as water scarcity. Drought can result in water scarcity events that can impact both people and the natural environment, particularly in watersheds with a high volume of water use and limited storage. Prolonged periods of low stream flow which can be exacerbated by high water use can lead to habitat loss or warmer water temperatures that affect the survival of fish and other aquatic life.

Drought can affect communities and individuals by reducing water available for household and business use and impacting Indigenous communities' access to traditional foods and medicines. Drought can also affect the growth of agricultural crops by reducing the availability of water for irrigation. Impacts to both fish populations and crop growth can affect food security. If natural water sources or adequate storage are not available in a community, this may lead to insufficient supplies for firefighting. Drought can also lead to significant economic impacts where communities rely on water-dependent tourism activities.

By being prepared to respond to drought, communities and water suppliers are better able to protect water resources for potable use (drinking water), sanitation, fire protection, agriculture, industry, fish, aquatic ecosystems and a range of economic activities.

1.2 About the Drought and Water Scarcity Response Plan

This plan focuses on drought and water scarcity response. This includes the actions taken preceding, during and immediately following a drought to monitor and reduce its impacts. The plan:

- Provides context and outlines the principles that informed the plan's development;
- Outlines the responsibilities of agencies at various levels;
- Describes emergency response actions should they be necessary;
- Outlines the components of drought monitoring;
- Describes the six provincial drought levels and drought indicators; and,
- Outlines possible drought response actions.

While this plan also includes content on other phases of drought management (mitigation, preparedness and recovery), these are not the primary focus. Issues around drought preparedness and water conservation are addressed in several other provincial government policies and guidelines.

This plan is primarily intended to guide the operational response actions of staff in provincial government agencies. It also provides general recommended actions for federal government agencies, Indigenous governments, local governments and water licensees under the Water Sustainability Act (WSA).

1.3 Context

Drought response in B.C. is based on existing legislation and regulations. The B.C. Drought and Water Scarcity Response Plan is supported by established legal authorities provided in the WSA, the Drinking Water Protection Act (DWPA), the Environmental Management Act (EMA), the Local Government Act (LGA), the Emergency and Disaster Management Act (EDMA) and their supporting regulations. However, the actions available under these enactments are independent of this Plan. Appendix 2 provides an inventory of key provincial legislation and programs relevant to drought management.

This plan was developed, in part, by drawing from experience with previous droughts, including the summers of 2009, 2015, 2021, 2023 and 2024 which were characterized by extremely low flows in many streams and low groundwater levels in wells across B.C.

1.4 Principles

The following principles guided development of this plan:

Partnership: Federal, provincial, Indigenous and local governments, along with locally affected groups and individuals, need to work together to manage drought. B.C. is a large and climatically diverse province. In any year, drought may occur in some geographic areas and watersheds while others experience normal conditions or even flooding.

At the federal and provincial level, agencies' roles include communication and coordination; science, including monitoring and forecasting; and emergency support services. At the local level, water suppliers, local governments, Indigenous governments and other authorities undertake duties including data collection, water conservation promotion and enforcement, and emergency response.

Knowledge: Sound science, traditional knowledge, education and innovation are the foundation for adapting to changing environmental conditions. In times of drought, this includes using the best available information to assess current and forecasted circumstances.

Stewardship: All British Columbians are responsible for the sustainable stewardship of water and aquatic ecosystems. This means that all water users in drought-affected

areas are asked to cooperate and contribute to the goal of water conservation. Wherever possible, reductions in water use will be achieved through voluntary measures, recognizing that at times it may be necessary to turn to regulatory responses to protect fish, aquatic ecosystems and the rights of water users.

Timely communication: Communicating early in the season is essential to ensuring cooperation and effective water conservation. Providing timely, clear and appropriate information ensures that communities and water users are aware of environmental conditions, can take on shared responsibility, have the opportunity to implement conservation measures and are made aware of the potential for regulatory action.

2 Drought Management Responsibilities

Drought impacts are complex and affect many different sectors of society. As a result, First Nations, local, provincial and federal agencies may share responsibilities for managing and responding to drought. Appendix 3 outlines the many provincial and federal agencies that are also involved in drought management.

2.1 Response Structures

Figure 1 outlines the current key provincially led drought response committees and how they work together, and Table 1 describes their roles and responsibilities. Additional partners engage in drought response activities through various other committees and working groups. **Working groups and committees, and their responsibilities for drought, are subject to change**.

Figure 1: Key provincial led coordinating bodies and committees in B.C. drought response. Dotted arrows indicate a communication / issues management relationship. Solid arrow indicates a formal reporting relationship.

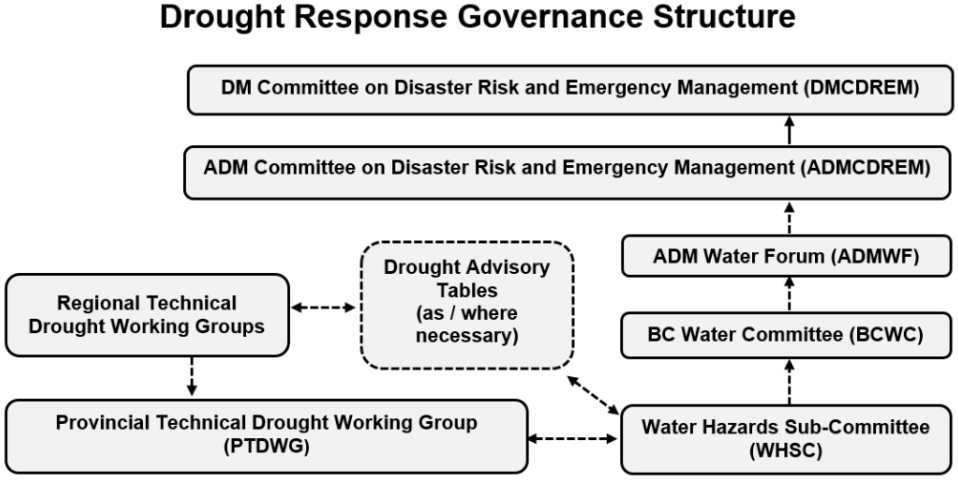


Table 1: Roles and responsibilities of key provincial-led coordinating bodies and committees in B.C. drought response.

Who	Responsibilities
Deputy Ministers' Committee on Disaster Risk and Emergency Management (DMCDREM)	• Resolves higher complexity issues. • Provides strategic guidance and approval for regulatory, policy and financial decisions during both drought preparation and response.
Assistant Deputy Ministers' Committee on Disaster Risk and Emergency Management (ADMCDREM)	• Decision-making committee with respect to strategic drought response. • Ensures broad corporate objectives related to emergency management are met. • Elevates emergency management matters of higher government-level issues and recommendations to DMCDREM.
Assistant Deputy Ministers' Water Forum (ADMWF)	• Provides corporate leadership to ensure freshwater management programs, policies and decisions are optimized and aligned with government priorities.
B.C. Water Committee (BCWC)	• Executive Director level committee, responsible for this plan. • Ensures government's water programs are delivered effectively across provincial agencies.
Water Hazards Sub-Committee (WHSC)	• A sub-committee to the BCWC, the WHSC provides operational direction for year-round cross-government agency cooperation and action on water hazard planning and response. • Ensures that roles and responsibilities during water scarcity and drought conditions are clearly defined and communicated. • Supports the effective functioning of working groups and advisory tables, including finding solutions to challenges raised that cannot be resolved at the staff level. • Identifies trends, issues and gaps, conducts post-event debriefs and elevates issues and recommendations to executive when necessary. • Ensures lines of communication between the provincial government and external partners responding to drought, such as federal agencies, First Nations governments and key sector organizations, are coordinated and aligned.
Provincial Technical Drought Working Group (PTDWG)	• Coordinates pan-provincial and regional communication actions related to drought management year-round. • Coordinates provincial and federal actions to mitigate the risk or impacts of drought.

	• Coordinates cross-agency projects that may support data collection, monitoring, development of technical tools, implementation of regulatory tools, or impact and risk assessments on drought. • Refers issues to the WHSC, as appropriate, to support operational drought response actions.
Regional Technical Drought Working Group (RTDWG)	• Coordinates and collaborates on drought response actions with technical staff at the regional (delineated according to natural resource regions) or watershed level, which may include technical experts from First Nations, provincial, local and federal governments. • Shares information on drought conditions and impacts, including but not limited to streamflow and aquifer conditions, fish and aquatic ecosystem health, habitat assessments, water use demand, and impacts on water users as the season progresses. • Supports drought preparedness, particularly in drought-vulnerable regions. • Collaborates on the development and implementation of regional/watershed level communication plans and long-term preparedness strategies. • Develops technical information that supports local communities to implement water use schedules or other voluntary conservation measures. • Identifies streams and/or species at higher risk of drought impacts. • Coordinates regional projects that may support data collection, monitoring, development of technical tools, and impact and risk assessments on drought.
Drought Advisory Table (DAT)	• Facilitates conversations between the B.C. Government and parties anticipated to be adversely affected by drought, through either existing committees or new conversations, at a scope and scale appropriate to the parties affected and the risks. • Discusses strategies to address drought and water scarcity issues at a local scale with the goal of improving drought preparedness and resilience. • Shares information on drought-related conditions, impacts, emerging concerns or risks, water supply and quality challenges, and responsive actions being taken. • Ensures that senior representatives from First Nations, local, provincial and federal governments, special agencies, health authorities, water suppliers and sector groups (for example business, agriculture, recreation, industry) are invited to participated as desired.

At the regional/local level, the coordination of drought and water scarcity management actions is focused on collecting information, delivering programs, communicating with residents and responding to emergencies. Under the WSA, the following roles may also exercise powers to make statutory decisions or take action in response to drought:

Engineers, Water Managers and Comptroller of Water Rights may restrict water use by lower priority licensees or those with conditional clauses in their water licence. These individuals hold the authority, designated under the WSA, to regulate non-licensed water use, including use approvals, transitioning groundwater users, domestic groundwater users and unauthorized water users, and make statutory decisions on priority of water rights under s. 22 of the WSA. The Comptroller of Water Rights may also establish critical environmental flow protection orders under WSA s. 87 for streams under a WSA s. 86 declaration of significant water shortage (either minister or LGIC order).

