BC Provincial Heat Alert and Response System (BC HARS): 2024

Acknowledgements

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We have made every effort to provide proper acknowledgement of original sources. If you identify cases where this has not been done, please notify us at Heat.Response@gov.bc.ca so we can take appropriate corrective action.

Versions and Revisions

This is the second update to the BC Provincial Heat Alert and Response System (BC HARS). The initial version was first published in June 2022, and the first revision was May 2023. This is an evergreen document, and as such any major additions or amendments will be noted in the Summary of Major Revisions as found in the final appendix.

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1. Section One – Introduction

1.1. Background: BC HEAT and BC HARS

The BC Health Effects of Anomalous Temperatures Coordinating Committee (BC HEAT Committee) was established in January 2022 to support planning and response efforts related to the public health impacts of significant heat events in British Columbia. The overarching objective of this committee is to ensure public health coordination around extreme hot weather. Key priorities of the BC HEAT Committee in 2022 were the identification of consistent public health actions and messages for a heat alerting system in B.C., creating and defining heat alert criteria, and recommended preparation and response actions. These priorities evolved into the creation and implementation of a two-tier heat alert and response system (HARS) for the province, the BC HARS was rolled out in June 2022. The two tiers are: **Heat Warning** and **Extreme Heat Emergency**.

The BC HEAT Committee, which is responsible for guiding the development of the BC HARS, is led by members of the BC Centre for Disease Control (BCCDC) and the B.C. Ministry of Health (The Ministry). The BC HEAT Committee also includes representation from each of B.C.'s regional health authorities, First Nations Health Authority (FNHA), BC Emergency Health Service (BCEHS), BC Housing, the Ministry of Emergency Management and Climate Readiness (EMCR), Environment and Climate Change Canada (ECCC), Health Emergency Management B.C. (HEMBC), Office of the Provincial Health Officer, the Union of BC Municipalities (UBCM) and WorkSafe BC. As of 2023 the BC HEAT Committee has added two Subcommittees, a data committee and an operations committee.

1.2. Purpose of this Document and Audience

While focused on describing the BC HARS, this document also contains general background information on heat events in B.C. and the reason for the establishment of the BC HEAT Committee. Section Two details the development of the BC HARS and describes the criteria for the two alert levels. Section Three contains tables with key messages and recommended actions for different partners and public health actors. In general, information in each table is divided into four parts: pre-season, during a Heat

Warning, during an Extreme Heat Emergency, and post-season or deactivation. The final section contains links to relevant resources and appendices.

This document is intended to be used as a resource to support the province-wide implementation of the heat alert and response system in British Columbia. The recommendations in section three of this document are not prescriptive but are intended to be used as tools to initiate heat planning or to complement the creation of more robust heat response plans. Acknowledging the wide variation in local heat response planning needs, not all recommendations may be appropriate for all settings.

The audience for this BC HARS document is all levels of government and all levels of the health system involved in heat preparedness planning, emergency management partners that plan for and respond to heat events, Indigenous governing bodies and local authorities, as well as organizations that work with and interface with susceptible populations and those at greatest risk of mortality during heat events.

1.3. Extreme Heat and Heat Waves

Extreme heat events, commonly referred to as heat waves, involve high temperatures and may be combined with high humidity.[1] "Heat domes", such as the June 2021 event, are a specific type of heat wave, these occur when a high-pressure system traps heat near the surface of the earth that gets held in place by a blocked jet stream. Heat waves are extended periods of extreme heat and can occur anywhere in Canada, although they are most common in the southern regions of the country.[2] Extreme heat is the leading cause of illness and death from weather-related hazards in Canada.[3] Heat waves typically happen in the summer, between May and September. Episodes are projected to become hotter, more frequent, and longer, as the B.C. climate changes. It is anticipated that they will occur every three to 10 years by 2050.[4] In greater Vancouver, the average annual temperature is expected to increase by 1.7°C by the 2050s and 2.7°C by the 2080s[5] and as confirmed in the *State of the Global*

[1] https://www.canada.ca/en/health-canada/services/climate-change-health/extreme-heat.html
[2] https://www.redcross.ca/how-we-help/emergencies-and-disasters-in-canada/types-of-emergencies/heat-waves/heat-waves-information-facts
[3] https://science.gc.ca/site/science/en/blogs/science-health/surviving-heat-impacts-2021-western-heat-dome-canada
[4] Province of British Columbia (2019). BC Climate Risk Assessment Summary. www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/climate-risk-summary.pdf.; https://www.canada.ca/en/health-canada/services/climate-change-health/extreme-heat.html
[5] Guilbault et al. Cities Adapt to Extreme Heat: Celebrating local leadership. Institute for Catastrophic Loss Reduction and Health Canada.2016

Climate 2023 by the World Meteorological Organization (WMO), 2023 was the warmest year on record surpassing every climate indicator.[6]

During the summer of 2021 British Columbians experienced record-breaking high temperatures. Before the June 2021 province-wide heat dome, the last significant heat wave experienced in B.C. was in 2009. A comparison of temperatures between the 2009 heat wave and the 2021 heat dome shows that the 2021 event was at least 5°C hotter in most areas of the province. In greater Vancouver, there were 110 excess deaths during the heat wave in the summer of 2009,[7] and during the 2021 heat dome, there were an estimated 740 excess deaths across British Columbia.[8] In a report published in 2022, with investigations complete up to June 2022, the BC Coroners Service has directly attributed 619 deaths in British Columbia to the June 2021 extreme heat event.[9]

1.4. Event Timing

Populations in temperate regions take time to become physically and behaviourally acclimatized to warmer weather each summer. Because of this, extreme heat events that occur early in the season can have a bigger public health impact than those later in the season, and the first very hot weather of the summer carries public health risk. This is especially true for people without access to air conditioning at home, which is much of the population of greater Vancouver, where most deaths occurred during the 2021 heat dome. [10]

The mortality rate during the 2021 heat dome was amplified by the fact that it was the first heat event of the summer and it occurred in early summer, so the B.C. population had not acclimatized to warmer weather. The event also occurred just after the summer solstice, leading to maximum solar heat gain both indoors and outdoors. Finally, the impact was compounded by the COVID-19 pandemic, as people were hesitant to leave their individual spaces to gather in cool public spaces.

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[6] World Meteorological Organization (2024) State of the Global Climate 2023. https://library.wmo.int/viewer/68835/download?file=1347_Global-statement-2023_en.pdf&type=pdf&navigator=1

[7] Kosatsky et al. (2012) Shifts in mortality during a hot weather event in Vancouver, British Columbia: rapid assessment with case-only analysis. American Journal of Public Health, 102(12), 2367–2371. https://doi.org/10.2105/AJPH.2012.300670.

[8] Henderson et al. Extreme heat events are public health emergencies. BCMJ, vol. 63, No. 9, November 2021, Pages 366-367 BCCDC

[9] BC Coroners 2022 https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/extreme_heat_death_review_panel_report.pdf as accessed April2023

[10] Henderson et al. Analysis of community deaths during the catastrophic 2021 heat dome, Environmental Epidemiology: February 2022 - Volume 6 - Issue 1 - p e189.

1.5. Heat and Health

Heat waves are a growing public health risk that have the potential to impact large areas of land, and concurrently expose a substantial proportion of a population to hazardous heat,[11] as was exemplified during the June 2021 heat dome that stretched across provinces, territories, and states. The June 2021 event resulted in unparalleled impacts to the B.C. health system and unprecedented effects on the health of British Columbians. Exposure to hotter than average conditions can result in rapid body temperature increases, which can lead to a range of illnesses including heat cramps, heat exhaustion, heatstroke, and hyperthermia.[12] High ambient temperatures can increase the risk of adverse pregnancy outcomes, have negative effects on mental health, reduce physical work capacity, and impair motor-cognitive performance.[13] Prolonged exposure to indoor temperatures over 31° C can create stress on the body that can be deadly for susceptible individuals. The risk of heat-related morbidity is especially high for the specific populations noted in the next section.

1.6. Susceptible Populations

Some populations are more exposed to, or more physiologically or socio-economically susceptible to increased risk of death resulting from exposure to excess heat.[14] Heat waves are associated with increases in mortality, among older adults, those with chronic illnesses, those with mental illness, and materially and socially disadvantaged people.[15] Risks of adverse effects are also higher for people who use substances, have poor quality housing, or who work outdoors.[16] Chronic conditions that put people at higher risk include mental illnesses, substance use disorders, heart disease, diabetes, and respiratory disease. People taking certain medications such as antipsychotics, antidepressants, or diuretics are also

[11] https://www.weather.gov/safety/heat-during
[12] WHO Heat and Health Fact Sheet June 2018 https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health
[13] Ebi K.L. et al Hot weather and heat extremes: health risks *Lancet* Vol 398 August 2021
[14] WHO Heat and Health Fact Sheet June 2018 https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health
[15] Berry et al. Heat Alert and Response Systems in Urban and Rural Communities in Canada. Change Adaptation Socioecol. Syst. 2014; 1: 84–97: https://www.redcross.ca/how-we-help/emergencies-and-disasters-in-canada/types-of-emergencies/heat-waves/heat-waves-information-facts
[16] Deegan, H.E. et al. Development and implementation of a Heat Alert and Response System in rural British Columbia. Can J Public Health (2022). https://doi.org/10.17269/s41997-022-00611-1

at higher risk.[17] People who are pregnant, infants, and children are also at higher risk during heat waves.

The cohorts of the population most impacted by the June 2021 heat dome in B.C. were largely adults aged 50 years and older. These individuals often shared commonalities such as social isolation[18] or physical, psychological, or economic susceptibility. Although there were noted increased deaths in care settings and long-term care homes, most deaths occurred in the community – particularly in private residences, in neighborhoods that were materially and/or socially deprived.[19]

[17] McLean, K. E., Stranberg, R., MacDonald, M., Richardson, G., Kosatsky, T., & Henderson, S. B. (2018). Establishing Heat Alert Thresholds for the Varied Climatic Regions of British Columbia, Canada. International journal of environmental research and public health, 15(9), 2048. https://doi.org/10.3390/ijerph15092048

[18] The combined deprivation index was most strongly associated with odds of death during the heat dome, followed by age category, sex, and surrounding greenness…Material deprivation is associated with risk factors such as lack of air conditioning, and social deprivation is associated with risk factors such as living alone. As noted in Henderson et al. Analysis of community deaths during the catastrophic 2021 heat dome, Environmental Epidemiology: February 2022 - Volume 6 - Issue 1 - p e189.

[19] Henderson et al. Analysis of community deaths during the catastrophic 2021 heat dome, Environmental Epidemiology: February 2022 - Volume 6 - Issue 1 - p e189.

This visual in Figure 1 from Health Canada shows factors that influence individual and community-level susceptibility to heat waves.

Figure 1: Factors that influence individual and community-level susceptibility to extreme heat events (Health Canada 2011)

The following people are especially susceptible to heat health impacts and need to be prepared and supported, particularly if they do not have access to air conditioning:

- older adults
- people who live alone
- people with pre-existing health conditions such as diabetes, heart disease or respiratory disease
- people with mental illness such as schizophrenia, depression, or anxiety
- people with substance use disorders
- people with limited mobility
- people who are marginally housed
- people who work in hot environments
- people who are pregnant
- infants and young children

(For more information on how to care for yourself and others during heat events see the Prepared BC Extreme Heat Preparedness Guide, HealthLinkBC and the NCCEH guide for doing health checks.)