Natural Resource Officers use a range of tools and actions to enforce resource management laws including the WSA. Tools and actions include educating the public, conducting compliance investigations and inspections, and taking enforcement actions when necessary. Natural Resource Officers have authority to enter onto private land.

Water Bailiffs have an important role at the local level. Under s. 38 in the WSA, the Comptroller of Water Rights or a water manager can appoint a water bailiff to act on behalf of the B.C. Government to manage conflicts in a stream before or during a drought. Water bailiffs are given the authority to enter any land, to regulate and control the diversion and use of water by all users (authorization holders as well as users that are not authorization holders), and to control all diversion works on streams or aquifers.

2.2 First Nations and Local Authorities

First Nations are a separate and distinct level of government with their own laws and legal systems. Their inherent right of self-determination may be expressed through their own laws and stewardship practices regarding drought management and response, distinct to each community. This plan must not be read to speak for Indigenous Peoples. References in this plan to Indigenous organizations are included to assist with relationship building at the local level.

Through the Declaration on Rights of Indigenous Peoples Act (Declaration Act), the B.C. Government has adopted a distinctions-based approach to advancing reconciliation and implementing the United Nations Declaration on Rights of Indigenous Peoples. A distinction-based approach means that the B.C. Government's work with First Nations,

modern treaty nations, Métis and Inuit people will be conducted in a manner that acknowledges the specific rights, interests, priorities and concerns of each, while respecting and acknowledging these distinct Peoples with unique cultures, histories, rights, laws and governments. The B.C. Government endeavours to approach drought response in a culturally relevant way, integrating Indigenous local and intergenerational knowledge wherever possible, through consultation and cooperation with Indigenous Peoples.

Other local authorities involved in drought management include municipal governments, regional districts, Health Authorities and the First Nations Health Authority. Some First Nations, local authorities and water suppliers have entered into collaborative partnerships or formal agreements to facilitate collaborative management and decision-making to protect and enhance the health of watersheds and sustainably manage local water sources. Examples include the Okanagan Basin Water Board and Cowichan Watershed Board.

The structure of governance arrangements for water varies from region to region and First Nation to First Nation, as do climatic and geographic conditions. Local authorities and First Nations governments may be able to take a lead role in:

- Gathering available drought information from the community;
- Identifying information gaps;
- Identifying vulnerable aquatic ecosystems;
- Targeting water management needs;
- Implementing water conservation strategies (for example, seasonal and/or escalating outdoor watering restrictions);
- Managing community water supplies and local water infrastructure;
- Communicating on drought conditions to the local community; and
- Participating as part of Regional Drought Teams in the coordination of drought response.

Early and frequent communication about water supply conditions and responses is key to successful drought management. Local authorities and First Nations governments may choose to use a combination of communication tools, water supply and demand data, regulatory instruments and other tools to advocate for water conservation across their community. This may include communicating directly with residents about drought management goals, actions, water supply status and forecasts, as well as one-on-one meetings with major water users in the community to discuss water conservation plans and their role in implementation.

Local Drought Management Plans are often developed by local authorities, First Nations governments and water suppliers to help manage their water supply in times of drought. These plans can include:

- Documentation on the water system profile;

- Evaluation of the potential impacts of drought on the region's economy;
- Data requirements, frequency of data collection, and reporting protocols on local water supplies and climate;
- Clear definitions of local stages of water restrictions, and corresponding local responses including emergency response and contingency plans;
- Streams or aquatic ecosystems of concern; and
- Communication plans.

See Appendix 4 and the Dealing with Drought: A Handbook for Water Suppliers in B.C. for more information on local drought management plans, water supplier responsibilities, water conservation plans and emergency drought planning.

2.3 Emergency Activations

During emergencies, Indigenous and local governments lead local responses. If the emergency is beyond their capacity, EMCR Regional Duty Managers and/or PREOCs are available to provide support. This support includes emergency management professionals who can assist Indigenous and local governments with response planning, coordination and logistics. There are six PREOCs in B.C., one in each EMCR region.

EMCR Provincial Duty Managers and the PECC, located at EMCR headquarters in Victoria, are also available to provide support. The PECC can provide support by:

- Coordinating resources and communications;
- Requesting assistance from the provincial government; and
- Contacting other provinces or the federal government for support.

2.3.1 Declared State of Emergency by the B.C. Government

The declaration of a state of emergency enables certain powers available under the Emergency and Disaster Management Act (EDMA) during emergency response and recovery periods. During a state of emergency declared by the B.C. Government, which may be provincial or local in scale, the provincial response structure changes to reflect changes to decision-making powers. The ADM Committee on Disaster and Risk Emergency Management (ADMCDREM) becomes the ADM Committee on Emergency Management (ADMCEM); the Deputy Ministers' Committee on Disaster and Risk Emergency Management (DMCDREM) becomes the Deputies' Emergency Council (DMEC). Drought Advisory Table(s) activities within areas under a state of emergency will likely be temporarily paused, to allow a shift in member participation to multijurisdictional emergency management committees convened under EDMA. Figure 2 outlines the current key coordinating bodies during a state of emergency and how they work together, and Table 2 describes their roles and responsibilities during an emergency.

2.3.2 Emergency Declarations by Local Authorities

Declaring a State of Local Emergency (SOLE) enables local authorities in B.C. to exercise the emergency response powers listed in EDMA. The emergency response powers can be used by the local authority to take actions including restricting non-essential water use, ordering the evacuation of residents from an area, prohibiting travel, and entering private property when an emergency threatens lives, property or objects or sites of heritage value within the local authority's jurisdiction.

Figure 2: Key provincial led coordinating bodies involved in B.C. drought response during a state of emergency. Dotted arrows indicate a communication / issues management relationship. Solid arrows indicate a formal reporting relationship.

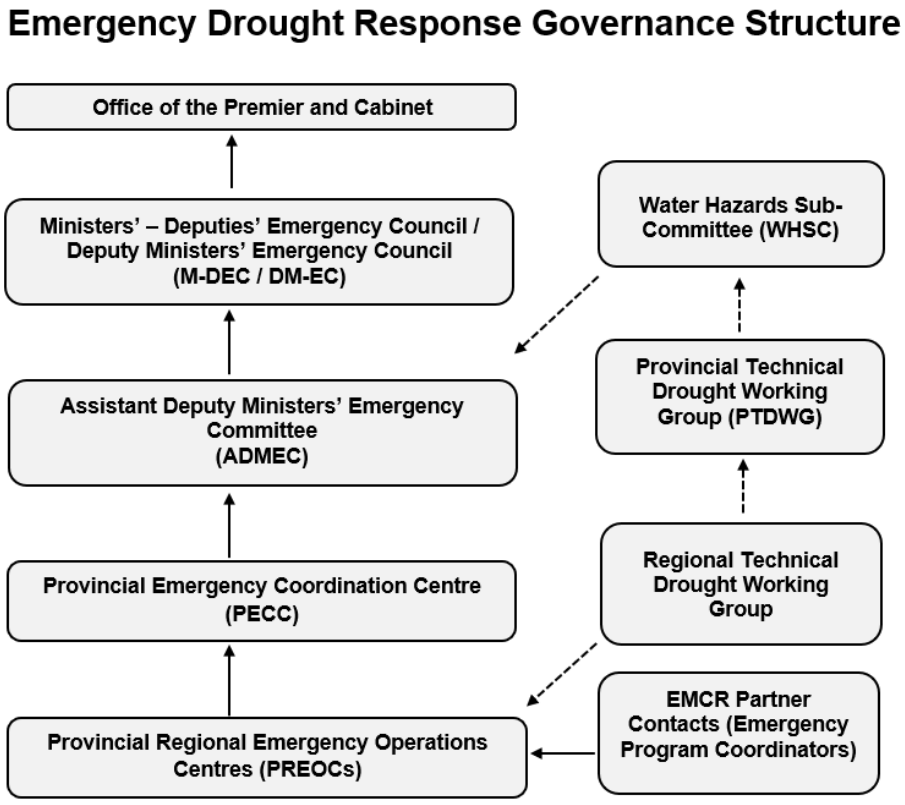


Table 2: Responsibilities of key provincial led coordinating bodies in drought response during a declared state of emergency.

Who	Responsibilities
Office of the Premier and Cabinet	• Activates the Ministers' Emergency Council and Deputy Ministers' Emergency Council.
Ministers' – Deputies' Emergency Council / Deputy Ministers' Emergency Council (M-DEC / DM-EC)	• Provides executive level policy decisions and strategic direction, validates the need for a declaration of a state of provincial emergency and authorizes extraordinary funds to support emergency management activities. • Ensures support of all provincial ministries, Crown corporations and agencies for an integrated government emergency response. • Approves cross-government communications approach in preparation for, response to and recovering from emergency event(s), as appropriate. • Directs ADMEC to ensure coordinated response and recovery.
Assistant Deputy Ministers' Emergency Committee (ADMEC)	• Develops cross-government communications approach for emergency response. • Coordinates cross-government provincial response to provincial emergency events. • Oversees operational response to significant provincial emergency events.
Provincial Emergency Coordination Centre (PECC)	• Provides leadership, management, direction, decision making for emergency response • Primary point of contact and coordination for EMCR's partner emergency management ministries, agencies such as the First Nations Emergency Services Society and organizations in preparing for and responding to an emergency, including situational reporting. • Depending on the unique complexities of the event, decisions may escalate beyond the PECC to include senior executive and/or emergency councils. • May request assistance from the provincial government. • May contact other provinces or the federal government for support.
Provincial Regional Emergency Operations Centres (PREOCs)	• Coordinates and manages information and provinical resources to support emergency management partners responding to an emergency, including First Nations Emergency Services Society. • Assists Indigenous and local governments with response planning, coordination and logistics.