1.7. Urban Heat Islands

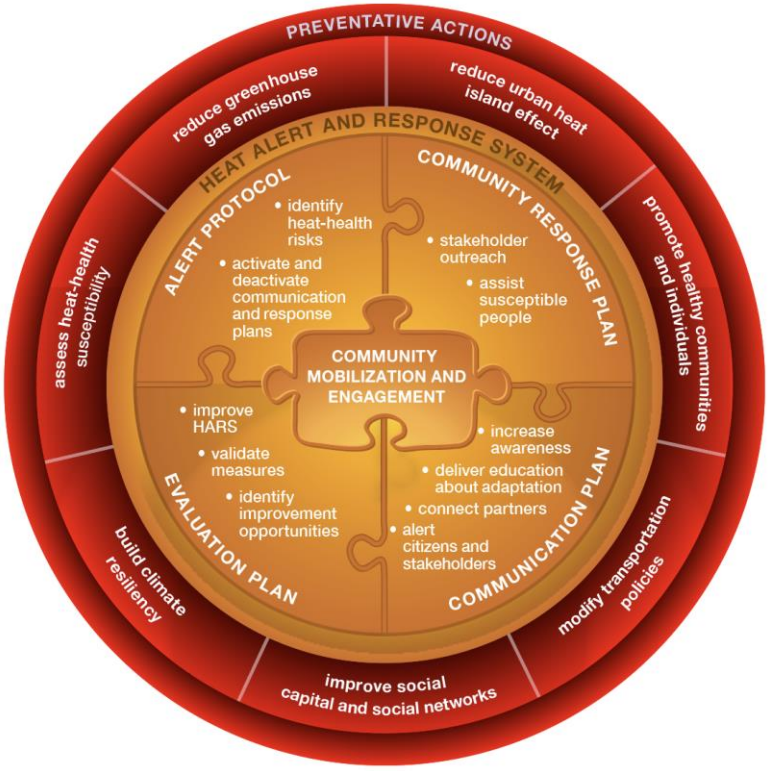
There can be differences in temperature between an urban and surrounding rural area due to the urban heat island (UHI) effect. UHIs occur in areas where the land surface has been altered through the development of buildings, roads, and other infrastructure.[20] Urban spaces can be several degrees hotter than surrounding rural areas due to minimized airflow, less green space, limited tree-shaded areas, more concrete surfaces and structures (which absorb radiant heat and release it at night), and human-created heat sources.[21] [22] These warmer UHIs can magnify health impacts caused by extreme heat events, as higher air temperatures, particularly at night, can limit the body's ability to cool down.[23] In June 2021, the UHI effect and building infrastructure not designed for hot environments played a direct role in the heat-related deaths in the province.[24] (Find more information on UHI-reduction initiatives in B.C. and nationally in Reducing urban heat islands to protect health in Canada.)

[20] Reducing Urban Heat Islands to Protect Health in Canada - Canada.ca
[21] Berry et al. Heat Alert and Response Systems in Urban and Rural Communities in Canada Change Adaptation Socioecol. Syst. 2014; 1: 84–9.
[22] Health Canada Communicating the Health Risks of Extreme Heat Events 2011.
[23] Reducing urban heat islands to protect health in Canada - Canada.ca
[24] Henderson et al. Analysis of community deaths during the catastrophic 2021 heat dome, Environmental Epidemiology: February 2022 - Volume 6 - Issue 1 - p e189.

2. Section Two – BC Heat Alert and Response System

2.1. Development of the BC HARS

A heat alert and response system warns the public about heat risk through an organized and defined communication system. This alerting system helps individuals and communities to prepare and protect themselves, both before and during a heat wave,[25] and alerts decision-makers to take preventive actions to protect public health.[26] The ultimate objective of a HARS plan is to increase community resilience to extreme heat and develop effective actions to reduce heat-health risks, especially for those who are most susceptible.[27]



A HARS is most effective when it is delivered in conjunction with preventative actions that provide long-term and sustainable protection from extreme heat events.[28] The BC HARS: 2022 is one piece in the larger B.C. Government response to climate change and heat. Other pieces include the B.C. Climate Preparedness and Adaptation Strategy (CPAS), and the Province's Climate Action Secretariat (CAS), among others.

Figure 2 Components of community HARS as outlined by Health Canada (2012)

In response to the impacts of the heat wave in the summer of 2009, the BCCDC worked with federal and regional health authority (RHA) partners to develop a system of temperature-related emergency response triggers in greater Vancouver, which were then implemented in 2012. The Fraser Health

[25] Health Canada, Heat Alert and Response Systems to Protect Health: Best Practices Guidebook. Health Canada, Ottawa, 2012.
[26] Henderson D. et al. Developing a harmonized heat warning and information system for Ontario: a case study in collaboration. Canadian Journal of Public Health (2020) 111:426–432.
[27] https://www.interiorhealth.ca/sites/default/files/PDFS/heat-alert-response-planning-toolkit.pdf
[28] Health Canada, Heat Alert and Response Systems to Protect Health: Best Practices Guidebook. Health Canada, Ottawa, 2012.

Authority and Vancouver Coastal Health Authority were the early adopters of HARS planning in B.C.[29] and utilized a two-tier alerting structure that became the model for the BC HARS: 2022. The BCCDC worked with ECCC, Health Canada, and BC health authorities to establish heat alert thresholds for the entire province. The 2018 thresholds are the base of the BC HARS criteria and were developed using community- and region-specific weather conditions, as well as findings from heat-health analysis.

The then newly defined heat alerting thresholds included daytime and overnight regional temperature criteria, referred to as the high-low-high approach, that would trigger ECCC warnings for the different regions[30] (see current specific trigger temperatures in Figure 3). The ECCC alert system that is currently in place was expanded to cover the whole of B.C. in 2018. ECCC issues Heat Warnings at different temperatures specific to the province and region. The five parameters, as shown on the map and described in Table 1, are the current triggers in B.C. for signaling a warning for the specific climatic region(s) being impacted.

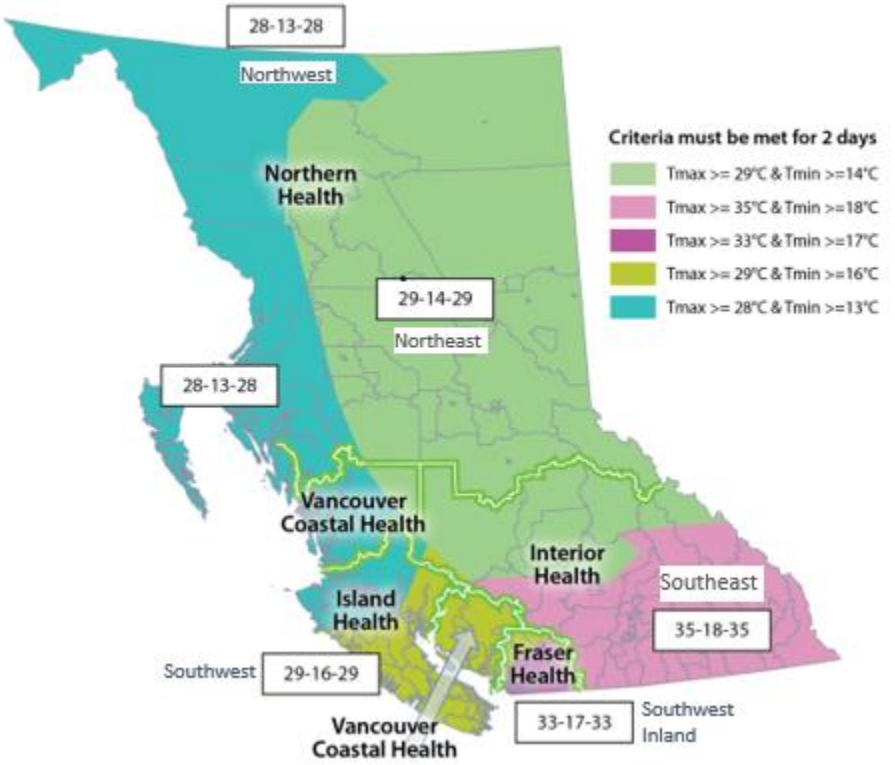


Figure 3 The 5 ECCC heat warning regions in B.C. with the RHA boundaries marked in light green.

[29] BCCDC Municipal Heat Response Planning in British Columbia, Canada 2017
[30] McLean KE, et al. Establishing Heat Alert Thresholds for the Varied Climatic Regions of British Columbia, Canada. Int J Environ Res Public Health. 2018 Sep 19;15(9):2048. doi: 10.3390/ijerph15092048. PMID: 30235814; PMCID: PMC6163932.

Table 1: Heat Warning criteria for Environment and Climate Change Canada to issue a Heat Warning in British Columbia. The geographical regions that fall under the five ECCC criteria that B.C. contains are described below.[31]

Warning	British Columbia – **Northeast** – Northern Interior, Central Interior, including Chilcotin, Cariboos, Prince George, North Thompson, and North Columbia, BC Peace, Bulkley Valley and the Lakes, and Fort Nelson	Issued when two or more consecutive days of daytime maximum temperatures are expected to reach 29°C or warmer and nighttime minimum temperatures are expected to fall to 14°C or warmer.
Warning	British Columbia – **Northwest** – Central and Northern Coast (inland and coastal regions), Northern Vancouver Island, and northwestern B.C.	Issued when two or more consecutive days of daytime maximum temperatures are expected to reach 28°C or warmer and nighttime minimum temperatures are expected to fall to 13°C or warmer.
Warning	British Columbia – **Southeast** – Southern Interior (including South Thompson and Okanagan), Kootenays, and Columbias (south)	Issued when two or more consecutive days of daytime maximum temperatures are expected to reach 35°C or warmer and nighttime minimum temperatures are expected to fall to 18°C or warmer.
Warning	British Columbia – **Southwest** – Western Metro Vancouver including the North Shore, City of Vancouver and Richmond, Howe Sound, Whistler, Sunshine Coast, Vancouver Island (except northern sections)	Issued when two or more consecutive days of daytime maximum temperatures are expected to reach 29°C or warmer and nighttime minimum temperatures are expected to fall to 16°C or warmer.
Warning	British Columbia – **Southwest inland** – Eastern Metro Vancouver including Coquitlam and Surrey, and the Fraser Valley	Issued when two or more consecutive days of daytime maximum temperatures are expected to reach 33°C or warmer and nighttime minimum temperatures are expected to fall to 17°C or warmer.

[31] As Sourced from Table 11. Alerting parameters Environment Canada uses for issuing a Heat Warning in https://www.canada.ca/en/environment-climate-change/services/types-weather-forecasts-use/public/criteria-alerts.html#heat accessed Jan 24 2022

2.2. BC HARS Description

The BC HARS was developed referencing the Health Canada Heat Alert and Response Systems to Protect Health: Best Practices Guidebook,[32] and it incorporates national and international best practices from other jurisdictions. Development timelines were condensed to have a coordinated response structure in place for the summer of 2022. Given this limitation, engagement following both years' implementation of the BC HARS included targeted surveys, round-table discussions with communities, First Nations, NGOs, labour groups, health system workers, organisations that work with susceptible groups, and a small number of individuals with direct lived experience from the 2021 heat dome event and subsequent years' heat seasons.

The BC HARS integrated the existing heat alert criteria used by ECCC in issuing a Heat Warning in B.C. with additional criteria for an Extreme Heat Emergency under a two-tier system. As of May 2023, for the first three heat events of the summer in a given forecast region, a Heat Warning will be issued when there are two or more consecutive days during which the daytime maximum temperatures are forecast to reach or exceed the established trigger temperature criteria for that region and the overnight low is expected to reach or exceed the regional minimum temperature value (see Table 1). To mitigate warning fatigue and recognising the behavioural and physical adaptations as the heat season progresses, after the third Heat Warning has been issued for a forecast region, the BC HEAT Committee may recommend extending the daytime and overnight criteria for a Heat Warning by a day. After the third event the Heat Warning criteria could be extended to three consecutive days and two consecutive nights with no change to the temperature value criteria.

In June 2022, the then newly developed and more dangerous Extreme Heat Emergency was added to the alerting system in B.C. to emphasize the risk to public health when high temperatures increase day over day. The Extreme Heat Emergency criteria are met when the forecast, or observed temperatures, in each region surpass the Heat Warning criteria, and there is high certainty that temperatures would substantively increase day over day for three or more consecutive days (see Table 2).

[32] https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/climate-change-health/heat-alert-response-systems-protect-health-best-practices-guidebook.html#a11

Table 2: Description, Criteria, and Triggers of BC HARS: 2024

Type of alert	Heat Warning*	Extreme Heat Emergency
Public health risk	Moderate (5% increase in mortality)	Very high (20% or more increase in mortality)
Descriptor	Very hot	Dangerously hot
Historic frequency	1-3 per summer season	1-2 per decade
Criteria (See Table 1 for a description of the geographical regions that fall under the five ECCC defined heat zones that B.C. is divided into)	Southwest = 29-16-29** Fraser/Southwest Inland = 33-17-33** Southeast = 35-18-35** Northeast = 29-14-29** Northwest = 28-13-28**	Heat Warning criteria have been met and forecast indicates that daily highs will substantively increase day-over-day for three or more consecutive days

* As of May 2024 – For the first hot weather of the summer, ECCC may issue a public-facing Special Weather Statement (SWS) at temperatures lower than the Heat Warning thresholds. The criteria for an Extreme Heat Emergency remain unchanged.

*As of May 2023 — After the first three heat events of the summer in a given forecast region, the BC HEAT Committee may recommend extending the minimum number of days for Heat Warning criteria in the region to be when three or more consecutive daytime high temperatures are expected to meet or exceed the regional Tmax value and the overnight low is expected to reach or exceed the regional Tmin value for two or more consecutive nights.

**°C Tmax ≥ daytime high, Tmin ≥nighttime high, Tmax ≥ daytime high (high - low - high)

2.3. BC HARS: 2024 Triggers and Activation Process

ECCC provides regular seasonal updates about potential heat hazards and monitors and carries out 24/7 surveillance and forecasting of the effects of hot weather across the province. Regional weather forecasts and ECCC seasonal-specific weather briefings can be monitored using the Public Weather Alerts for Canada, or with the WeatherCAN app for an immediate push notification to smartphones for any/all of the pre-selected locations.

2.3.1. Heat Warning

Before issuing a public-facing Heat Warning, ECCC may send a Weather Notification via email to its health sector and emergency management partner distribution list once forecast guidance is certain enough to warrant elevated likelihood of a heat event. Following this targeted email notification process, ECCC will issue a public facing Heat Warning when the specific regional criteria triggers, as shown in Table 1, are met. ECCC Heat Warnings will be issued on the WeatherCAN app, and the ECCC weather alerts webpage.

For the first hot weather of the summer, ECCC may issue a public-facing Special Weather Statement (SWS) at temperatures lower than the Heat Warning thresholds (Table 2), especially in late May or June. This divergence from the standard Heat Warning process reflects the added public health risk of early summer heat. A SWS could evolve into a Heat Warning for the B.C. region(s) impacted, in which case the SWS will provide partners with the most preparation lead time, and may include some strategic pre-event messaging. Indigenous governing bodies and local authorities will be supported by EMCR in taking response actions for an early summer (May or June) SWS if they have included the SWS trigger in their heat response plans (and in accordance with EMCR Extreme Temperature Policy 5.14).

Further weather notification(s) may include a comment on the probability of an Extreme Heat Emergency, as appropriate. As region specific Heat Warning trigger conditions are being approached or met, there may be a need for a coordination call with members of the BC HEAT Committee. If needed, ECCC will utilize the Provincial Health Duty Officer (PHDO) to organise these initial coordination calls with the BC HEAT Operations Sub-committee. During the call(s) ECCC may provide updates, course

corrections, and/or offer more specific information about the heat event outlook. As is typical with heat events, more specific information will likely become available in the immediate lead-up to, and during, the event.

Each health authority, organization, facility, or local authority will respond to a Heat Warning event as determined by their individual heat plans and processes. All are encouraged to utilize the appropriate key messages and recommended actions for their respective sectors.

When the criteria for a Heat Warning are no longer met, ECCC will issue a notice through the WeatherCAN mobile app ending the Heat Warning and the ECCC's weather website will be updated.

When there is the potential for a Heat Warning to evolve into an Extreme Heat Emergency, ECCC will prompt the PHDO to establish a coordination call with the BC HEAT Operations Subcommittee and the applicable committee representation to meet quorum. Based on the confidence in the potential forecast and the situational assessment, ECCC may issue a weather notification with early pre-emptive messaging that "*This Heat Warning event may transition into an Extreme Heat Emergency.*" If there is a strong indication that this transition will occur, notifications will be sent to local authorities, Indigenous governing bodies, organizations, and EMCR. The EMCR Provincial Emergency Coordination Centre (PECC) and Provincial Regional Emergency Operations Centres (PREOCs) will increase their response level, activities, and communications to local community emergency programs as required to support response to a potential Extreme Heat Emergency.

2.3.2. Extreme Heat Emergency

If the BC HEAT Operations Subcommittee has not already convened meetings for the heat wave, ECCC will prompt the PHDO to establish an initial coordination call with members of the BC HEAT Operations Subcommittee and the specific representatives for quorum to discuss issuing an Extreme Heat Emergency notification. As these types of heat waves can usually be predicted well in advance, there would likely be a series of daily meetings held over several days leading up to the event.

The BC HEAT secretariat, chair(s), and PHDO are tasked with ensuring that appropriate subject matter experts (SMEs), decision makers, and representatives from the impacted regions are present for these calls (e.g., the administrators on call for public health in each of the health authority regions that are impacted and BC HEAT Committee representation to reach quorum as detailed below). Once there is consensus that the Heat Warning criteria for a specific region has been met and there is high certainty that temperatures would increase substantially each day for three or more consecutive days, the process for issuing an Extreme Heat Emergency will be initiated.

Once the Extreme Heat Emergency alert is issued there will be:

- Provincial coordination calls for ministries and provincial agencies, chaired by EMCR.
- Regional coordination calls within the impacted regions with EMCR as chair, health authorities, including the regional Medical Health Officer (MHO), Indigenous communities, FNHA, and local authorities.
    - The intent of the calls would be to share information on weather briefings, the recommended actions and key messaging from MHOs, and potential financial issues, such as what is being covered by the province at this point in time of the response.
- A joint provincial press release (The Ministry/EMCR/ Office of the Provincial Health Officer (OPHO)).
- Health authority specific press releases.
- EMCR's PREOC will provide direct notification to Indigenous Governing Bodies and local authorities.
- An assessment of whether to recommend the use of the provincial broadcast intrusive alerts by the BC HEAT Committee, based on near-real-time situational awareness of health impacts such as ambulance dispatches and emergency room visits.

The Extreme Heat Emergency category is specific to B.C. within Canada. In the event of an Extreme Heat Emergency, ECCC will issue a Heat Warning with clear messaging that this is an Extreme Heat Emergency for B.C., including predetermined ECCC-specific standard messaging to accompany this. In addition, the BC HEAT Committee may recommend that EMCR issues an intrusive BC Emergency Alert (to radio, television and/or cell phones) for an Extreme Heat Emergency through the Alert Ready national public wireless alerting system. The BC Heat Committee secretariat will inform all committee members if broadcast intrusive alerts are scheduled for the specific Extreme Heat Emergency.

Quorum for escalation and cessation of an Extreme Heat Event

The authority of the BC HEAT Committee is derived from the *Public Health Act*. When determining if an extreme heat event is to be categorised as an Extreme Heat Emergency, the following agencies must be represented in order for quorum to be met:

- MHO(s) from the impacted area(s)
- FNHA (Medical Officer or designate)
- BCCDC (Medical Director or Scientific Director of Environmental Health Services)
- PHO (PHO or Deputy as A/PHO)
- ECCC (Warning Preparedness Meteorologist or Operational Shift Supervisor)
- MoH (Emergency Management Representative)

If quorum representation cannot come to a consensus through discussion, a vote is needed to decide whether to declare an Extreme Heat Emergency. Voting support for escalation and cessation of an Extreme Heat Emergency would be as follows:

- Consensus of MHO(s) and as needed the veto power resting with the PHO.
- Members of the committee who are not A/PHOs, or the PHO do not have a veto.

2.4. Deactivation

The BC HEAT Operations Subcommittee will continue to meet to review the Extreme Heat Emergency status and to determine the appropriate timing for ending the Extreme Heat Emergency alert. ECCC will not end the Extreme Heat Emergency without a recommendation from the BC HEAT Committee. As directed, ECCC will confirm the de-escalation of the Extreme Heat Emergency, likely via a SWS. Standard internal and external communication processes to update websites, social media, and other communication partners will communicate that the Extreme Heat Emergency is no longer in effect. The BC HEAT secretariat will coordinate an after action review, with the lessons learned then integrated into pre-season planning for the subsequent year(s).

It is recommended that the efficiency and accuracy of the triggers should be evaluated approximately every five years. If necessary, triggers will be re-calibrated to reflect lessons observed and experiential knowledge, and to maximize the public's responsiveness and adaptation to extreme heat events.[33]

(See Appendix C: Algorithm of escalation process from Heat Warning to Extreme Heat Emergency)

[33] https://ghhin.org/wp-content/uploads/WinnipegCS.pdf

2.5. HARS in the Rural Context

Rural and remote communities face unique challenges when protecting people from extreme heat events. Heat exposure is influenced by environmental factors, which may differ significantly across different types of environments.[34] Susceptibility to a heat wave is also determined by heightened population sensitivity and by limited adaptive capacity, which characterize much of rural Canada.[35] An effective HARS in the rural context relies on leveraging existing social networks, and extensive community outreach by the proponents to ensure buy-in from the whole community. The Interior Health Authority (IHA) collaborated with the Village of Ashcroft in the development of their HARS, which is featured below as an example of how this system can be implemented in a rural community.

The Village of Ashcroft

Since 2018, the Village of Ashcroft has operated a two-level Heat Alert and Response System (HARS) to address extreme heat events, crucial for its desert terrain and high temperatures in the Southern Interior Region of B.C. In partnership with the Village of Ashcroft and a Community Stakeholder Committee, Interior Health initiated the HARS as a pilot program to mitigate negative health impacts on vulnerable populations. This diverse Community Stakeholder Committee represents local and regional government partners, community organizations, and First Nation Band members. The Village of Ashcroft takes the lead in activating the plan upon heat alerts, conducting pre-heat notifications at the season's outset, and utilizing the Voyent Alert! system for mass communication once advisories are issued, reaching approximately two-thirds of the community. In addition to these measures, Interior Health and the Village of Ashcroft have established a cooling center to provide refuge and resources for vulnerable residents during extreme heat events, demonstrating their commitment to community well-being and resilience. [For more information on the application of HARS in a rural context, please see the IHA Toolkit[36].]

[34] Berry et al. Heat Alert and Response Systems in Urban and Rural Communities in Canada. *Change Adaptation Socioecol. Syst.* 2014; 1: 84–97.
[35] Liang and Kosatsky. Protecting Rural Canadians from Extreme Heat. CMAJ. 2020 Jun 15; 192(24): E657–E658.
[36] https://www.interiorhealth.ca/sites/default/files/PDFS/heat-alert-response-planning-toolkit.pdf

3. Section Three – Public Health Actions and Priorities

3.1 Public Health Preparedness and Interventions

The issuing of a Heat Warning or Extreme Heat Emergency should activate a series of actions by different ministries, Indigenous Governing Bodies, local authorities, public health organizations, and professionals, as well as the general public. The following tables contain key messages and summarize recommended actions to be taken to prepare for and respond to the different heat alerts.

The recommended actions outlined in the tables are illustrative, and with the wide range of potential audiences, not all recommendations are applicable in all settings. Organizations are asked to consider these recommendations when developing or reviewing their respective heat preparedness plans. Regions and communities can tailor the recommended actions to their local situation and ensure the best fit with wider local emergency planning and response procedures. The recommendations are not prescriptive. They are meant as a tool to initiate heat planning, or to complement and support more robust heat plans, ultimately building more resilient communities for the years ahead.