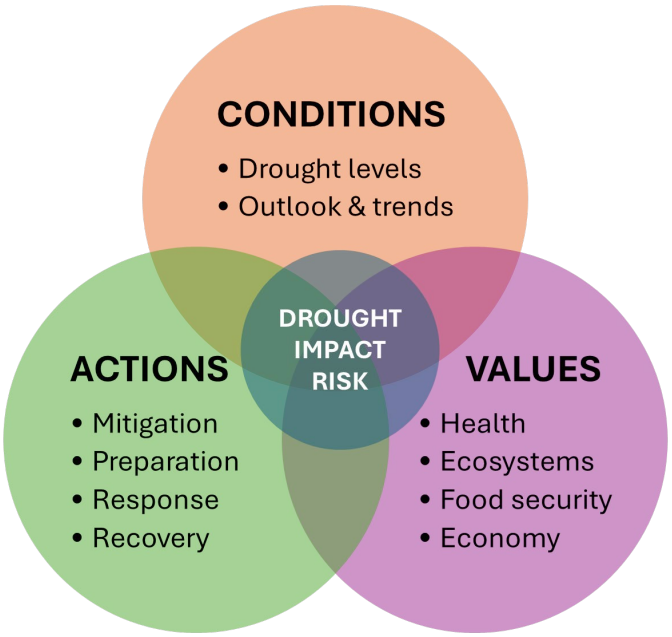
Water Hazards Sub-Committee (WHSC)	• Communicates directly to the ADMEC to steer water hazard response.
Provincial Technical Drought Working Group (PTDWG)	• Communicates with WHSC and RTDWG regarding local conditions during an emergency.
Regional Technical Drought Working Group (RTDWG)	• Communicates with PTDWG regarding local conditions during an emergency. • Coordinates with the PREOC and/or PECC as necessary.
Emergency Program Coordinators	• Local government appointed individuals that engage with EMCR during an emergency.

3 Drought Monitoring

The purpose of monitoring drought conditions and impacts is to better understand the risks of being impacted by drought, which can inform the scope and scale of actions needed to reduce risk and be ready to respond. There are three main factors that contribute to the risk of experiencing drought impacts (Figure 3):

- **The physical conditions.** Meteorological and hydrological conditions are monitored to understand the severity of drought and its expected frequency of occurrence. More information on how B.C. measures drought conditions using drought levels can be found in Section 3.1;
- **The values held**. The risk of experiencing drought impacts depends on what assets are valued, such as human health, the natural environment or food security, which may be exposed or vulnerable to drought in different ways. Examples of ongoing monitoring of drought impacts on different values can be found in Section 3.4; and
- **The actions taken.** Effective drought management that minimizes the risk of impacts can involve mitigation, preparedness, response and recovery actions that all increase resilience to drought. More information on drought response actions can be found in Section 4.

Figure 3: Factors contributing to an assessment on the risk of drought impacts.



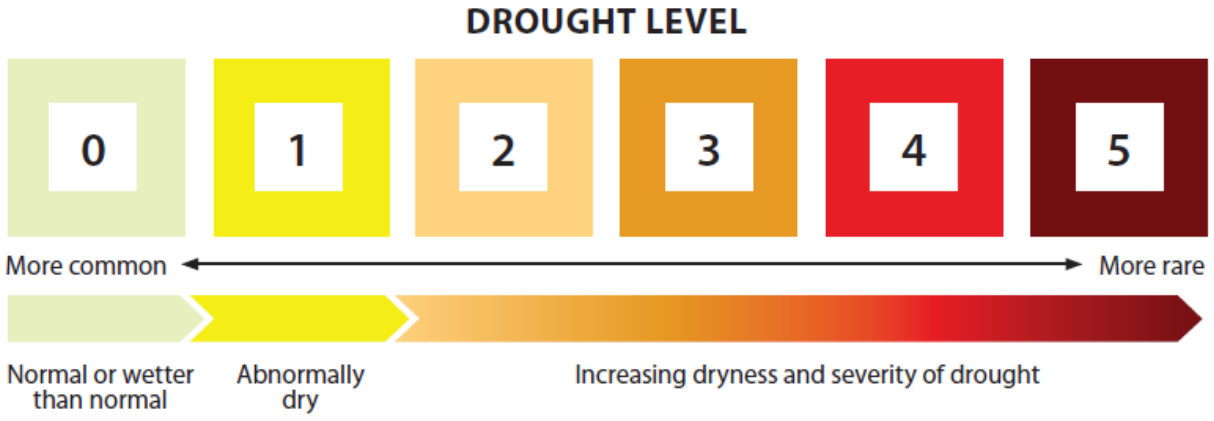
3.1 Drought Levels

Provincial drought levels serve as an objective measure of the severity and prevalence of drought hazard across the province. This data can support risk assessments to help water users understand their exposure and vulnerability to experiencing drought impacts and the actions needed to protect different values or assets from drought.

The Province uses a six-level classification system to assess drought conditions (Level 0 to Level 5). This six-level rating scale was established in 2021 to correspond to the North American Drought Monitor's framework. To improve clarity and consistency in interpreting the meaning of drought levels, the B.C. Government has updated the definition of drought levels for 2025, while maintaining the same six-level rating scale. This update means that drought levels now provide a data-driven measure of drought conditions, aimed at improving the evaluation of drought impacts and risk.

Drought levels represent the severity of dryness relative to the historical record (Figure 4). At Level 0, no drought is occurring. As drought conditions occur at Level 1 and escalate in severity towards Level 5, the drought level also represents how often drought conditions may be expected to occur based on the historical record, with Level 1 being more common and Level 5 being more rare. Drought levels also provide a measure of drought conditions at a point in time and do not incorporate forecasted conditions. A drought level is assessed based on how key drought condition indicators, such as precipitation and natural streamflow, differ from normal values. This enables an assessment of the natural pattern of drought conditions over time.

Figure 4: B.C.'s drought level scale for drought conditions. The severity of dryness increases from Level 0 (no drought) to Level 5 (highest severity of drought) along a six-level scale which also represents how often a given level of dryness may naturally reoccur.

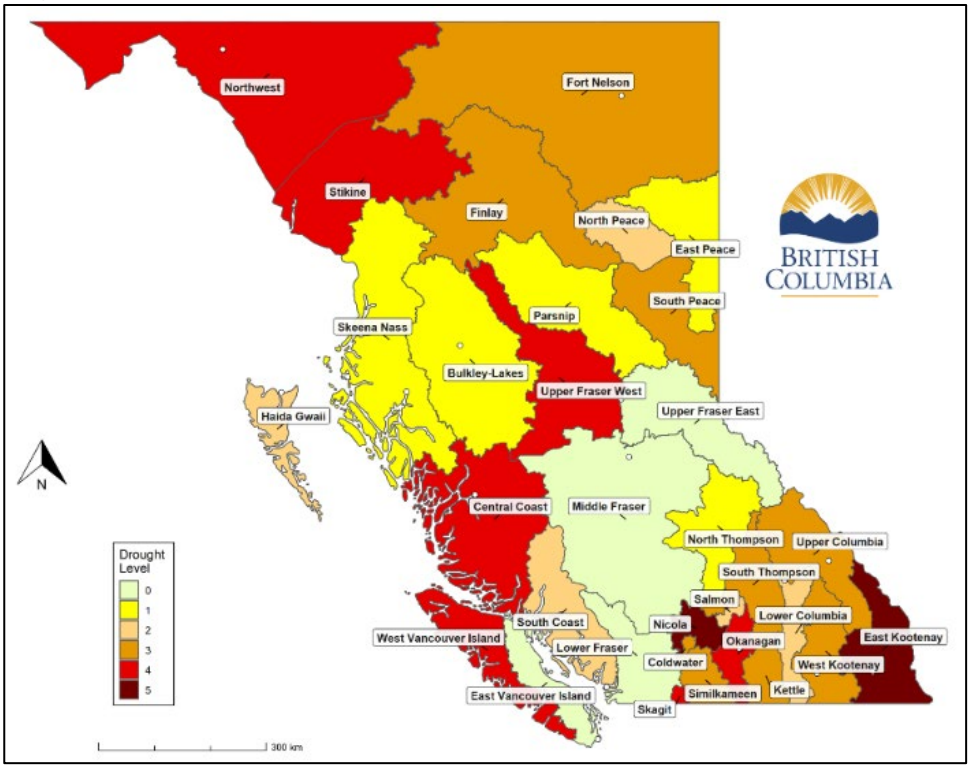


Drought levels do not directly describe the severity or risk of drought impacts. They can only provide information to help assess the risk of impacts. More information on drought impacts and risk can be found in Section 3.4. Drought levels also do not prescribe or trigger specific response actions, as response actions should scale with the actual risk of impacts. More information on response actions can be found in Section 4.

B.C. is a place of extreme biogeoclimatic diversity. Drought conditions are monitored across the province and drought levels are assigned to individual drought basins (Figure 5). These drought basins are drawn roughly along watershed, hydrological or biogeoclimatic boundaries that are more likely to experience similar drought conditions, but boundaries are also set based on water management areas or whether data is available to inform drought levels. Drought basin boundaries may shift over time as more information or data becomes available. Drought levels provide an overview of drought conditions over a large area and may not represent local drought conditions, including the conditions in smaller watersheds and their tributaries.

Provincial drought levels are not the same as local watering restriction stages. Local watering restriction stages or bylaws are imposed by local authorities and First Nations governments and are based on local drought conditions, water supply availability, the storage capacity of local water infrastructure, and other community supply and demand factors. Local conditions may not align with provincial drought levels which assess conditions on a broader spatial scale.

Figure 5: Drought levels assigned to individual basins across the province (for illustrative purposes only)



Drought conditions are not currently monitored year-round in B.C. Drought levels are typically monitored following spring freshet and concludes with the onset of winter conditions. This timing can vary considerably for different areas of the province from year to year depending on hydrometeorological conditions. When drought conditions are actively monitored, drought levels are typically set weekly or biweekly. Drought conditions are monitored and drought levels are set by teams within Water Management Branch within the Ministry of Water, Land and Resource Stewardship.

3.2 Drought Indicators

Measuring drought severity is a complex process, particularly in a place like B.C. with its geographic diversity and complex regional microclimates. Many drought indicators exist to measure drought, and some indicators appropriate to one environment may not be appropriate to another. Setting drought levels based on physical indicators, such as those related to precipitation or streamflow, requires access to robust sets of historical data with a long period of record. Physical indicators can include causative factors (precipitation, evapotranspiration) or resultant factors (streamflow, groundwater levels, lake levels).