3.2 Tables of Key Messages and Recommended Actions

3.2.1 Key Messages Extreme Heat

The following tables contain key messages and summarize recommended actions to be taken by different ministries, Indigenous Governing Bodies, local authorities, public health organizations, and professionals, as well as the general public, to prepare for and respond to the different heat alerts.

	Pre-season Key Messages	Heat Warning Key Messages	Extreme Heat Emergency Key Messages	Air Quality, Heat Warning and Extreme Heat Emergency Messaging
Key Messages	• B.C. has a two-tier Heat Alert and Response System (HARS). • The first HARS level, a Heat Warning, means daytime and overnight temperatures are higher than usual, but they are not getting hotter every day. Take the usual steps to stay cool • The second HARS level, an Extreme Heat Emergency, means that temperatures are dangerous. Daytime and overnight temperatures are higher than usual, and they are getting hotter every day. Activate your emergency plan. • It is important to have a plan for Heat Warnings and Extreme Heat Emergencies – see Prepared BC Emergency Guides. • It is important to evaluate whether you can safely stay in your home during an Extreme Heat Emergency (prolonged exposure to	• (ONLY if/when indicated by ECCC) The Heat Warning could evolve into an Extreme Heat Emergency. Be prepared to activate heat plans. • Drink plenty of water and other liquids to stay hydrated. • Take it easy, especially during the hottest hours of the day. • Seek cooler indoor and outdoor spaces. • If you have air conditioning, be sure to turn it on. It does not need to be on as high as it can go to help keep you safe. • Take a cool shower or put part of your body into a tepid bath. • Wear a wet shirt or apply damp towels to your skin to cool down. • It is important to remember that overheating can lead to heat exhaustion and heat stroke.	• All Heat Warning messages apply (see column to the left). • Indoor environments without effective air conditioning may become dangerously hot as the temperatures increase over the coming days. • Top floors of buildings and rooms with windows that face west, and south will be particularly hot. • Monitor indoor temperatures for yourself and those you are checking on. • It is important to know the indoor temperature guide: 1. Sustained exposure to temperatures of 26°C or less are generally safe. 2. Sustained exposure to temperatures from 26°C to 31°C may pose a risk to the most susceptible people.	• Air quality during a Heat Warning / Extreme Heat Emergency may be affected by high concentrations of ozone or particulate matter, especially if there are wildfires burning nearby. • Heat and air pollution affect your body in different ways, and some people are susceptible to the effects of both. • Cooler, cleaner indoor air is the best way to protect yourself from heat and air pollution. • Heat poses a bigger risk than smoke for most people, so prioritize staying cool.

	temperatures over 31°C are dangerous for susceptible people) - see [the indoor temperature guide in Extreme Heat Emergency].	• Signs of heat exhaustion include heavy sweating, headache, muscle cramps, feeling unwell, extreme thirst, and dark urine. If you are experiencing these symptoms, you should seek a cooler environment, drink plenty of water, rest, and use water to cool your body. Wear a wet shirt or apply damp towels to your skin to cool down. • Signs of heat stroke include a high body temperature, confusion, dizziness/fainting, and flushed skin. Heat stroke is a medical emergency; call 911. While waiting for help, cool the person right away by moving them to a cool place, if you can, and applying cold water to large areas of the skin. • Keep a close eye on infants and children. • Check in on susceptible individuals. • The most susceptible individuals include: ▪ older Adults ▪ people who live alone ▪ people with pre-existing health conditions such as diabetes, heart disease or respiratory disease ▪ people with mental illness such as schizophrenia, depression, or anxiety ▪ people with substance use disorders ▪ people with limited mobility ▪ people who are marginally housed ▪ people who work in hot environments ▪ people who are pregnant ▪ infants and young children • Consider plans for moving susceptible individuals from hot indoor environments into cooler environments.	3. Sustained exposure to temperatures over 31°C should be avoided for susceptible populations, whenever possible. If they cannot be avoided, monitoring of the environment (using thermometers) and the individual (using heart rate) should be considered. In both cases, values that are increasing (rather than stable) indicate danger. • There is a significantly increased risk of severe injury and death for susceptible individuals living in dangerously hot indoor environments over 31°C. • If you are a susceptible individual and you have no way to cool the inside of your home, relocate to another cooler location or outside. • If you are caring for a susceptible individual, consider moving them from dangerously hot environments into cooler environments. • Indoor temperatures peak at around 9 p.m. and indoor environments may be most dangerous overnight. If the outside temperature is cooler than inside, open windows and doors and use fans to draw cooler air into the home. • Check in on others multiple times a day, especially in the evening. See - [NCCEH guide for doing health checks during extreme heat events]. • Many communities will have cooling spaces in malls, recreation centres, or libraries equipped with air conditioning where you can cool down.	

		• Especially if you do not have air conditioning, use other means to keep your home cooler such as shading the windows from the outside with awnings, shutters or even cardboard or from the inside using curtains, blinds or reflective foil (wherever possible). • Close windows and pull indoor/outdoor shades/blinds at around 10 a.m. to trap the cooler air inside and block the sun. • Open windows and doors at around 8 p.m. to let the cooler overnight air into the house ***IMPORTANT: check that the outdoor temperature is indeed lower than indoors.*** • Use multiple fans strategically placed to help move cooler air into the home overnight. • It is important to know that fans alone cannot effectively lower core body temperature, especially for older adults. • Visit HealthLinkBC's Beat the Heat page to find information on how to care for someone who is too hot.	All other health-related messaging for a Heat Warning	

3.2.2 Recommended Actions: Public Health, Health Authorities, Hospitals, and Community Care Sites

The recommendations below are meant to support planning from a public health perspective as capacity and funding permits.

	Pre-season Key Actions	Actions Heat Warning	Actions Extreme Heat Emergency	Post-season Key Actions
Public Health	• Develop or revise pre-summer messaging on Heat Warning and Extreme Heat Emergency. • Develop or revise pre-summer messaging on sun safety. • Socialize/share information and resources (Prepared BC Emergency Guides, HealthLinkBC Beat the Heat or HealthLinkBC Heat-related Illness. • Facilitate table-top/dry run of plans and communication channels. • Communicate publicly about Heat Warnings and key public health messaging related to prevention of heat-related illness. (HealthLinkBC Beat the Heat, HealthLinkBC Heat-related Illness, and Prepared BC Emergency Guides) • Participate in pre-season meetings/presentations with local government and NGO partners as needed. • Provide public health surveillance data from previous heat events to partners to inform decision-making. • Work with local authority and other partners on planning for wellness checks	• Participate in the regional EMCR briefing calls with local governments/FN to provide public health advice. • Develop press release with key messages for first Heat Warning of the summer. • Consider mass email to previously established heat partners (NGOs etc.) about the Heat Warning with resources and public-facing materials for distribution to at-risk populations. (HealthLinkBC Beat the Heat or HealthLinkBC Heat-related Illness and Prepared BC Emergency Guides, emergency cooling centres and public cooling spaces can be found via the EMCR EmergencyMapBC) • Consider doing a press release or statement via social media and, as feasible, utilize modes most likely to reach the most susceptible individuals. • Advise local partners on response actions during the event as the situation evolves. • Participate in partner emergency response calls, as needed. • If indicated by ECCC updates, communicate to internal partners about the likelihood that the Heat Warning may evolve into an Extreme Heat Emergency.	• Chief MHO to consider the creation of an Order under the *Public Health Act*. • Develop press release with key messages indicating emergency situation in addition to messaging through other avenues (increased messaging beyond what is needed in a Heat Warning). • Draft internal bulletins necessary to ensure that the entire Health Agency is aware of the Extreme Heat Emergency and is prompted to enact Extreme Heat Emergency plans where they exist. • Impacted regions to consider elevation to EOC and to also consider starting up coordination centre support for susceptible populations. (Public Health participation on EOCs to provide internal advice/support) • Advise local partners on response actions that go beyond what is needed in a Heat Warning (e.g., 24-hour cooling centres, enhanced wellness checks, etc.) and any changes that may be needed as the situation evolves.	• Where appropriate, actively engage with various sectors regarding how they are recovering from the heat and identify and respond to any new or emerging needs. • Consider and implement lessons learned/observed. • Update plans and activities, as required.

	during an Extreme Heat Emergency. See - NCCEH guide for doing health checks during extreme heat events. • Distribute pre-season communications with resources to licensed facilities (childcare and long-term care) on recommendations for heat response planning. • Collaborate with HEMBC for the creation of a pre-season letter to local authority partners, listing resources and providing recommendations for heat response planning. • Promote and engage with long-term planning and policy opportunities to reduce the impacts of extreme heat through things such as building design and tree canopy coverage. • Annual review of prepared alert messaging with partners. • Consider approaches to identify established and informal networks and other communication channels to ensure that messaging gets out to the most susceptible populations. • Collaborate with local authorities to identify and engage with key partners and strategic community groups that interface with high-risk or susceptible populations to raise awareness about the risks of extreme heat and to provide information about tools such as wellness checks.	• Identify the on-call MHO. And all pre-season recommended actions not already considered.	• Work with local authority and other partners on the implementation of wellness checks. See - NCCEH guide for doing health checks during extreme heat events. • Regularly participate in emergency response calls. • Undertake ongoing communication with local authorities and NGOs throughout the event. And all recommended actions for a Heat Warning not already considered.	

HA/HEMBC General Recommended Actions	• Plan and test your specific Health Authority trigger process with communities. • Coordinate and participate in exercises to discuss and improve individual and collective responses to extreme heat. • Create pre-season social media updates and press releases on heat and health for the initial event of the season. • Create pre-season messaging for local government and media. • Hold a pre-season notification meeting with local government on heat, with recommended actions that can be taken in anticipation of events. • Hold a pre-season technical briefing with media. • Develop an organizational heat readiness process: pre-season review and update of HA program/site heat response plans, leadership and frontline awareness/education sessions on heat risk and response plans, exercise regional and local heat response plans, advance briefings on potential heat events, local and regional monitoring during heat events through EOC coordination, escalation of EOC support where required to address impacts, year-end review, and plan updates. • Ensure that relevant staff are familiar with the health emergency response plan.	• Consider activating specific health authority heat response plan. • Keep waiting rooms cool and provide water. • Monitor local weather conditions, heat health information, and emergency warnings via the ECCC website and WeatherCAN app. • Consider collating information on cooling centres – hours, locations, etc. to share with community partners. • Undertake community outreach focusing on high-risk client populations in your health authority. • Make relevant heat health communication resources available to target groups, patients, and caregivers. • Consider coordinated messaging with HEMBC and FNHA on joint messaging (especially for evenings and weekends). • Consider MHO update to primary care providers. • Consider activating EOCs And all pre-season recommended actions not already considered.	• Consider activating specific health authority heat plan (if not already executed). • Undertake community outreach focusing on high-risk client populations in your health authority. • Make relevant heat health communication resources available to target groups, patients, and caretakers. (HealthLinkBC Beat the Heat or HealthLinkBC Heat-related Illness and Prepared BC Emergency Guides) • Keep waiting rooms cool and provide water. • Upon confirmation from the BC HEAT Committee (that includes PHO, BCCDC, ECCC, and EMCR), HEMBC will forward the Extreme Heat Emergency alert to Local authority emergency planners and HA Leadership. • MHOs and HA Communications will issue an Extreme Heat Emergency alert information bulletin (including relevant key messaging) to media. • HA Communications will post to their websites, on social media, and will advise communications partners in The Ministry, PHSA, and PHC. And all recommended actions for a Heat Warning not already considered.	• Where appropriate, actively engage with patients about how they are recovering from the heat, and identify and respond to any new or emerging needs. • Consider after-action review (AAR). • Conduct year-end review. • Consider and implement lessons learned/observed. • Update heat response plans and activities, as required.

	• Ensure that relevant staff subscribe to receive heat alerts (subscribe to the WeatherCan App). • Consider what additional staff or staff hours might be needed (such as EHO or MHO support) if an Extreme Heat Emergency event occurs. • Order heat health communication resources and distribute for display in service venues and places accessible to clients, patients, their caregivers, and families. (HealthLinkBC Beat the Heat, HealthLinkBC Heat-related Illness and Prepared BC Emergency Guides) • Align and share information with specific NGOs and partners.			
HA/HEMBC Considerations for Hospitals and Community Care Sites	• Talk with hospital and clinic leads about preparing for extreme heat. • Ensure that hospitals and community care sites' preparedness arrangements and essential actions during extreme heat is part of hospital orientation. • Ensure that facilities' staff check contingency planning for air-conditioning and power supply. • Encourage all to review plan for power outages. • Encourage all to develop and review heat plans and business continuity plans to address the needs of staff, patients, and caregivers.	Recommend that hospitals and community care sites: • Act in accordance with any relevant heat plans. • Keep waiting and outpatient rooms cool, and provide water. • Review discharge plans for at-risk patients, keeping in mind their specific needs, during a Heat Warning. • Consider plans for moving susceptible individuals from dangerously hot environments into cooler environments.	Recommend that hospitals and community care sites: • If the interior space is dangerously hot, consider alternative arrangements (telemedicine) or deferring outpatients and other non-essential hospital programs that are scheduled on extreme heat days. • Monitor health service demand in line with escalation and notification arrangements. • Plan for increased demand from patients with heat-related illness or exacerbated medical conditions. This may include a significant increase in ambulance transfers, admissions to the emergency department, short-stay units, and wards,	Recommend that hospitals and community care sites: • Consider a formal debrief of the response to revise and improve the heat response plan. • Update plans and activities, as required. • Consider and implement lessons learned/observed.

	• Encourage participation in tabletop exercises to discuss and improve individual and collective responses to extreme heat. • Download or order any specific information factsheets for clinicians and caregivers. • Identify the most susceptible patient groups and consider what will be required for them during an extreme heat event. • Have hospitals and care sites create and/or review discharge plans for at-risk patients during heat events.	• Home health to consider wellness check for existing clients. See - NCCEH guide for doing health checks during extreme heat events. And all pre-season recommended actions not already considered.	and consider diversion to Urgent Primary Care centres to manage heat-related illnesses that do not require escalation. • Review discharge plans for at-risk patients, keeping in mind their specific needs, during extreme heat emergencies. • Plan for increased staff absenteeism. And all recommended actions for a Heat Warning not already considered.	
Recommended Actions Health Care Providers	• Create/review heat response plans and other plans containing heat-related actions, including business continuity plans. • Create/check contingency planning for air-conditioning and power supply. • Participate in exercises and forums to discuss and improve individual and collective responses to extreme heat. • Engage with key partners and community members to raise awareness about the risks of extreme heat. • Talk to your local authority about what local arrangements are in place to support people who are susceptible to extreme heat. • Ensure that all relevant staff or team members are subscribed to receive heat	• Act in accordance with heat response plans or other plans containing heat-related actions such as service continuity plans, emergency management plans, and occupational health and safety plans. • Consider heat-related wellness checks for clients, patients, and staff. See - NCCEH guide for doing health checks during extreme heat events. • Monitor local weather conditions on the ECCC website or through the WeatherCAN app. • Restock heat health communication resources in service locations. (HealthLinkBC Beat the Heat or HealthLinkBC Heat-related Illness and Prepared BC Emergency Guides)	• Ensure that clients, visitors, and staff have access to a cool space and adequate drinking water. • Reschedule any non-essential events, meetings, and services to another day or to the cooler part of the day. • Where/when feasible, increase consistent community messaging through (social) media and standard communication channels. • Where/when feasible, check in with families and caregivers of susceptible individuals about executing plans to protect those clients and family members from the impacts of extreme heat.	• Consider and implement lessons learned/observed. • Where/when feasible, talk with families and caregivers about how their family members or clients are recovering from the impacts of extreme heat and any opportunity to improve support for future events.

	alerts (subscribe to the WeatherCan App). • Ensure that staff are appropriately trained to identify clients who may need assistance during extreme heat. • Ensure appropriate staffing levels and consider staff and client health and wellbeing in hot weather. • Identify relevant information sources (print and online) for community members who are more at risk during extreme heat events. • Order and display heat health communication resources in service venues and distribute to clients. (HealthLinkBC Beat the Heat or HealthLinkBC Heat-related Illness and Prepared BC Emergency Guides) • Talk with clients, families, and caregivers about preparing for extreme heat and subscribing to receive heat alerts.	• Ensure that staff engaging with the public are aware of local activities to support and protect those at risk. (Emergency cooling centres and public cooling spaces can be found via the EMCR EmergencyMapBC. • Provide consistent heat health messages during client visits and telephone calls. • Talk with families and caregivers of susceptible individuals about identifying actions to protect those clients and family members from the impacts of extreme heat. And all pre-season recommended actions not already considered.	And all recommended actions for a Heat Warning not already considered.	

3.2.3 Recommended Actions: Pre-hospital Care

The recommendations below are meant to support planning from a public health perspective as capacity and funding permits.

	Pre-season Key Actions	Actions Heat Warning	Actions Extreme Heat Emergency	Post-season Key Actions

Note: BCEHS responds to self-identified (called 911) patients and does not have a "public health" department.
 	
BCEHS uses a Clinical Safety Plan (CSP) to safely mitigate BCEHS system pressures, increase capacity where operating conditions result in insufficient resources to meet demand, and maintain patient service delivery.
 	
The CSP includes four levels of escalation with predetermined sets of options and actions intended to reduce risk to patients (clinical risk) from various system pressures including risk from heat events.
• Lack of resources (staffing levels, hospital offload delays)
• Increased demand (increased call volume, increase call complexity, lengthening job cycle, etc.)
• Major events (bus crash that overwhelms the local resources, multi-casualty events from violence, complicated events requiring multi-agency response, etc.)
	• Participate in heat health and emergency preparedness forums for planning, preparedness, and response.
	• Ensure that current WorkSafe heat Standard Operating Procedures (SOPs)/Policies including a heat stress assessment and exposure control plan (when required by the WorkSafeBC/BC Occupational Health and Safety Regulation) are in place for BCEHS staff and responders.
	• Internal Heat Committee to modify the ASTaRs (Assess, See, Treat, and Refer) and Secondary Triage algorithms to include specific screening and advice related to the Heat Warning or Extreme Heat Emergency.
	• Review internal warning process and communications.
	• Create/review heat plans and other plans containing heat-related actions, including business continuity plans.
		• Activate the CSP.
		• Consider use of alternative transport resources and ensure activation of low-acuity pathway.
		• Engage with health authorities and inform sending/receiving sites of likely delays to Inter-Facility Transfers (IFTs) and other activity.
		• Communicate level of escalation to operational crews and relevant internal partners.
		
		And all pre-season recommended actions not already considered.
			• Escalate the CSP.
			• As significant, sustained pressures are being placed on the system – in the instance of an Extreme Heat Emergency – with demand levels far exceeding the resources available. The number of events waiting for a resource to be assigned continues to increase.
			• Consider media alert and campaign and communication to staff regarding system.
			• Activate the Emergency Coordination Centre (ECC) or District Emergency Operations Centre (DEOC).
			• BCEHS to participate in the Provincial EOC and liaise with:
			  ▪ Ministry of Health Emergency Coordination Centre (HECC).
			  ▪ EMCR; and
			  ▪ Police and Fire.
			• Collaborate with Alternate Service Providers to support low-acuity IFTs.
				• Conduct After Action Review (AAR).
				• Consider and implement lessons learned with the goal of building back better.
				• Update and refine the CSP.
				• Update internal education to reflect lessons learned.

• Disruptive disasters (atmospheric rivers causing destruction to major highways, heat events causing an increase in 911 call volume and events, wildfires causing evacuations of stations and hospitals and/or large displacement of populations, etc.)			• Notify PHDO of system pressure and likely impacts to service delivery. • Notify health authorities of system pressure and the need for focus on rapid turnaround of ambulances at hospitals, including notifying and collaborating with health authority transport leads. • Collaborate with health authority partners to identify available bed capacity and potential changes to referral patterns and algorithms. • Implement Business Continuity Plans. And all recommended actions for a Heat Warning not already considered	

3.2.4 Recommended Actions: Ministries, EMCR, MoH

The recommendations below are meant to support planning from a public health perspective as capacity and funding permits.

	Pre-season Key Actions	Actions Heat Warning	Actions Extreme Heat Emergency	Post-season Key Actions
Ministries	• Create/review your ministry heat response plans, heat impact assessments, and other plans containing heat-related actions, including business continuity plans. • Have a clear and well-socialized communications approval process for updating standing or emergent documents and information in real time. • Have pre-approved communications material for an Extreme Heat Emergency. • Support heat planning at the community level to protect all British Columbians, particularly those identified as most susceptible. • Incorporate heat health messages into existing programs that provide services to those most susceptible and at risk. • Identify established and informal networks to connect and engage with Indigenous and culturally diverse communities.	• Collaborate with other government agencies and departments to promote a whole-of-government communications approach. • Direct all to key resources. And all pre-season recommended actions not already considered	• Enact emergency management plans for impacted services or areas. • Consider activating ministry emergency management structures if ministry or sector is experiencing impacts or is likely to be impacted (Ministry Operations Centres), Health Emergency Coordination Centres. And all recommended actions for a Heat Warning not already considered	• Organize cross-sector hot wash and After-Action Review (AAR) to increase understanding of roles and responsibilities of those responding during an extreme heat event to further align practices and operations. • Consider regional and provincial-level recovery activities and community messaging in line with the BC HEAT messaging. • Consider conducting an evaluation and debrief including health impacts. • Consider and implement lessons learned. • Refine communications and planning by integrating post-season lessons observed.

MoH and EMCR	All bullets general to all ministries and: • Create pre-season social media updates and press releases on heat and health for initial event, Heat Warnings and extreme heat emergencies. • Support pre-season briefings with Emergency Management BC and RHA partners. • Ensure that consistent and up-to-date public messaging is available on public communication channels including HeatLinkBC information on Beat the Heat (MoH) and EmergencyInfoBC (EMCR). • Provide local government, health, and community service providers and community organizations with access to heat health communication resources. • Participate in heat health and emergency preparedness forums to promote heat health planning, preparedness, and response. • Provide emergency management preparedness and response guidance to health care providers.	All bullets general to all ministries and: • BC Heat Data Subcommittee to monitor and inform BC HEAT Committee of demands on the health system as available through the BC HEAT Data portal. • Convene the BC HEAT Operations Subcommittee if, as determined by ECCC and SMEs, the event looks likely to evolve into an Extreme Heat Emergency. • Upon recommendation of the health authority, consider if there is need for EMCR regional offices to schedule a coordination call with Indigenous Governing Bodies, local authorities, and other emergency management partners. • EMCR to support communities in accordance with its *Policy 5.14 Interim Extreme Weather Emergency Task Number Eligibility* • MoH and EMCR issue heat messaging through digital platforms and if possible, radio or print, in line with the BC HARS document Heat Warning key messages. • Amplify Heat Warnings as appropriate. • Direct all to key resources. And all pre-season recommended actions not already considered	All bullets general to all ministries, recommended actions noted in the Heat Warning and: • Consider declaring a Provincial State of Emergency under the *Emergency Program Act.* • Consider issuing Emergency Orders under the *Emergency Program Act* and/or the *Public Health Act*. • Convene the BC HEAT Operations Committee (if not already assembled during the Heat Warning). • EMCR regional offices to schedule a coordination call with First Nation, local authority, and other emergency management partners. With RHAs and Environment and Climate Change Canada invited to attend. • Issue bulletins, as necessary, to ensure that all relevant ministries/agencies are aware of the Extreme Heat Emergency and are prompted to enact Extreme Heat Emergency plans where they exist. • Consider PHO/MHO/EMCR press release. • BC HEAT Committee to recommend EMCR to employ the use of provincial broadcast intrusive alerting • Conduct emergency advertising including geo-targeted radio live-reads, as feasible. • Issue heat health messages through digital platforms and if possible, radio or	All bullets general to all ministries and: • Conduct hot wash, AAR, and implement lessons learned/observed.

			print, in line with the BC HARS document Extreme Heat Emergency key messages. • Actively monitor impacts through partnerships with British Columbia Emergency Health Service (BCEHS), HealthLinkBC, and BC211, and monitor demands on the health system as available through the BC HEAT Data Subcommittee. And all recommended actions for a Heat Warning not already considered	

3.2.5 Recommended Actions: Indigenous Governing Bodies and Local Authorities

(Local Authorities includes Municipalities and Regional Districts)

The recommendations below are meant to support planning from a public health perspective as capacity and funding permits.