The main drought indicators currently used to monitor drought levels in B.C. are:

- Precipitation percentiles (various timescales);
- Standardized Precipitation Index (SPI) (various timescales)
- Standardized Precipitation Evapotranspiration Index (SPEI) (various timescales);
- 7-Day average streamflow percentiles;
- 7-Day average lake level percentiles; and
- Groundwater level percentiles (daily)

These indicators were selected because current and historical data tends to be readily available; they are statistically based; they have the highest accuracy across all or most climate types (e.g., SPI and SPEI); they are relatively easy to use and communicate; and they can be used to speak consistently about water supply in particular watersheds while also allowing for meaningful comparisons across the province. These main drought indicators are either percentile-based or standardized indices that can be assigned quantitative thresholds corresponding to drought levels, as described in Table 3.

The applicability and relevance of drought indicators are reviewed as they are used each year and may be revised as data becomes available or best practices evolve. The timescales used for some indicators may also vary depending on whether monitoring is focused on short- or long-term drought. Additional statistically based indicators (e.g., Palmer Hydrological Drought Index) may be used to monitor drought conditions based on regional suitability and expert knowledge.

The following provides a brief description of each of the main drought indicators:

Precipitation Percentiles show how the amount of accumulated precipitation that fell over a particular period of time compared to the same period within the historic record, expressed in percentiles. Percentiles that are close to the 50th percentile are near normal; percentiles that are very low (below the 10th percentile) indicate that a very small amount of precipitation has fallen relative to what normally falls for the same period. For example, if the measured 30-day precipitation is in the 5th percentile, then more precipitation fell historically during that same time, 95% of the time. Data is primarily sourced from Environment and Climate Change Canada climate stations and Agriculture and Agri-food Canada open-source datasets.

Standardized Precipitation Index (SPI) and Standardized Precipitation Evapotranspiration Index (SPEI) are standardized indices that are widely used to characterize meteorological drought on a range of timescales and measure how different conditions are from the long-term average. Increasingly severe deficits are indicated by a negative value. The Standardized Precipitation Index (SPI) measures precipitation anomalies on different timescales. The Standardized Precipitation Evapotranspiration Index (SPEI) is calculated similarly to SPI except it considers demand from evapotranspiration and captures the effect of increased temperatures

on water demand. Data for both SPI and SPEI is primarily sourced from Agriculture and Agri-food Canada open-source datasets.

7-Day Average Streamflow Percentiles are calculated for selected unregulated[2] systems and shows how the streamflow averaged over the last 7 days compares to the same period within the historic record, expressed in percentiles. Data is primarily sourced from Water Survey of Canada hydrometric stations.

Groundwater Percentiles shows how the daily groundwater level in selected aquifers compares on the same date within the historic record, expressed in percentiles. Data is primarily sourced from the 240 observation wells within the Provincial Groundwater Observation Network.

7-Day Average Lake Level Percentiles are calculated for natural lake systems and shows how the water level averaged over the last 7 days compares to the same period within the historic record, expressed in percentiles. Data is primarily sourced from Water Survey of Canada hydrometric stations.

Table 3: Quantitative thresholds for percentile-based indicators and standardized indices corresponding to drought level classification.

Indicator Type	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Percentile	>30th	21st - 30th	11th - 20th	6th – 10th	2nd – 5th	< 2nd
Standardized Index	≥ -0.49	-0.5 to -0.79	-0.8 to -1.29	-1.3 to -1.59	-1.66 to -1.99	≤ -2.0

[2] Unregulated refers to systems without a structure (e.g., a dam or reservoir) that modifies flows in such a way that they are no longer reflective of natural conditions. Flows in unregulated systems may still be modified through water withdrawals.

3.3 Drought Outlook and Conditions Forecasting

Whether drought develops, improves or worsens depends greatly on weather conditions which can be difficult to predict, especially precipitation. Antecedent drought conditions and snowpack conditions are used in the winter to assess the potential risks for drought in the spring and summer. The B.C. River Forecast Centre (RFC) monitors and reports on snow water equivalent values for representative snow courses and snow pillows in major river basins in B.C from January through to June. Peak snowpack measurements at the beginning of April and assessments of snowmelt timing and rates from late March through July help provide a picture of the potential for drought conditions to occur later in the year.

During the spring and summer months, temperature and precipitation forecasts, along with an understanding of short- and long-term antecedent conditions can be used for short-term drought forecasting. The River Forecast Centre also uses hydrologic models to forecast future streamflow conditions. The following provides a brief description of some forecast products that may be used to monitor the drought outlook:

Seasonal Volume Runoff Forecasts are statistical analyses using various hydroclimatic variables to model total seasonal discharge for several select watersheds and lakes. They forecast seasonal runoff (for example, March-August, April-August, or March-June, April-June) for river basins and have the advantages of being quantitative, consistent, repeatable and having definable confidence limits.

Extrapolating Logarithmic Flow (ELF) Model 30-Day Low Streamflow Forecasts show projected low-flows for the next 30-days. The model extrapolates low flows of current flows assuming there is no precipitation in the forecast, giving a "worst-case" scenario. These forecasts may be run up to daily on most hydrometric stations across the province.

CLEVER Model 10-Day Forecast shows projected flows for the next 10-days. The model forecasts streamflows accounting for the upcoming 10-day weather forecast. These forecasts may be particularly helpful for highlighting areas where drought recovery may occur within the next 10-day period. These forecasts may be run at least once a week, but can be as often as daily when conditions warrant.

3.4 Drought Impacts

The impacts of drought are non-structural (i.e., does not directly damage built infrastructure), often spread over large areas and can be cumulative. The potential for drought impacts can escalate quickly, within days or weeks as weather patterns change.

The risk of experiencing drought impacts can vary depending on the actions taken to reduce exposure and vulnerability.

Water scarcity is a function of both climate and human activity, and it can occur in the absence of drought or be introduced or exacerbated by drought. This can make it challenging to determine whether water scarcity occurs because of drought, or if there are other underlying causes. For example, drought may lower drinking water reservoir levels, but communities may also experience water scarcity due to deficiencies in water conveyance infrastructure. Similarly, low returns of spawning salmon may result from low flows during drought, which can block fish migration, but they can also be influenced by low ocean survival rates or changes in water quality within a watershed.

Drought can impact various sectors and values either directly or indirectly. Some examples of drought-related impacts include:

- Impacts on tourism, including for recreational activities;
- Impacts on vegetation growth and timber supply;
- Loss of water for hydropower, oil and gas production and wastewater treatment;
- Crop impacts, including reduced yields, poor crop quality, crop failures, delayed growth and increased pest/disease pressure;
- Livestock challenges, including feed shortages, water scarcity, heat stress, and higher disease risks;
- Soil and erosion issues, including loss of moisture, increased erosion, and reduced soil fertility;
- Food and beverage processing and production impacts;
- Financial and operational strain on businesses, including rising costs, lower revenue, and financial risk;
- Loss of water for drinking and sanitation;
- Loss of water supply to meet First Nations cultural needs;
- Increased concentration of contaminants;
- Reduced water quality including increased stream temperature
- Loss of water supply for essential services such as fire suppression, and water supply system function;
- Loss of stream flows that support wildlife and fish populations; and
- Loss of water to support healthy ecosystem function.

The B.C. Government is working to evaluate risks and measure the impacts of drought on individuals, communities, industry and the natural environment. Monitoring drought conditions and impacts separately is a first step towards this in 2025. It also provides an opportunity to collaboratively develop methods for monitoring drought impacts on local watershed values with interested First Nations and other external partners.

As regional data and observations on drought impacts are collected during the year, further information, analysis and updates on impacts will be shared through public-facing reports and maps. The following are examples of ongoing monitoring of drought impacts:

Fish and Aquatic Ecosystem Health: Provincial monitoring of drought impacts on fish and aquatic ecosystem health is focused on watersheds that are at higher risk of severe impacts due to high water use demand, have a known history of low flows, high temperatures and have significant ecological or fisheries values. Regional monitoring in prioritized areas may be conducted in collaboration with partners (e.g., First Nations and Fisheries and Oceans Canada) to assess the state of streamflow, stream temperature and fish habitat.

Drought can reduce flows and potentially cause significant or irreversible harm to aquatic ecosystems. Streamflow conditions are monitored to determine if the volume and timing of flows can support the proper functioning of aquatic ecosystems and maintain healthy fish populations. Low flows can also lead to high stream temperatures that can impact spawning, rearing and impact recreational fishing opportunities. High temperatures also can become acutely lethal to fish populations present. The reduction or elimination of fish habitat can occur as shallow sections of a stream become dewatered and side channels become disconnected from the main channel during severe drought. During spawning season, stream systems sensitive to drought may be monitored daily to assess if fish are able to cross natural barriers during low flows and migrate upstream to spawn.

Wildfire: Drought can increase wildfire activity. Dry conditions make it easier for lightning storms and strong winds to start fires and fires can spread, combine and burn for longer. The BC Wildfire Service monitors forest conditions to assess wildfire risk, including monitoring the moisture content of organic matter in the forest floor at different depths using the Drought Code and Duff Moisture Code.

Drinking Water Supply: The B.C. Government, in partnership with regional health authorities, reaches out directly to a subset of drinking water suppliers across the province (e.g. municipalities, private water utilities and improvement districts) to collect information about the status of their drinking water supply. The Province, in partnership with Indigenous Services Canada, also reaches out to First Nation water suppliers. The information gathered supports an assessment of which communities are at risk of water supply issues and where additional support may be needed if and when drought occurs.

Agriculture and Food Production: Drought can strain water resources, impacting both irrigated and dryland production by reducing crop yields, lowering crop quality, and increasing pest and other pressures. It can also cause water shortages for livestock. Drought impacts on agriculture are highly variable, influenced by farm practices and

on-farm water management, making them subjective and difficult to assess—even among neighbouring farms. The Ministry of Agriculture and Food's network of agrologists and specialists provides valuable insight into drought impacts across the province through connections with producers, farm groups, and industry associations, though some impacts may go unreported, and impacts remain difficult to quantify. Appendix 5 describes provincial and federal government programs that provide support for producers facing various drought related impacts. One emerging tool for understanding drought impacts is the B.C. Crop and Livestock Reporter program, a volunteer initiative that gathers local reports on crop conditions, livestock water supplies, and pasture health.