	Recommended Actions Pre-season	**Recommended Actions Heat Warning**	**Recommended Actions Extreme Heat Emergency**	**Recommended Actions Post-season**
Recommended Actions for Indigenous Governing Bodies and Local Authorities	As applicable and feasible for your specific community, municipality or regional district: • Create or review and update your heat response plan and other relevant emergency response plans, including local authority emergency management plans and business continuity plans, in consultation with key partners. • Organize or participate in exercises and forums to discuss and improve individual and collective responses to extreme heat. • Prepare community heat messages and communication strategies to help identify heat risks and mitigation actions. • Create/check contingency planning for air-conditioning and power supply in local authority owned buildings. • Ensure that all relevant local authority staff/service areas are subscribed to receive relevant alerts such as available through the WeatherCan App.	As applicable and feasible for your specific community, municipality or regional district: • Act in accordance with your heat response plans for a Heat Warning event. • Undertake community outreach focusing on susceptible and high-risk populations and groups that support them. Consider appropriateness of working with a community navigator or community liaison. • Consider temporarily revising local authority bylaws that would ease heat health impacts such as water restrictions or opening hours for parks and public spaces. • Emergency cooling centres and public cooling spaces can be found via the EMCR EmergencyMapBC. • Communities can add and edit emergency response locations into the Community Response Locations Portal that are automatically shared publicly on emergencymapbc.ca. For login credentials	As applicable and feasible for your specific community, municipality or regional district: • Act in accordance with your heat response plans for an Extreme Heat Emergency event. • Participate in coordination call for situational updates. • Undertake community outreach focusing on susceptible and high-risk populations and groups or organizations that support these populations. Consider appropriateness of working with a community navigator or community liaison. • Consider establishing overnight cooling centres to support populations. • In partnership with the local health authority, encourage wellness checks for people at high risk of severe outcomes. See - NCCEH guide for doing health checks during extreme heat events. • Share/distribute information package and resources on extreme heat, if available. [HealthLinkBC Beat the Heat or	As applicable and feasible for your specific community, municipality or regional district: • Undertake local recovery activities, as required. • Conduct AAR or other formal evaluations following deactivation, and include recommendations. • Consider and implement lessons learned/observed. • Actively engage with local service providers and community members about how they are recovering from the heat, and identify and respond to any new or emerging needs. • Act on the momentum of post-season activities to build a more resilient community with heightened awareness about heat health.

	• Where feasible, carry out assessments identifying those most susceptible to heat-related illness. [Health Canada Assessment Guidelines] • Identify and engage with key partners and strategic community groups that have interface with high-risk or susceptible populations to raise awareness about the risks of extreme heat, and to provide information about tools such as wellness checks. See — NCCEH guide for doing health checks during extreme heat events. • Identify relevant information sources for local residents who may be more susceptible to the negative impacts of extreme heat. • Order and display heat health communication material in venues/town halls and communal gathering spaces and distribute to strategic community groups or programs that have interface with high-risk or susceptible populations. [HealthLinkBC Beat the Heat or HealthLinkBC Heat-related Illness and Prepared BC Emergency Guides] • Ensure that information packages and print/online resources are in place. • Keep a list of any public air-conditioned buildings, including community centres, libraries, and swimming pools that could be utilized as cooling centres or cool public spaces.	and any questions regarding the portal contact your local regional office. • Advertise and publicize any cooling centre information or any temporary cooling space information through all feasible media sources. • Explore potential options for coordinating free transport with local public transport provider for accessing cooling centres. • Consider extending hours of operation of any pre-existing cool public spaces. • Consider reducing the cost of accessing cool spaces (e.g., swimming pools). • As feasible, consider providing (more) water fountains in public places. • Ensure that staff engaging with the public are aware of local authority activities to support and protect British Columbians from extreme heat. • Provide consistent heat health messages during client/community visits and telephone calls. • Update local authority websites and social media pages with consistent community messages and heat health information or messaging. • Re-stock heat health communication materials and distribute to clients, where appropriate. [HealthLinkBC Beat the Heat or HealthLinkBC Heat-related Illness and Prepared BC Emergency Guides]	HealthLinkBC Heat-related Illness and Prepared BC Emergency Guides] • As feasible, distribute water to at-risk populations outdoors (e.g., portable water stations). • Consider further extending hours of operation of any pre-existing cool public spaces. • As feasible consider expanding the number of cool public spaces, with creating temporary cooling spaces (e.g., adding temporary air conditioning to existing gathering spaces, or setting up shaded outdoor cooling spaces.) • As feasible, increase community messaging through local media and standard communication channels. • Reschedule any non-essential events, meetings, and services to another day or to a cooler part of the day (particularly relevant for outdoor events or in venues without air conditioning). And all recommended actions for a Heat Warning not already considered	

	• For rural communities or areas with limited infrastructure, consider feasibility and appropriateness of utilising a local school, meeting hall or other communal gathering space (including shaded outdoor spaces) that could be utilised as a temporary cooling space. • Assess potential locations of cooling centres (for accessibility, hours, appropriate space for high-risk or susceptible populations). • Encourage placing permanent signage inside facilities with air conditioning, and use standardized symbols and signage for cooling centre. • Consider long-term planning opportunities to reduce the impacts of extreme heat. • Engage staff across the community to identify opportunities to promote heat health and enhance activities to respond to extreme heat. • Identify established and informal networks to connect and engage with Indigenous and culturally diverse communities. • Consider what channels and networks you can establish for regional coordination and communication during a heat event.	• Encourage local services, clubs, and organizations to reschedule services or major events to cooler times of the day (particularly relevant for outdoor events or in venues without air conditioning). • Consider adjusting work schedules to cooler parts of the day, as appropriate for the location and type of work. • Monitor local weather conditions on the ECCC website or through the WeatherCAN app. • If a coordination call has been organised, participation is recommended for situational updates (ECCC, MHO, HAs) to answer questions directly. And all pre-season recommended actions not already considered		

	• Consider where communications can be developed in different languages and using accessible multimedia options.			

3.2.6 Recommended Actions: NGOs and Partner Organizations

The recommendations below are meant to support planning from a public health perspective as capacity and funding permits.

	Recommended Actions Pre-season	**Recommended Actions Heat Warning**	**Recommended Actions Extreme Heat Emergency**	**Recommended Actions Post-season**
Recommended Actions for NGOs and Partner Organizations	As applicable and feasible for your specific organization: • Create or review and update your heat response plan and other relevant heat plans, including business continuity plans in consultation with key partners. • Create/check contingency planning for air-conditioning and power supply in your buildings. • Organize or participate in exercises and forums to discuss and improve individual and collective responses to extreme heat. • Create or review and update your heat outreach plans and communication strategies geared towards any susceptible and high-risk populations that you support. • Ensure that all relevant staff are subscribed to receive relevant alerts. (subscribe to the WeatherCan App) • Identify relevant information sources for your clients who may be at risk of extreme heat and prepare any additional messaging, as needed.	As applicable and feasible for your specific organization: • Act in accordance with heat response plans for a Heat Warning event. • Conduct community outreach, focusing on identified susceptible and high-risk populations that your group or organization supports, to raise awareness about the risks of heat. • Be mindful of cultural safety when conducting community outreach. • Inform local governments and partners of community needs for establishing cooling centres that are culturally and socially appropriate for the most susceptible and high-risk populations that you work with. • Emergency cooling centres and public cooling spaces can be found via the EMCR EmergencyMapBC • Share local cooling centres information through all feasible formal and informal communications channels and media sources.	As applicable and feasible for your specific organization: • Act in accordance with heat response plans for an Extreme Heat Emergency event. • Participate in coordination call for situational updates to answer questions directly. • If appropriate, engage in wellness checks (multiple times a day, especially in the evening) for people at high risk of severe outcomes. See - NCCEH guide for doing health checks during extreme heat events. • As feasible, increase community messaging about the dangers of an Extreme Heat Emergency through local media, standard and informal communication channels. • Cancel or reschedule major events to cooler times of the day (particularly relevant for outdoor events or in venues without air conditioning).	As applicable and feasible for your specific organization: • Consider undertaking local recovery activities, as required. • Consider and implement lessons learned/observed. • Actively engage with local community members about how they are recovering from the heat, and identify and respond to any new or emerging needs. • Build on the momentum of post-season activities to create a more resilient community with heightened awareness about heat health.

	• Order and display heat health communication material in venues, and distribute to strategic teams or employees that have interface with the high-risk or susceptible populations identified. • Compile information on and assess locations of cooling centres (for accessibility, hours, and appropriate space for high-risk or susceptible populations). • Consider long-term planning opportunities to reduce the impacts of extreme heat, for example, greening of property and building design considerations. • Engage staff to identify opportunities to promote heat health and enhance activities to respond to extreme heat. • Identify established and informal networks to connect and engage with Indigenous and culturally diverse communities. • Consider what channels and networks you can establish now with local authority or regional coordination and communication during a heat event. • If your organization serves susceptible clients, look for opportunities to share targeted information. • If your organization anticipates having outreach capacity during heat events, develop partnerships with health authorities or other agency partners to collaborate on information sharing for targeting of outreach activities during the events.	• Where feasible, inform on potential options for coordinating free transport with local public transport provider for accessing cooling centres. • Share information on locations of public water fountains. • Ensure that staff are engaging with the public and that your target groups are aware of any local authority or provincial activities to support and protect individuals from extreme heat. • Provide consistent heat health messages during client/community visits and telephone calls. • Update websites and social media pages with consistent community messages and heat health information or messaging. • Restock heat health communication materials and distribute to clients, where appropriate. • Encourage your team/organization to reschedule major events to cooler times of the day (particularly relevant for outdoor events or in venues without air conditioning) • Consider adjusting work schedules to cooler parts of the day as appropriate for the location and type of work. • Monitor local weather conditions on the ECCC website or through the WeatherCAN app.	• If within scope and capacity, consider expanding hours of temporary cooling spaces into the evening and overnight. And all recommended actions for a Heat Warning not already considered	

	• If your organization anticipates having outreach capacity during heat events, consider learning about wellness checks (and how to do them) and integrating this into your outreach. See - NCCEH guide for doing health checks during extreme heat events.	• Seek out opportunities to participate in coordination calls for situational updates and awareness. • If within scope and capacity, consider establishing temporary cooling spaces (e.g., adding temporary air conditioning to existing spaces, setting up outdoor cooling spaces in close proximity to highly susceptible client populations especially areas with limited access to green spaces or cooling centres). And all pre-season recommended actions not already considered		