4 Drought Response Actions

Drought may result in social and economic upheaval and can require the concerted efforts of numerous parties in order to effectively manage risk and impacts. Drought response actions are those actions taken as drought is developing or worsening in order to manage its impacts. Response actions may be taken by provincial or federal agencies, First Nations, local governments, health authorities, water suppliers, industry and other water users, including individuals and communities.

Drought levels may inform non-regulatory or regulatory response actions but are not used to trigger them.

This section provides a high-level summary of provincial drought response actions that **may** be undertaken and is intended as general guidance on provincial drought response. While some mitigation, preparedness and recovery actions are woven in, they are limited to those actions which directly support actions during the response phase. A chronological timeline of key government actions in a model drought year is detailed in Appendix 6.

A detailed inventory of potential actions, including those led by federal government agencies, Indigenous governments, local governments and water licensees, is provided in Appendix 7. A list of additional resources that may support drought response actions can be found in Appendix 8.

4.1 Communication and Coordination

A provincial drought communications plan is prepared each year and the WHSC and PTDWG may meet year-round to coordinate and plan communication activities. The timing for initiating communications with water users on drought preparedness may depend on the antecedent drought conditions leading into the winter, the current snowpack conditions and any anticipated spring/summer climate patterns. A public information campaign for drought may be developed to increase reach and awareness on water conservation and

encourage drought preparedness efforts. Targeted local communications on drought preparedness may include letters or flyers to water licence holders, water suppliers, the agricultural sector and others. Local community events and workshops on drought preparedness may differ from year to year based on the severity of drought risk and community priorities.

As drought develops, initial communications through media briefings and news information bulletins tend to focus on maintaining awareness of drought conditions and encouraging voluntary water conservation, alongside regular updates to drought levels. Water users are typically requested to reduce water use and improve water use efficiency. The B.C. Government also works with water suppliers, First Nations and local communities to ensure they have the necessary information and resources to prepare for and respond to escalating drought. Communication pathways are established between agencies responsible for managing and responding to drought (see Section 2) to coordinate cross-agency information exchange and response actions.

As drought persists or worsens, communication efforts may intensify as appropriate, and high-volume water users and users in drought-prone watersheds may receive additional requests for voluntary water use reductions. Water users are encouraged to reduce water use for all non-essential needs and work together to reduce use wherever possible, in order to support community and ecosystem needs.

As winter approaches and the critical period for both intensive water use and drought risks to aquatic ecosystems passes, provincial committees conduct after-action reviews with internal and external partners to identify key learnings that will inform recommendations for improving future drought response.

4.2 Data and Monitoring

Provincial monitoring of drought conditions and impacts is a collaborative effort between government, Indigenous and industry partners through the PTDWG, RTDWGs, DATs and other provincial committees and teams. Data, information and observations are collected to inform the narrative around drought conditions, impacts, outlook, risk, trends and patterns.

During the winter and spring, the River Forecast Centre produces Snow Survey and Water Supply Bulletins to summarize mountain snowpack conditions throughout the province and prepares seasonal volume forecasts for some regions. These bulletins can provide an initial indication for the potential drought risk for the upcoming spring and summer season and inform planning and response efforts. Province-wide monitoring of drought conditions and impacts typically begins following spring freshet. During this time, drought levels are updated regularly and information is gathered to inform and develop maps of

drought impacts and risk. This information is shared publicly through the B.C. Drought Information Portal. Field monitoring of local conditions and impacts may be undertaken in collaboration with water suppliers and federal and First Nations partners. As drought conditions worsen, monitoring efforts may increase, including monitoring of flows against thresholds for aquatic ecosystems in drought-sensitive streams with high fish and ecosystem values. Provincial efforts to track the vulnerability of water supplies may also intensify to ensure response actions can be swift if needed.

Following the end of seasonal drought monitoring, drought indicators and basin boundaries are reviewed to assess their relevance and accuracy in characterizing broad regional conditions and revised as needed. RTDWGs and other subject matter experts also review the effectiveness of voluntary water conservation or water curtailment measures to restore stream flows and work to quantify and document drought impacts to fish and aquatic ecosystems, such as delayed spawning access or impacts on smolt production.

4.3 Regulatory Measures

The B.C. Government may take regulatory action where necessary to respond to drought. The ability to take action on regulating water use during drought does not depend on an area's drought level. Provisions under the WSA can be applied at a statutory decision-maker's discretion and can be used to deal with conflicts and concerns in a single water source or with significant water shortages in a specific area.

The B.C. Government manages the diversion and use of freshwater (surface and groundwater) through the WSA. Under the WSA, a person must not divert or use water unless they have acquired a private right through an authorization, for example, a licence or use approval, or unless that diversion and use is authorized under the Act or its regulations. Any diversion and use of water under the WSA remains subject to the Act and its regulations, including any direction or order administered under the legislation.

Water rights in BC are exercised under a system of priorities according to their date of precedence. This is commonly referred to as 'First in Time, First in Right' or FITFIR. Under section 22 of the WSA, FITFIR may be enforced during times of water scarcity to reduce or restrict water diversion and use from a stream (and any hydraulically connected aquifer) or an aquifer (and any other hydraulically connected aquifer). In general, the oldest rights have priority over the newer rights, regardless of the purpose of the water use. Enforcement of FITFIR must still allow water use of up to 250 litres of water per day, per private dwelling, for essential household use.

Some authorizations are issued with special terms and conditions that allow the user to divert and use water in specific circumstances. Enforcing these special clauses is an early

regulatory action that government can take during times of water scarcity. The following is an example of the wording that may be found in a licence term/condition:

- "This licence does not authorize the diversion of water when the water flow falls below the specific rate for the preservation of fish or for maintaining the health of aquatic ecosystems."

Both FITFIR and the terms and conditions in an authorization may be enforced under the powers granted in the following section of the WSA:

WSA s.93 - Powers of Engineers and Officers: This section authorizes a broad suite of powers, given to designated engineers and officers under the WSA, to take action with respect to water diversion and use and water works. These actions come in the form of orders which may be issued to curtail unauthorized water use, enforce FITFIR, address dangerous situations (for example, dams about to overflow or uncontrolled artesian flow), require testing, allow for inspections or require remediation to mitigate impacts. One of the actions statutory officials can take at any time is to suspend water diversion and use that is not authorized or is no longer authorized under an applicable authorization, statutory provision or regulation. This includes taking action against water users who are exceeding their allocation of water.

A temporary protection order (TPO) is another type of regulatory tool under the WSA that may be exercised during drought and water scarcity to implement mandatory reductions or cessation of water use. TPOs temporarily suspend the rights of water licensees to protect critical environmental flows and fish populations. They are only considered when curtailment could effectively restore flows, and only after all other options have been exhausted. The B.C. Government may apply the following TPOs during water scarcity, alone or in combination:

WSA s. 86 – Declarations of significant water shortage and WSA s. 87 – Critical environmental flow protection orders are applied together during water scarcity to give priority of water rights to a specified critical environmental flow threshold (CEFT) for a stream. These tools are used when there is potential for significant or irreversible harm to an aquatic ecosystem due to low water flow.

Under s. 86 of the WSA, the minister or the Lieutenant Governor in Council (LGIC) can make an order declaring a significant water shortage in an area if one or more streams in an area have fallen or are at risk of falling below their CEFT. The term of an order set by the minister cannot exceed 90 days, whereas an order set by the LGIC can have any term limit.

Once a significant water shortage order is declared in an area, WSA s. 87 establishes that the Comptroller of Water Rights must, by order, determine the CEFT for each

stream. Once a s. 87 order has established the CEFT for a stream, the CEFT has precedence over the rights of other water users.

WSA s. 88 - Fish population protection orders authorize the minister, after considering agricultural needs, to make an order respecting the diversion and use of water from a specified stream or hydraulically connected aquifer if the minister considers that the flow in a stream is so low that the survival of a fish population may become threatened. This flow threshold is sometimes referred to as a fish population survival threshold. A fish population protection order is a powerful tool that can be used to regulate specific water rights, regardless of their date of precedence, when its application is expected to yield immediate, direct benefits to a fish population whose survival is threatened.

Before considering temporary protection orders, unauthorized water use is typically identified and curtailed and water licence holders are first requested to voluntarily reduce their water use. If voluntary water conservation measures are not sufficient to meet all water use demands and protect critical environmental flows, or if the survival of a fish population is at risk, the WSA provides authority to regulate both stream water and groundwater use. Implementing regulatory tools to address drought may affect the ability of water users to exercise their water rights. The B.C. Government strives to find the best balance between restoring flows to protect critical flows and fish populations and minimizing impacts to water users.

Appendix 1: Definitions of Types of Drought

Meteorological Drought is generally defined by comparing the rainfall in a particular place and at a particular time with the average rainfall for that place. Meteorological drought leads to a depletion of soil moisture, and this almost always has an impact on crop production. When drought is defined this way, it only considers the reduction in rainfall amounts and does not take into account the effects of the lack of water reservoirs, human needs or agricultural needs[3].

Hydrological Drought is typically described by a reduction in lake storage, a decrease of streamflow discharge and a lowering of groundwater levels over large areas[4]. Hydrological droughts occur as a product of a period of unusually dry conditions, which can result in water scarcity. Hydrological drought affects uses that depend on groundwater and streamflows. Changes in water levels affect ecosystems, hydroelectric power generation, and recreational, industrial and urban water use[5].

Agricultural Drought occurs when there is not enough water available for a particular crop to grow or livestock to thrive at a particular time. Agricultural drought may be driven by a lack of precipitation and/or inefficient use of water. Agricultural drought is typically seen after meteorological drought, but hydrological drought may also be a factor[5].

Socio-Economic Drought occurs when the demand for an economic good exceeds supply as a result of a weather-related shortfall in water supply. The supply of many economic goods, such as water, forage, food grains, fish and hydroelectric power, depends on weather. Severity and impact are affected by water demand, the extent of water use efficiency measures and the ability to bring new supplies online[5].