Appendix A: Acronyms

BCHIPS:	British Columbia Heat Impacts Prediction System
BCCDC:	British Columbia Centre for Disease Control
BC HEAT:	British Columbia Health Effects of Anomalous Temperatures
BCEHS:	British Columbia Emergency Health Services
BC HARS:	British Columbia Heat Alert and Response System
CEO:	Chief Executive Officer
CMP:	Clinical Medical Programs
DEOC:	District Emergency Operations Centre
E-COMM:	Emergency Communications
ECC:	Emergency Coordination Centre
EMCR:	Emergency Management and Climate Readiness
EOC:	Emergency Operations Centre
ECCC:	Environment and Climate Change Canada
ETA:	Estimated Time Arrival
FN:	First Nation
FNHA:	First Nations Health Authority
FR:	First Responder
HA:	Health Authority
HC:	Health Canada
HEMBC:	Health Emergency Management British Columbia
IDCBC:	Integrated Disaster Council of British Columbia
IFT:	Inter-Facility Transfers
IHA:	Interior Health Authority
LA:	Local Authorities
LGEP:	Local Government Emergency Planners
MHO:	Medical Health Officer

MoH:	Ministry of Health
NCCEH:	National Collaborating Centre for Environmental Health
NGO:	Non-Government Organization
NHA:	Northern Health Authority
OPHO:	Office of the Provincial Health Officer
PTN:	Patient Transfer Network
PREOC:	Provincial Regional Emergency Operations Centre
PECC:	Provincial Emergency Coordination Centre
PHDO:	Provincial Health Duty Officer
PHO:	Provincial Health Officer
PHSA:	Provincial Health Services Authority
PHC:	Public Health Canada
RHA:	Regional Health Authority
SOP:	Standard Operating Procedures
SME:	Subject Matter Expert
UC:	Unit Chief
UHI:	Urban Heat Island
VCHA:	Vancouver Coastal Health Authority
VIHA:	Vancouver Island Health Authority
WHO:	World Health Organization
WMO:	World Meteorological Organization

Appendix B: Resources

Government and Institutional Resources

- BCCDC Professional Resources for Heat Event response Planning
    - Developing a Municipal Heat Response Plan: A Guide for Medium-sized Municipalities (2017)
    - Municipal heat response planning in British Columbia, Canada (2017)
- BCCDC Preparing for heat events
- Health Canada (2011) Communicating the Health Risks of Extreme Heat Events
    - This Toolkit is intended for use by public health and emergency management officials who are developing or updating heat health communication strategies.
    - Includes public communications materials.
- Health Canada (2011) Adapting to Extreme Heat Events: Guidelines for Assessing Health Vulnerability
- Health Canada (2012) Heat Alert and Response Systems to Protect Health: Best Practices Guidebook
    - Health Canada has developed a best practices guidebook for developing a HARS. The Guidebook helps users to take into consideration community-specific vulnerabilities and identify appropriate outreach and response activities.
- 8-1-1 HealthLinkBC
    - HealthLinkBC 8-1-1 is a free-of-charge provincial health information and advice phone line available in British Columbia. The 8-1-1 phone line is operated by HealthLinkBC, which is part of the Ministry of Health. By calling 8-1-1, you can speak to a health service navigator who can help you find health information and services, or connect you directly with a registered nurse, a registered dietitian, a qualified exercise professional, or a pharmacist.
    - Beat the Heat: Overheating during hot weather can harm your health and cause heat-related illnesses.
    - Heat-related Illness in Infants and Young Children
    - Heat-Related Illnesses
- Health Canada 2020 Urban Heat Islands Tools and Resources

- Government of Canada page that provides tools and resources to help public health professionals advance actions to reduce Urban Heat Islands

- Lived Experience of Extreme Heat in B.C. Report (April 2022)
  - https://www2.gov.bc.ca/assets/gov/environment/climatechange/adaptation/resources/lived_experience_of_extreme_heat_in_bc_final_report.pdf
- Mapping vulnerability to high temperatures in Vancouver Coastal Health and the Fraser Health Authority
  - The climate vulnerability index for communities in the VCH and Fraser Health regions.
- WorkSafeBC
  - heat stress page https://www.worksafebc.com/en/health-safety/hazards-exposures/heat-stress
  - Preventing Heat Stress at Work

- The Community Response Locations portal is an online tool that allows local authorities and Indigenous governing bodies to share emergency response locations with the public during weather emergencies and other emergency events find Emergency Cooling Centre and Public Cooling Space locations on the EmergencyMapBC.ca, the Province's centralized map of public safety conditions and emergency events.

Weather

- Air Quality (BC)
- BC Heat Impacts Prediction System (BCHIPS)
  - BC Heat Impacts Prediction System (BCHIPS) interactive online mapping system (the BCHIPS Map) is intended for use by members of the public to support health protection during hot weather.
  - Map provides limited forecast ability as well as comparison to hottest year, and daily averages.
- ECCC Heat Warning Criteria
- Hello Weather – automated telephone service
  - Canadians can call from anywhere in the country and select their location from a directory where location codes are listed by province. This telephone service provides weather forecasts, current weather conditions, information on impending hazardous weather, marine weather information, and air quality and health index information.

- Public Weather Alerts for British Columbia
    - When severe weather threatens, Environment and Climate Change Canada issues alerts that notify those in affected areas so that they can take steps to protect themselves and others.
- WeatherCAN
    - Receive weather alert notifications in your area, as well as in your saved locations, wherever you are in Canada. Get your latest forecast information directly from Canada's official weather source.

Other Heat Resources from Health Sector

- Vancouver Coastal Health
- Fraser Health Authority
    - Sun and heat safety
    - Extreme heat and people experiencing homelessness: A primer for community organizations
- Interior Health Authority
    - Heat Alert and Response System (HARS) webpage including link to a Heat Alert & Response Planning for Interior BC Communities: A TOOLKIT providing community partners with practical information and resources that will assist in developing and implementing heat alert and response systems and strategies to respond to extreme heat, specifically in rural communities.
    - Extreme Heat Events
- Northern Health Authority
- Island Health Authority
- First Nations Health Authority
- HEMBC *Preparing for Extreme Heat* animation

Tools Supporting Public Health Interventions

- Health Canada (2011) Guideline for Conducting Extreme Heat and Health Vulnerability Assessment
- PreparedBC Extreme Heat Preparedness Guide (2022)
    - https://www2.gov.bc.ca/gov/content/safety/emergency-management/preparedbc/guides-and-resources

- Hard copies can be ordered from Crown Publications for free here: https://www.crownpub.bc.ca/Product/Listing/14548_Public-Safety-Solicitor-General-Emergency-Management-BC#/?statesave=true

- PreparedBC
  - Be Prepared for Extreme Heat
  - Extreme Heat Preparedness Guide

Appendix C:

Algorithm of Escalation Process from Heat Warning to Extreme Heat Emergency

Algorithm of Escalation Process from Heat Warning to Extreme Heat Emergency

Monitoring Year Round

Environment & Climate Change Canada (ECCC) monitors temperature measurements and forecasts across the province.
Other agencies and organizations monitor the following for weather forecast within their regions:
Using the *Weather*CAN app and the EC weather alerts webpage (weather.gc.ca/warnings)

Heat Warning

Environment & Climate Change Canada provides the weather forecasts for British Columbia and will issue a heat warning when the following criteria are met:

Heat Warning Criteria for British Columbia*

Issued by ECCC when two or more consecutive daytime high temperatures are expected to meet or exceed the regional Tmax value and the overnight low is expected to reach or exceed the regional Tmin based on the regional criteria below:

Southwest Tmax≥ 29 / Tmin≥ 16
Fraser/Southwest Inland Tmax≥ 33 / Tmin≥ 17
Southeast Tmax≥ 35 / Tmin≥ 18
Northeast Tmax≥ 29 / Tmin≥ 14
Northwest Tmax≥ 28 / Tmin≥ 13

These temperature thresholds indicate a moderate public health risk

- A Weather Notification email may be sent to health sector and emergency management partner distribution list once forecast guidance is certain enough to warrant elevated likelihood of a heat event.
- For the first hot weather of the summer, ECCC may issue a public-facing Special Weather Statement at temperatures lower than the Heat Warning thresholds, especially in late May or June.
- Heat warnings will be issued publicly on the WeatherCAN app and the ECCC weather alerts webpage (weather.gc.ca/warnings).
- Additional Special Weather Statements and Weather Notifications may be used to provide more information as needed.
- When criteria levels are no longer met, ECCC will issue a notice through the *Weather*CAN app and alerts webpage.

*After the **first three Heat Warnings** of the summer in a given forecast region, the BC HEAT Coordinating Committee (BC HEAT) may recommend to **extend the minimum number of days for Heat Warning criteria in that region** to be when **three or more consecutive daytime high temperatures** are expected to meet or exceed the regional Tmax value and the overnight low is expected to reach or exceed the regional Tmin value for **two or more consecutive nights**.

Heat Warning key messages

Heat Warning recommended actions

Extreme Heat Emergency

Extreme Heat Emergency Criteria for British Columbia

Heat Warning criteria have been met **AND** forecast indicates that daily highs will substantively increase day over day for three or more consecutive days.

ECCC will prompt the Provincial Health Duty Officer (PHDO) to coordinate a call with the BC HEAT Operations Subcommittee (BC HEAT Ops.) and members required for quorum to discuss issuing an Extreme Heat Emergency.

The conditions indicate a very high public health risk due to dangerous temperatures.

PHDO to initiate coordination call

BC HEAT Ops. convenes for coordination calls.(NOTE: Very likely that a series of calls will be required to determine to escalate to an Extreme Heat Emergency.)

Quorum must be met and if needed the decision will be put to a vote, with veto power resting with the OPHO.

Extreme Heat Emergency is issued.

Internal Organizational Actions

- Provincial coordination call(s) for ministries and agencies, chaired by EMCR.
- Regional coordination call for EMCR, health authorities and municipalities.
- Joint provincial press release (Health/EMCR/OPHO).
- Health authority specific press release.
- EMCR's PREOC will provide direct notification to local authorities

Extreme Heat Emergency key messages

Public Facing Notifications

- Extreme Heat Emergency notification will be issued by ECCC on the ECCC heat warning template but clearly denoting this as an **Extreme Heat Emergency.**
- Notification will be via the *WeatherCAN* app and the ECCC weather alerts web page (weather.gc.ca/warnings) and then further publicized by partners utilizing existing communication channels and media (as feasible).
- Use of broadcast intrusive alert may be recommended.

Extreme Heat Emergency recommended actions

Deactivation

BC HEAT Ops. meet to review the status of the Extreme Heat Emergency

When deactivating:

- BC Heat Ops. and quorum discuss and confirm timing for ending an Extreme Heat Emergency.
- ECCC to then issue public confirmation the Extreme Heat Emergency has ended.
- Communications will update website, social media and communication partners.
- After Action Report to be completed.

Appendix D: Summary of Major Revisions

General revisions such as grammatical corrections, amending updated ministry and organization names are not detailed on these tables.

1. Section One

Section	Revised/Added/Deleted	Date
1.1	Deleted: The overarching objective of this committee is to ensure public health coordination around extreme hot weather. ~~for summer 2022 and the years following~~.	230401
1.1	Added: As of 2023 the BC HEAT Committee has added two Subcommittees, a data committee and an operations committee as defined in their terms of reference from March 2023.	230421
1.2	Deleted: A primary deliverable of the BC HEAT Committee is this BC HARS: 2022 document and the subsequent BC HARS roll-out.	230401
1.2	Revised: As of ~~November 2021~~ **June 2022**, the BC Coroners Service has directly attributed **619** ~~595~~ deaths in British Columbia to the June 2021 extreme heat event	230421
1.2	Revised: This document is intended to be used as a resource to support the province-wide implementation of the heat alert and response system in British Columbia. The recommendations in section three of this document are not prescriptive but are intended to be used as tools to initiate heat planning or to complement the creation of more robust heat response plans. Acknowledging that the wide variation in local heat response planning needs, not all recommendations may be appropriate for all settings.	230504
1.4	Added Section: Event Timing	240325
1.5	Added: NCCEH guide for or doing health checks during EHEs.	230401
1.6	Added: People who are pregnant, infants, and young children are also at higher risk during heat waves.	240325
1.6	Revised in Susceptible Populations: ~~Seniors aged 65 years or older to~~ **older adults**	230331

2. Section Two

Section	Revised/Added/Deleted	Date
2.1 Development of the BC HARS	Deleted: Interventions that are practical and feasible at the personal, community, organizational, governmental, and societal levels can save lives.	230501

2.1 Development of the BC HARS	Revised: In 2018, the BCCDC worked with partners to develop ~~the existing~~ heat alert thresholds for the entire province of B.C. **The 2018 thresholds are the base of the BC HARS criteria and were developed using** community- and region-specific weather conditions, as well as findings from a heat-health analysis.	230501
2.1 Development of the BC HARS	Revised: The **then newly defined** ~~province wide ECCC~~ heat alerting ~~system~~ **thresholds** included daytime and overnight regional temperature criteria, **referred to as the high-low-high approach**, [37] that would trigger **ECCC** warnings **in the different regions.**	230501
2.2 BC HARS Description	Deleted: Given this limitation, further consultation, and more robust engagement – particularly with local authorities, Indigenous and First Nations leadership, non-governmental partners, and people who experienced heightened susceptibility during previous extreme heat events – is being planned for fall 2023, along with regular reassessment ~~for future iterations~~ of the BC HARS. As of May 2023 formal and informal feedback as well as targeted engagement with many key partners and interested parties have been conducted. Added: Given this limitation, engagement following both years' implementation of the BC HARS included surveys, round-table discussions, and one-on-on interviews with communities, First Nations, NGOs, labour groups, health system workers, organisations that work with susceptible groups, and a small number of individuals with direct lived experience from the 2021 heat dome event and subsequent years' heat seasons.	240415
2.3.1 Heat Warning	For the first hot weather of the summer, ECCC may issue a public-facing Special Weather Statement (SWS) at temperatures somewhat lower than the Heat Warning thresholds (Table 2), especially in late May or June. This divergence from the standard Heat Warning process reflects the added public health risk of early summer heat. A SWS could evolve into a Heat Warning for the B.C. region(s) impacted. The SWS is intended to provide partners with the most preparation lead time, and it may include some strategic pre-event messaging. Indigenous governing bodies, local Authorities and other partners are encouraged to include a trigger in their heat response plans	240430

[37] McLean KE, et al. Establishing Heat Alert Thresholds for the Varied Climatic Regions of British Columbia, Canada. Int J Environ Res Public Health. 2018 Sep 19;15(9:2048. doi: 10.3390/ijerph15092048. PMID: 30235814; PMCID: PMC6163932.

	to respond to an early summer SWS as if it was a Heat Warning. Further weather notification(s) may include a comment on the probability of an Extreme Heat Emergency, as appropriate. As region specific Heat Warning trigger conditions are being approached or met, there may be a need for a coordination call with members of the BC HEAT Committee. If needed, ECCC will utilize the Provincial Health Duty Officer (PHDO) to organise these initial coordination calls with the BC HEAT Operations Sub-committee. During the call(s) ECCC may provide updates, course corrections, and/or offer more specific information about the heat event outlook. As is typical with heat events, more specific information will likely become available in the immediate lead-up to, and during, the event.	
2.3.1 Heat Warning	Deleted Further weather notification(s) may include a comment on the probability of an Extreme Heat Emergency, as appropriate.	240328
2.3.1 Heat Warning	Revised: Development timelines were condensed to have a coordinated response structure in place for the summer of 2022. Given this limitation, further consultation, and more robust engagement – particularly with local authorities, Indigenous and First Nations leadership, non-governmental partners, and people who experienced heightened susceptibility during previous extreme heat events – **is being planned for fall 2023**, along with regular reassessment ~~for future iterations~~ of the BC HARS. **As of May 2023 formal and informal feedback as well as targeted engagement with many key partners and interested parties have been conducted.**	230418
2.3.1 Heat Warning	Revised: As of May 2023, for the first three heat events in a given forecast region, a Heat Warning will be issued when there are two or more consecutive days during which the daytime maximum temperatures are forecast to reach or exceed the established trigger temperature criteria for that region and the overnight low is expected to reach or exceed the regional minimum temperature value (see Table 1). To mitigate warning fatigue and recognising the behavioural and physical adaptations as the heat season progresses, after the third Heat Warning has been issued for a forecast region, the BC HEAT Committee may recommend extending the daytime and overnight criteria for a Heat Warning in that region by a day. After the third event, the Heat Warning criteria could be extended to three consecutive	230501

	days and two consecutive nights with no change to the temperature value criteria.	
2.3.1 Heat Warning	Added to 'Table 2: Description, Criteria, and Triggers of BC HARS: 2023': After the first three events of the summer **in a given forecast region**, the BC HEAT Coordinating Committee (BC HEAT) may recommend extending the minimum number of days for Heat Warning criteria to be when three or more consecutive daytime high temperatures are expected to meet or exceed the regional Tmax value and the overnight low is expected to reach or exceed the regional Tmin value for two or more consecutive nights.	230419
2.3.1 Heat Warning	Revised: ECCC will utilize the Provincial Health Duty Officer (PHDO) to organise these initial coordination calls with the BC HEAT **Operations Subcommittee**.	230421
2.3.1 Heat Warning	Added: When there is the potential for a Heat Warning to evolve into an Extreme Heat Emergency, the **BC HEAT Operations Subcommittee** and **as much representation to meet quorum as possible** will convene upon the prompt of ECCC to the PHDO **to establish a coordination call with the specified representation.**	230421
2.3.2 Extreme Heat Emergency	Revised: **In addition,** the BC HEAT Committee **may** recommend that EMCR issues an intrusive BC Emergency Alert **(to radio, television and/or cell phones) for an Extreme Heat Emergency through the Alert Ready national public wireless alerting system**. Revised and Added: An assessment of whether to recommend the use of the provincial broadcast intrusive alerts by the BC HEAT Committee, based on near-real-time situational awareness of health impacts such as ambulance dispatches and emergency room visits.	240503
2.3.2 Extreme Heat Emergency	Added in bold: If the BC HEAT **Operations Subcommittee** has not already convened meetings for the EHE, the ECCC will prompt the PHDO to establish an initial coordination call with members of the BC HEAT **Operations Subcommittee and the specific representatives for quorum** to discuss issuing an Extreme Heat Emergency notification	230421
2.3.2 Extreme Heat Emergency	Revised: reworded paragraph to not lead with ECCC and to provide clarity on process of who issues BI and the process during an Extreme Heat emergency	220804
2.3.2 Extreme Heat Emergency	Revised: If **quorum representation cannot come to** a consensus ~~cannot be met~~ through discussion, a vote is needed to decide whether to declare an Extreme Heat	230421

	Emergency. Voting support for escalation and cessation of an Extreme Heat Emergency would be as follows:	

3. Section Three

Section	Revised/Added/Deleted	Date
3.1	No revisions	

Tables

Section	Revised/Added/Deleted	Date
3.2.1 Key Messages Extreme Heat	Added preamble: The following tables contain key messages and summarize recommended actions to be taken by different ministries, Indigenous Governing Bodies, local authorities, public health organizations, and professionals, as well as the general public, to prepare for and respond to the different heat alerts.	240415
3.2.1 Key Messages Extreme Heat	Revised preseason column Deleted: The first HARS level, a Heat Warning, means that temperatures are very hot and there is a moderate public health risk. A Heat Warning will usually be issued one to three times in a typical summer. The second HARS level, an Extreme Heat Emergency, means that temperatures are dangerous and there is a very high public health risk. An Extreme Heat Emergency may only be issued one to two times per decade. Added: The first HARS level, a Heat Warning, means daytime and overnight temperatures are higher than usual, but they are not getting hotter every day. Take the usual steps to stay cool The second HARS level, an Extreme Heat Emergency, means that temperatures are dangerous. Daytime and overnight temperatures are higher than usual, and they are getting hotter every day. Activate your emergency plan.	240415
3.2.1 Key Messages Extreme Heat	Revised in Susceptible Populations seniors aged 65 years or older to older adults	230331
3.2.1 Key Messages Extreme Heat	Added where wellness checks noted: See - NCCEH guide for or doing health checks during EHEs	230331

3.2.2 Public Health	Added: Emergency cooling centres and public cooling spaces can be found via the EMCR Community Response Locations Portal and are mapped on the EMCR emergencymapbc.ca.	240415
3.2.2 Public Health	Delete: Advise partners on heat response plans.	230501
3.2.4 MoH & EMCR	1. Added bold text: **MoH Heat Data Subcommittee to** undertake a risk and consequence assessment of the potential impact on communities and the health sector. 2. Added bold text: Convene the **BC HEAT Operations Subcommittee** if, as determined by ECCC and SMEs, the event looks likely to evolve into 3. Revised: BC Heat Data Subcommittee to ~~undertake a risk and consequence assessment of~~ monitor and inform BC HEAT Committee on demands on the health system as available through the BC HEAT Data portal. 4. Deleted text: Amplify Heat Warnings as appropriate ~~to residents, schools, daycares, recreational groups, volunteer support groups, transient populations (e.g., tourists), and sporting events.~~ 5. Revised and Added: Actively monitor impacts through partnerships with British Columbia Emergency Health Service (BCEHS), HealthLinkBC, and BC211, and monitor demands on the health system **as available through the BC HEAT Data Subcommittee**. 6. Deleted: Issue, as necessary, media releases or hold interviews or press conferences with the PHO, Minister of Health, Minister of EMCR to explain the event and provide public health guidance.	230418
3.2.4 MoH and EMCR	Revised: EMCR to support communities in accordance with its Policy 5.14 Interim Extreme Weather Emergency Task Number Eligibility	240510
3.2.5 Indigenous Governing Bodies and Local Authorities	Added: Emergency cooling centres and public cooling spaces can be found via the EMCR emergencymapbc.ca. Added: Communities can add and edit emergency response locations into the Community Response Locations Portal that are automatically shared publicly on emergencymapbc.ca. For login credentials and any questions regarding the portal contact your local regional office.	240415
3.2.5 Indigenous Governing Bodies and Local Authorities	Added to all columns: As applicable and feasible for your specific community, municipality or regional district:	230421
3.2.5 Indigenous Governing Bodies	Added text in bold: Undertake community outreach focusing on susceptible and high-risk populations and	230419

and Local Authorities	groups that support them. **Consider appropriateness of working with a community navigator or community liaison**.	
3.2.5 Indigenous Governing Bodies and Local Authorities	Added: For rural communities or areas with limited infrastructure, consider feasibility and appropriateness of utilising a local school, meeting hall or other communal gathering space (including shaded outdoor spaces) that could be utilised as a temporary cooling space.	230421
3.2.5 Indigenous Governing Bodies and Local Authorities	Revised and added : **As feasible** consider expanding the number of cool public spaces, **with temporary cooling spaces (e.g., adding temporary air conditioning to existing gathering spaces or setting up shaded outdoor cooling spaces.**	230503
3.2.6 NGOs and Partner Organizations	Added: Emergency cooling centres and public cooling spaces can be found via the EMCR emergencymapbc.ca.	240415
3.2.6 NGOs and Partner Organizations	Added: As applicable and feasible for your specific organization:	230421

Appendices

Section	Revised/Added/Deleted	Date
Appendix	Removed: appendix for Heat Event Communication Templates	240501
Appendix	Revised: resource list	240501
Appendix	Revised: algorithm to include SWS first event of the season	240501
Appendix	Revised: algorithm to include marginal heat event wording as requested during the extended heat warning event AAR	230419
Appendix	Added: appendix for Heat Event Communication Templates	230418
Appendix	Added: Appendix Summary of Revision	230418