Ecological drought is a prolonged and widespread deficit in naturally available water supplies — including changes in natural and managed hydrology — that create multiple stresses across ecosystems[6].

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[3] This definition was agreed to by a working group of staff from B.C., Alberta, Saskatchewan and Manitoba during the Western Water Stewardship Council Technical Workshop on Drought Preparedness held in Calgary on May 4, 2009 and adapted from the National Drought Mitigation Center (University of Nebraska) http://drought.unl.edu/Home.aspx

[4] United States Environmental Protection Agency. Definitions and Characteristics of Low Flows. Accessed at https://www.epa.gov/ceam/definition-and-characteristics-low-flows#drought, accessed April 22, 2021.

[5] This definition was agreed to by a working group of staff from B.C., Alberta, Saskatchewan and Manitoba during the Western Water Stewardship Council Technical Workshop on Drought Preparedness held in Calgary on May 4, 2009 and adapted from the National Drought Mitigation Center (University of Nebraska) http://drought.unl.edu/Home.aspx

[6] National Drought Mitigation Center (2016) What is Drought? Understanding and Defining Drought, accessed on June 12, 2018, from http://drought.unl.edu/Education/DroughtIn-depth/TypesofDrought.aspx

Appendix 2: Legislation Potentially Applicable Under Drought

Legislation	Primary Administering Agency	General Scope
Water Sustainability Act	Ministry of Water, Land and Resource Stewardship	• Provides for the allocation and management of groundwater and stream water. • Sets out protective measures for wells and groundwater and identifies offences and penalties. • Regulates groundwater, protects stream health, protects fish and fish habitat, and addresses water use during times of scarcity with declarations of significant water shortage, critical environmental flow protection orders and fish population protection orders.
Fisheries Act	Fisheries and Oceans Canada Environment and Climate Change Canada Ministry of Water, Land and Resource Stewardship	• The purpose of this Act is to provide a framework for the proper management and control of fisheries; and the conservation and protection of fish and fish habitat, including by preventing pollution. • WLRS has delegated authority to issue a variation order (such as a recreational angling closure) for all freshwater fish species other than salmon. • Environment and Climate Change Canada are responsible for administering the pollution prevention provisions within the Fisheries Act.
Species at Risk Act	Fisheries and Oceans Canada Environment and Climate Change Canada Parks Canada	• The purposes of the Species at Risk Act (SARA) are to prevent wildlife species in Canada from being extirpated (no longer exist in the wild in Canada) or becoming extinct, to provide for the recovery of wildlife species that are extirpated endangered, or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming endangered or threatened. • Though overall administration of SARA falls to the Minister of Environment, the Minister of Fisheries and Oceans is responsible for the protection and recovery of aquatic species at risk (other than individuals found on National Wildlife Areas, and lands administered by Parks Canada).

Drinking Water Protection Act	Ministry of Health Provincial Health Officer Regional Health Authorities	• Requires water supply systems to provide potable water with appropriate construction and operating permits. It also establishes qualification standards for operators; requirements for emergency response, water source and system assessments; a process for preparing a drinking water protection plan; and other protective measures for drinking water supplies.
Emergency and Disaster Management Act	Ministry of Emergency Management and Climate Readiness	• Provides enabling legislation that authorizes the minister to declare and designate any area of the province a disaster area (i.e. State of Emergency), and during an emergency, to obtain reserve powers. • Enables local authorities and First Nations—for example, a mayor and council or chief and council--to declare a State of Local Emergency, which provides similar wide-ranging emergency powers.
Environmental Management Act	Ministry of Environment and Parks	• Regulates industrial and municipal waste discharge, pollution, hazardous waste and contaminated site remediation. This act also requires preparation of environmental plans for flood control, drainage, soil conservation, water resource management, waste management and air quality management.
Local Government Act and Community Charter	Ministry of Housing and Municipal Affairs	• Sets out the corporate authority of various types of local governments (municipalities, regional districts, improvement districts etc.). From the perspective of water management, of greatest significance are powers and responsibilities relating to land use, growth, infrastructure (for example, stormwater management), works and similar matters.
Water Utility Act	Ministry of Water, Land and Resource Stewardship	• Provides for regulating privately operated water systems servicing five or more persons or a corporation. Operators are subject to the same duties, responsibilities and restraints that are imposed on a public utility under the Utilities Commission Act.
Farm Practices Protection Act	Ministry of Agriculture and Food	• Only applicable if drought conditions result in a change from normal farm practices. For instance, irrigation practices or dust control practices may change as a result of lower water availability.
Milk Industry Act	Ministry of Agriculture and Food	• This act describes general farm requirements. If the producer were not able to have an adequate supply of water (for example, they could not run their dairy farm), then the industry and marketing board would work with the producer to relocate those animals.

Appendix 3: Provincial and Federal Agencies' Responsibilities Related to Drought

Agency	Drought Related Responsibilities
Provincial Agencies	
Ministry of Water, Land and Resource Stewardship (WLRS)	• Leads development of legislation and policy related to drought management in B.C. • Lead provincial agency for drought coordination, planning and response. • Administers the Water Sustainability Act and related regulations. • Communicates directly with water users, under the Water Sustainability Act, about actions commenced under this plan. • Operates the River Forecast Centre; interprets snow, meteorological and streamflow data to provide warnings and forecasts of stream and lake runoff conditions. • Collects Manual Snow Survey data in support of the BC Snow Survey Program. • Operates the Provincial Groundwater Observation Well Network. • Responsible for regulatory action under the WSA, including Orders of the Minister, Comptroller, Engineer and Lieutenant Governor in Council (LGIC) under the WSA (s. 22, 86, 87, 88 and 93). • Responsible for updating the B.C. Drought and Water Scarcity Response Plan. • Provides internal-to-government guidance on drought. • Protects and restores fish habitat and aquatic ecosystems. • Oversees and coordinates the science required to assess impacts and monitor water before, during and after droughts. • Surveys water suppliers directly to gather information about water supply status.
Ministry of Transportation and Transit (TT)	• Administers WSA s. 10 use approvals for maintenance contracts and projects related to TT activities and infrastructure and follows advice and instructions from the Comptroller related to drought.
Ministry of Environment and Parks (EP)	• Administers the Environmental Management Act. • Manages, coordinates and operates the Provincial Groundwater Observation Well Network, BC Snow Survey Program, and provincial-scale hydrometric and water quality networks. • Leads and coordinates the Climate Related Monitoring Program. • Supports drought strategy, governance and planning initiatives.
Ministry of Forests (FOR)	• Manages and protects water as a forest resource under the Forest and Range Practices Act. • Lead agency for managing wildfire threats.

Ministry of Agriculture and Food (AF)	• Supports agricultural industry water requirements used in the production of food and other agricultural products. • Communicates with the broad agricultural community about actions commenced under this plan. • Collects and disseminates information on irrigation, crop, soil and livestock management during times of drought. • Coordinates roles of AF staff within provincial and regional drought working groups. • Provides timely information on drought conditions; WLRS drought response actions; and drought-related programs, initiatives and supports to producers though multiple channels (for example, e-bulletins, social media posts, webpages, community meetings, liaising with industry associations). • Collects intelligence about drought impacts and drought response needs from producers and industry associations. • Informs Temporary Protection Order decisions on the needs of agricultural water users and estimated impacts to the sector. • Reports drought impacts on dryland farming and livestock range areas to provincial and regional working groups. • Leads drought response in non-irrigated areas and assesses livestock needs in drought impacted areas. • Liaises with other AF branches (for example, Emergency Management Branch, Business Risk Management Branch) to support producers as needed.
Ministry of Housing and Municipal Affairs (HMA)	• Oversees local government activities under the Local Government Act. • Provides water conservation resources and advice to local government water suppliers. • Communicates with local government about actions commenced under this plan.
Ministry of Health (HLTH)	• Provides policy support and guidance relating to the Public Health Act and Drinking Water Protection Act.
Office of the Provincial Health Officer (OPHO)	• The Provincial Health Officer (PHO) provides oversight and provides reports related to drinking water under the Drinking Water Protection Act. • The PHO is the senior public health official for BC and is responsible for monitoring the health of the population of BC and providing independent advice on public health issues to Ministers and public officials. • The responsibilities and powers of the PHO are outlined in the Public Health Act and Drinking Water Protection Act.
Regional Health Authorities (RHA)	• Implements the Public Health Act and Drinking Water Protection Act. • Drinking Water Officers provide guidance to water suppliers and local governments on emergency coordination, preparedness and response planning related to loss of water supply.

First Nations Health Authority (FNHA)	• Plans, designs, manages and funds the delivery of First Nations health programs and services, including the Drinking Water Safety Program. • Collaborates, coordinates and integrates with HLTH and the RHAs.
Ministry of Emergency Management and Climate Readiness (EMCR)	• Coordinates emergency support to local authorities and First Nations during emergency response activities. • Operates provincial regional emergency operations centres and provincial emergency coordination centres. • Provides mitigation, preparedness and planning services. • Provides advice and the historic context of response activities in regions related to loss of supply (potable water and firefighting). • Chairs the Disaster Risk Management Committee (DRMC), to collaborate with partner ministries to support disaster risk management across government, in accordance with the United Nations' Sendai Framework for Disaster Risk Reduction.
BC Energy Regulator (BCER)	• Monitors streamflow conditions in areas where BCER has authorizations. • Provides regular communication to industry regarding flow conditions and potential for suspensions. • Issues suspensions to WSA s. 10 diversions as needed. • Provides regulatory oversight to ensure compliance with WSA s. 10 suspensions and streamflow thresholds in WSA ss. 9 and 10.
Federal Agencies	
Agriculture and Agri-Food Canada (AAFC)	• Delivers the federal Drought Watch program to provide timely information regarding the impacts of climatic variability on water supply and agriculture. • Provides information on agricultural practices that reduce drought vulnerability and improve management during a drought.
Environment and Climate Change Canada (ECCC) [Water Survey of Canada]	• Responsible for the collection, interpretation and dissemination of standardized water resource information. • Operates hydrometric, climate and water quality networks in partnership with the B.C. Ministry of Environment and Climate Change Strategy.
Fisheries and Oceans Canada (DFO)	• Administers the federal Fisheries Act, except for the pollution prevention provisions therein that are administered by Environment and Climate Change Canada. • Administers the federal Species at Risk Act as it applies to aquatic species at risk (other than those found on National Wildlife Areas and Parks Canada lands).

Indigenous Services Canada (ISC)	• Supports Indigenous Peoples (First Nations, Inuit and Métis) and Northerners in their efforts to develop healthier, more sustainable communities. • Provides guidance for First Nations communities to develop emergency response plans for drinking water systems.

Appendix 4: Loss or Failure of Supply for Water Suppliers

Drought can cause loss, near loss, or failure of a community's potable water supply or supply for firefighting. In this event, drought response turns into an emergency response to protect public health and safety.

Water Suppliers / Local Government Water Suppliers

Many local governments are water suppliers, but not all water suppliers are local governments. It is important to differentiate between them because local government water suppliers have authority and tools to prepare and respond to drought that other water suppliers do not have. For example, local government water suppliers can issue fines for non-compliance with watering restrictions while non-government water suppliers cannot.

All water suppliers, however, are required to have an Emergency Response and Contingency Plan per s. 10 of the Drinking Water Protection Act (DWPA).

Local governments and other water suppliers need to monitor their water systems closely to ensure that sufficient mitigation measures are being taken to prevent the loss or failure of water supplies. If drinking water sources become depleted and water suppliers anticipate a possible loss of supply, they must contact the Drinking Water Officer at their health authority and follow the steps outlined in their Emergency Response and Contingency Plan, as required by the DWPA. Health authorities may report conditions to WLRS. Depending on circumstances, it may be necessary for water suppliers to impose comprehensive and closely monitored watering restrictions, allocate water on a per capita basis, or seek use of alternative water supplies.

Where loss or failure is imminent, water suppliers must contact the local Drinking Water Officer at their regional health authority. Resources on emergency management in B.C. including guidance on developing emergency drought plans or an Emergency Response Contingency Plan can be found in Appendix 8.

Note: All emergency situations that affect the health and safety of the public should be reported to EMCR at 1-888-344-5888.

Appendix 5: Drought Relevant Programs for Agriculture

Program	Primary Administering Agency	General Scope
Production Insurance Program	Ministry of Agriculture/Business Risk Management	• Helps producers manage their risk of crop losses caused by drought and other perils (hail, spring frost, excessive rain, flooding etc.). • Each crop has different coverage options, and insurance must be purchased in advance of crop season. Only harvested crops are insured, not the regrowth feed for grazing. • Producers need to inform program they are experiencing impacts due to water shortages, whether voluntary or as a result of regulatory situations.
AgriStability Program	Ministry of Agriculture/Business Risk Management	• Helps stabilize farm income by managing the risk of large income declines. It protects agricultural producers against declines in their net farming income due to market conditions, production loss or increased costs of production. Payments are made if a producer's current year margin falls more than 30% below their reference margin.
Western Livestock Price Insurance Program	Cross-provincial program	• A risk management tool available in B.C., Alberta, Saskatchewan, and Manitoba. • The program provides producers with protection against an unexpected drop in prices on cattle and hogs over a defined period.
AgriRecovery Framework	Ministry of Agriculture and Food/ Agriculture and Agri-Food Canada	• AgriRecovery is a framework that forms the basis by which federal, provincial and territorial governments can work together, when natural disasters occur, to assess the impacts and determine whether there is need for an AgriRecovery initiative. • AgriRecovery is for extraordinary expenses unrelated to production and is not offered on a consistent basis. It does not cover production or revenue declines which could be insured, including those resulting from disasters.
Livestock Tax Deferral Program	Agriculture and Agri-Food Canada (AAFC)	• A provision designed to help defer the tax burden for livestock producers who sell all or part of their breeding herd due to drought or flooding in regions designated by AAFC.

Beneficial Management Practices Program	Ministry of Agriculture and Food/Investment Agriculture Foundation	• The Beneficial Management Practices (BMP) program provides funding for eligible farm businesses to purchase equipment (for example, irrigation systems and weather stations), develop water capture and storage systems, and fund assessments, plans, and technical designs. • Applicants must first complete an Environmental Farm Plan (EFP), a free, confidential and voluntary assessment that identifies opportunities to adapt and respond to environmental and climate challenges.
Agricultural Water Infrastructure Program	Ministry of Agriculture and Food/Investment Agriculture Foundation	• A funding program that supports more efficient infrastructure or storage to maximize available water for agricultural uses, particularly irrigation and livestock watering.
Extreme Weather Preparedness for Agriculture Program	Ministry of Emergency Management and Climate Readiness/Investment Agriculture Foundation	• A funding program that supports producers with projects that help prepare farms for wildfires, flooding and extreme heat.

Appendix 6: Chronology of Key Government Actions in a Model Drought Year

This table shows typical timeframes for key actions by various committees, working groups and teams within the B.C. Government.

Key Actions	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Communication												
Implement water conservation communication.												
Provincial natural hazard weekly briefings.												
Regular updates on Drought Information Portal.												
Seasonal preparedness briefings.												
Issue first province-wide news release of the season.												
Issue monthly snow conditions and water supply bulletins.												
Issue regular drought level updates.												
Issue drought preparation communications to water suppliers.												
Recommend early water conservation activities to agricultural producers.												
Escalate conservation messaging as appropriate.												
Request voluntary reductions in water use from water licence holders as needed.												
Coordination												
Water Hazards Sub-Committee												
Provincial Technical Drought Working Group												
Regional Technical Drought Working Groups												
Drought Advisory Tables												
Conduct pre-drought preparedness meetings.												
Conduct post-drought debrief meetings.												

Key Actions	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monitor community and licensee water use.												
Assess drought vulnerability of communities/water suppliers.												
Regulatory												
Request water licensees voluntarily conserve water ahead of potential regulatory action.												
Communicate with local authorities and First Nations to recommend updates to watering restrictions.												
Undertake regulatory actions as appropriate.												
Undertake enforcement actions as appropriate.												
Prepare emergency response where loss or failure of supply risk exists.												
Issue State of Local Emergency or State of Provincial Emergency as necessary.												

Appendix 7: Detailed Response Action Tables

Note: See Acronyms Used in this Document (page v) for a list of committee and agency abbreviations.

Pre-Response Actions (Mitigation and Preparedness)

Actions	Responsible Agencies
Communication	
Update drought communications plans based on streamflow conditions and forecasts in impacted geographic regions.	WLRS, AF, GCPE
Encourage water conservation, stewardship and education through local media.	AF, WLRS
Encourage agricultural producers to review information on crop selection, irrigation efficiency and water conservation.	AF
Promote drought preparedness materials and tools, such as the use of irrigation system scheduling techniques and community-led irrigation management, through web content, e-bulletins (provincial and regional), AgriService BC social media posts and agricultural magazines.	AF
Prepare information on provincial and federal support programs that may assist producers to help prepare for, manage and respond to drought.	AF
Organize workshops for producers in affected areas to provide guidance on water conservation activities and water use efficiency improvements.	AF, WLRS
Develop media plan for timely communication of drought conditions, requested actions and regulatory or emergency measures.	GCPE
Review water conservation advice, guidelines and materials for local government/water suppliers (FN/LG/WS) and agricultural producers/irrigators and update as appropriate.	WLRS, HMA, AF
Coordination	

Work with water suppliers and local communities to ensure that they have the necessary information to respond when drought conditions are forecast.	HMA, Drinking Water Officers, WLRS
Provide local governments and water suppliers with planning tools to prepare for drought.	Health Authorities, HMA, WLRS
Support Indigenous communities and Peoples to ensure they have the necessary planning tools and information to prepare for and respond to drought.	FNESS, FNHA, ISC
Support water systems in developing emergency response plans that include plans for drought management and response.	HLTH, Health Authorities, WLRS
Maintain a list of available contractors, for example, environmental monitors or qualified persons in each region that can be called in as needed.	All BC Agencies
Prepare and update factsheets, guidelines and information on funding and other support programs to aid agricultural producers to understand, prepare for and manage drought.	AF
Maintain and update provincial drought management policies, procedures and plans.	AF, HLTH, HMA, WLRS
Establish and convene Drought Advisory Tables, as appropriate.	WLRS
Establish a water supply monitoring program, complete a water supply and demand analysis, and develop, update and practice implementing local drought management plans and emergency response and contingency plans.	FN/LG/WS
Establish local government bylaws, water conservation strategies and water use reduction targets.	HMA, FN/LG/WS
Where appropriate, encourage agricultural producers to take early actions such as filling reservoirs and, where possible, filling the soil reservoir.	AF
Data and Monitoring	
Gather available local information on historic droughts, water supply and climate conditions, and identify any gaps in information.	WLRS
Identify streams and aquatic ecosystems vulnerable to drought impacts and calculate the flow thresholds for aquatic ecosystem health for those streams.	WLRS
Review inventory list of sensitive ecoregions and streams, and identify likely fish-sensitive periods.	WLRS
Monitor stream flows and lake levels.	ENV, WLRS

Deliver seasonal volume forecasts based on data from meteorological, hydrometric and snowpack sources and the use of hydrological models.	WLRS
Provide regular updates to streamflow and groundwater data online.	ENV, WLRS
Develop, refine and maintain hydrological hazard and risk models to guide community planning and emergency response.	WLRS
Monitor water levels in priority aquifers through the Provincial Observation Well Network.	ENV, WLRS
Monitor snowpack conditions using automated and manual techniques to support streamflow forecasting.	ENV, WLRS
Monitor the Wildfire Drought Code and Fire Danger Class.	FOR, WLRS
Maintain infrastructure and systems that support monitoring, data collection and data processing.	ENV, WLRS
Conduct data quality assurance and auditing on water- and snow-related data collected using up-to-date standards.	ENV, WLRS
Regulatory	
Ensure that water bailiffs are appointed and complete any necessary briefings or training.	WLRS
Emergency Measures	
Develop emergency response plan.	FN/LG/WS
Review emergency response plans and prepare for implementation; ensure alternative water supplies are identified and available on short notice, including for livestock. Connect with Health Authority and Drinking Water Officers as required.	FN/LG/WS, AF

Response Actions

Actions	Responsible Agencies
Communication	
Initiate direct contact and information exchange protocols between WLRS and DFO.	WLRS, DFO
Initiate direct contact and implement information exchange protocols between WLRS and key contact(s) in water suppliers in impacted geographic regions.	WLRS, FN/LG/WS
Initiate direct contact and implement information exchange protocols between AF and key agricultural industry groups in impacted geographic regions.	AF

Initiate direct contact and information exchange between WLRS and key contact(s) in the FOR-Wildfire Management Branch in impacted geographic regions to coordinate on wildfire threats and potential impact on water supplies, including use of water in fire fighting.	WLRS, Office of Fire Commissioner
Issue province-wide news releases and/or media campaigns and hold media briefings to provide updates on conditions, request water conservation in impacted geographic regions and share information on regulatory measures.	WLRS, AF, GCPE
Issue local media releases and/or targeted advertising to advise of watering restrictions, encourage conservation, provide updates on local water supply status and forecast future conditions specific to the community.	WLRS, GCPE, FN/LG/WS
Issue information bulletins and regular email updates to local governments, water suppliers, Indigenous governments, industry and stewardship groups, major licensees and other key local groups in impacted geographic regions.	WLRS, AF, GCPE
Issue and distribute Low Streamflow Advisories, as required, in impacted geographic regions.	WLRS
Provide regular updates on drought conditions, outlook and impacts on the Drought Information Portal.	WLRS
Use direct and indirect communications to request water licensees voluntarily work together, conserve, share water and consider in-stream needs; focus may be on high-volume water licensees or licensees on high-risk streams.	WLRS
Provide agricultural producers with information on drought conditions and drought management resources via web content, e-bulletins (provincial and regional), AgriService BC social media posts, agricultural magazines, and public meetings/forums.	AF
Coordination	
Designate local spokesperson to coordinate interaction with the public and media on local issues.	WLRS, GCPE
Ensure ongoing direct contact between key contacts in WLRS and EMCR; review information exchange protocols on drought and emergency response.	EMCR, WLRS, HLTH, HMA
Notify local governments and water suppliers that they should communicate with residents and businesses to request voluntary conservation efforts.	EMCR, WLRS, HMA
Maintain situational awareness for senior executives.	EMCR, WLRS
Request provincial agencies to conserve water at public facilities, particularly outdoors.	WLRS

Coordinate support to local authorities and First Nations, as required, to address community specific requirements.	EMCR
Use consensus building process to confirm priorities for water use reductions in drought affected areas.	WLRS, AF, FN/LG/WS
Provide technical assistance and expertise to water suppliers experiencing problems due to water shortages.	WLRS
Develop a database of water licensees and short-term use approval holders on streams that have or may have Low Streamflow Advisories issued.	WLRS, WLRS (Regional Operations)
Modify flood prevention, flow augmentation and power generation reservoir activities, as appropriate, to minimize impact of drought.	BC Hydro, FN/LG/WS
Document conservation actions taken to date; maintain registry of groups and individuals contacted; record potential social, environmental and economic impacts.	WLRS, AF
Data and Monitoring	
Monitor drought conditions and update drought levels.	WLRS
Monitor licensee water use	WLRS, BCER
Increase monitoring effort, as capacity allows, on streamflow conditions and aquifer levels in prioritized geographic regions and examine the efficacy of water conservation measures.	WLRS, DFO, ENV
Monitor fish impacts such as dry riffles, dewatered spawning redds, reported fish deaths, water temperature etc. in prioritized geographic regions.	WLRS, DFO, FN
Monitor community water supply level; report on status of water supply and forecasted future scenarios to WLRS.	FN/LG/WS
Regulatory	
Temporarily cease issuing major new water licences or short-term use approvals, as appropriate.	WLRS, BCER
Regulate storage or invoke conditions on existing licences.	WLRS
Enforce compliance with orders issued under provincial legislation.	WLRS, BCER
Enforce compliance with restrictions and allocations through bylaws; increase enforcement effort as appropriate.	FN/LG/WS
Prepare recommendations to decision-makers should implementation of regulatory tools be required.	WLRS

Implement regulatory tools under the WSA or other statutes, as appropriate, if voluntary measures are not enough to protect water users, aquatic ecosystems and fish.	WLRS
Restrict use by lower priority water users or those with conditional clauses in their water licences.	WLRS, BCER
Ensure that water bailiffs are active on appropriate streams in drought areas.	WLRS
Identify and document the needs of agricultural water users in areas at higher risk of requiring TPO; estimate impacts to agricultural sector from Temporary Protection Orders.	AF
Implement appropriate watering restrictions to achieve targeted reduction in water use; limit new connections or uses as appropriate.	FN/LG/WS
Emergency Measures	
Inform Deputy Minister's Committee on Natural Resources and Minister of WLRS of possible loss or failure of water supply where the risk exists.	EMCR, WLRS
Activate emergency response procedures where risk of loss or failure of supply exists.	FN/LG/WS
Declare state of provincial or local emergency as warranted.	EMCR, FN/LG/WS

Post-Response Actions (Recovery)

Communication and Coordination	**Responsible Agencies**
Review the efficacy of any voluntary water conservation measures or WSA orders on achieving flow restoration.	WLRS
Conduct after-action review or debrief to assess the equity, efficiency and effectiveness of communications, information, actions and monitoring that were undertaken, to make improvements to implement for the following year(s).	All
Review the effectiveness of systems to monitor and characterize streamflows, water levels, snowpack and groundwater during the drought and implement any identified improvements	WLRS
Recognize local groups and individuals who demonstrated a strong stewardship ethic during the drought.	WLRS

Appendix 8: Additional Resources

All emergency situations that affect the health and safety of the public should be reported to EMCR at 1-800-663-3456.

Provincial Government Resources

- B.C. Drought Landing Page: This site is the central webpage for provincial drought preparedness and response information. It provides links to cross-agency drought resources for communities, water licensees and farmers.
- B.C. Drought Information Portal: This site is a single source for geographic drought level information for B.C. It uses multiple embedded maps to provide information on provincial drought levels, watershed conditions and information, historical drought time-lapse information and other information related to drought monitoring.
- General Drought Information B.C. webpage: Links to provincial government drought information, including information on water conservation and water management during drought.
- River Forecast Centre (RFC): The RFC collects and interprets snow, meteorological and streamflow data to provide warnings and forecasts of stream and lake runoff conditions around the province.
- Drought in Agriculture webpage: Information on drought management in agriculture, including information on irrigation, crops, soil, livestock, pasture and range management as well as links to resources on feed and pasture availability and financial programs. The Quick Guide to Drought Resources provides a summary of key drought resources and can be provided as a hard copy to producers.
- Emergency Management in BC: This site provides an overview of emergency management in B.C. and provides links to training and resources for use before, during and after emergencies.
- Emergency Info BC: This site provides up-to-date emergency alerts.
- Dealing With Drought: A Handbook for Water Suppliers in British Columbia: Updated in 2022, this document provides local government water suppliers with tools to help with drought planning, example bylaws and links to other resources.
- Resources for water system operators webpage: Links to tools and resources to help water suppliers fulfill their responsibilities under the Drinking Water Protection Act and Drinking Water Protection Regulation.
- Water Laws and Rules in B.C.: Information on provincial acts and regulations, including the Water sustainability Act, Water Protection Act and Environmental Management Act.
- Fire Danger Rating Reports: Maps on fire danger ratings across B.C., produced annually during fire season from April 15th to October 15th.

- Provincial Fisheries Management: Drought Response Plan: Provides provincial direction for fisheries management and guides the implementation of regional management actions during drought conditions in B.C.
- Guide to Emergency Response and Contingency Plans for Water Supply Systems: Provides a step-by-step approach to response and recovery of a drinking water system emergency for drinking water suppliers.

Federal Government Resources

- Drought Watch (Agriculture and Agri-Food Canada): This is Agriculture and Agri-Food Canada's web hub for national and regional information targeted at the agricultural sector. It links to information on current conditions and access to federal assistance programs.
- The Weather (Government of Canada): Current and forecasted weather, air quality, alerts, analyses and modelling.

Technical Resources

- Irrigation Industry Association of BC (IIABC): The IIABC provides access to tools and irrigation manuals that can assist in improving the operation of irrigation systems, including: Irrigation Management Guide, B.C. Sprinkler Irrigation Manual, B.C. Trickle Irrigation Manual, and Irrigation Scheduling Calculators.
    - B.C. Sprinkler Irrigation Manual
    - B.C. Trickle Irrigation Manual
- BC Agriculture Council: The BC Agriculture Council has produced the Environmental Farm Planning documents that can provide information on conducting an irrigation system assessment. These documents assist in evaluating irrigation system operation.
    - Environmental Farm Plan Reference Guide
    - Irrigation Assessment Guide

Other Resources

- National Drought Mitigation Centre (NDMC) (University of Nebraska): The NDMC is dedicated to helping "people and institutions develop and implement measures to reduce societal vulnerability to drought, stressing preparedness and risk management rather than crisis management." While focused on the USA, the NDMC website has a wealth of information on drought planning, monitoring, impacts and mitigation.
- U.S. Drought Portal: National Integrated Drought Information System (NIDIS): The U.S. National Oceanic and Atmospheric Administration leads implementation of the NIDIS. The U.S. Drought Portal is part of this interactive system to provide early warning about emerging and anticipated droughts, assimilate and quality control data, and provide information about risk and impact to different agencies and stakeholders.

- National Hydrological Service (NHS) Water Watch: Map of real-time streamflow compared to historical streamflow for Canada using percentile flows.
- First Nations' Emergency Services Society (FNESS): The First Nations' Emergency Services Society of British Columbia (FNESS) is a not-for-profit organization and registered charity governed by a First Nation Board of Directors. FNESS supports B.C. First Nations in building safer, healthier, thriving communities through programs focused on Awareness, Preparedness, Mitigation, and Recovery.