



## Notice of Meeting and Meeting Agenda Water Advisory Committee

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Tuesday, March 25, 2025

12:00 PM

Goldstream Meeting Room  
479 Island Hwy  
Victoria BC V9B 1H7

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Members of the public can view the live meeting via MS Teams link: [Click here](#)

K. Harper (Chair); C. Davis; M. Doehnel; A. Fernandes; A. McArdle; C. Nowakowski; K. Oppen;  
T. Pedersen; W. Scheuer; M. Turner; M. Wagner; K. Zimmerman

The Capital Regional District strives to be a place where inclusion is paramount and all people are treated with dignity. We pledge to make our meetings a place where all feel welcome and respected.

### 1. Territorial Acknowledgement

### 2. Election of Vice Chair

### 3. Approval of Agenda

### 4. Adoption of Minutes

#### 4.1. [25-0366](#) Minutes of the Water Advisory Committee Meeting of November 26, 2024

**Recommendation:** That the minutes of the Water Advisory Committee meeting of November 26, 2024 be adopted as circulated.

**Attachments:** [Minutes - November 26, 2024](#)

### 5. Chair's Remarks

### 6. Presentations/Delegations

*The public are welcome to attend CRD meetings in-person.*

*Delegations will have the option to participate electronically. Please complete the online application at [www.crd.ca/address](http://www.crd.ca/address) no later than 4:30 pm two days before the meeting and staff will respond with details.*

*Alternatively, you may email your comments on an agenda item to the Committee at [legserv@crd.bc.ca](mailto:legserv@crd.bc.ca).*

### 7. Committee Business

- 7.1.     [25-0338](#)     General Manager's Verbal Update  
**Recommendation:**   There is no recommendation. This verbal update is for information only.
- 7.2.     **25-0372**     Regional Water Supply Strategic Plan Verbal Update  
**Recommendation:**   There is no recommendation. This verbal update is for information only.
- 7.3.     [25-0373](#)     Letter to Brenda Bailey, Minister of Finance, re: Review of Conditions  
Required for Farm Classification by BC Assessment Authority  
**Recommendation:**   There is no recommendation. This item is for information only.  
**Attachments:**       [Correspondence: Advocacy Letter to the Province \(March 18, 2025\)](#)
- 7.4.     [25-0367](#)     Risk Assessments Relating to Wildfire in a Changing Climate  
**Recommendation:**   There is no recommendation. This presentation is for information only.  
**Attachments:**       [Presentation: Wildfire Risk Assessments Relating to Climate Change](#)
- 7.5.     [25-0368](#)     Summary of Recommendations from Regional Water Supply  
Commission  
**Recommendation:**   There is no recommendation. This report is for information only.  
**Attachments:**       [Summary: RWSC - January 15, 2025](#)  
                              [Summary: RWSC - November 22, 2024](#)  
                              [Summary: RWSC - November 20, 2024](#)
- 7.6.     [25-0369](#)     Water Watch Report  
**Recommendation:**   There is no recommendation. This report is for information only.  
**Attachments:**       [Water Watch Report - March 17, 2025](#)

## 8. Notice(s) of Motion

## 9. New Business

## 10. Adjournment

Next Meeting: Tuesday May 27, 2025

To ensure quorum, please advise Megan MacDonald ([mmmacdonald@crd.bc.ca](mailto:mmmacdonald@crd.bc.ca)) if you or your alternate cannot attend.



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**MINUTES OF A MEETING OF THE Water Advisory Committee, held Tuesday, November 26, 2024 at 12 pm in the Goldstream Meeting room at 479 Island Highway, Victoria, BC**

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**PRESENT: Members:** K. Oppen (Chair); K. Zimmerman (Vice Chair); M. Doehnel; A. Fernandes (EP 12:09); K. Harper; T. Krawczyk; A. McArdle (EP); J. Rogers; W. Scheuer; D. Timothy; M. Turner (EP)

**Staff:** A. Fraser, General Manager, Integrated Water Services; J. Marr, Senior Manager, Infrastructure Engineering; S. Irg, Senior Manager, Water Infrastructure Operations; D. Gosper, Manager, Dam Safety; C. Moch, Manager, Water Quality; D. Dionne, Manager, Business Support Services, Integrated Water Services (Recorder)

**REGRETS:** C. Davis; C. Nowakowski; A. Pakvis; T. Pedersen

EP = Electronic Participation

The meeting was called to order at 12:02 pm.

**1. TERRITORIAL ACKNOWLEDGEMENT**

The Chair provided the Territorial Acknowledgement.

**2. APPROVAL OF AGENDA**

Report from the Juan de Fuca Water Distribution Commission was added to New Business.

**MOVED** by J. Rogers, **SECONDED** by M. Doehnel,  
That the agenda be approved as amended.

**CARRIED**

**3. ADOPTION OF MINUTES**

The following corrections were requested to Section 7. Committee Business:

- Section 7.1, bullet 7, "Forrest" is misspelled.
- Section 7.2, requested clarification on the third bullet: "Unaccounted for water use". The following will be added to the end of this sentence for clarity "(leaks, fire fighting, water main flushing, etc.)".

**MOVED** by W. Scheuer, **SECONDED** by T. Krawczyk,  
That the minutes of the September 23, 2024 Water Advisory Committee meeting be adopted as amended.

**CARRIED**

**4. CHAIR'S REMARKS**

The Chair extended her gratitude to David Timothy and Tayler Krawczyk, whose terms are coming to an end. She thanked them on the behalf of the Committee for their time and input over the past six years and, in particular, with their efforts on the Agricultural Water Rate review. She advised that for those members whose term is ending and are eligible to serve another term to forward their interest to Denise Dionne.

## **5. PRESENTATIONS/DELEGATIONS**

There were none.

## **6. GENERAL MANAGER'S REPORT**

A. Fraser introduced staff, Damon Gosper, Manager, Dam Safety and Christoph Moch, Manager, Water Quality, both speaking to items on the agenda.

She provided an update on the approved Regional Water Supply Service provisional budget for 2025. Noting that Master Plan projects have started to be incorporated into the five-year capital plan. This is a significant step and highlights the importance of addressing seismic resilience and infrastructure upgrades.

### **6.1. Water Advisory Committee Bylaw and Terms of Reference Update**

A. Fraser stated that Capital Regional District (CRD) committees and commissions regularly refresh terms of reference and review bylaws. She outlined the planned revisions noted in the staff report.

Discussion ensued and staff responded to questions regarding:

- First Nation representation and participation as it relates to membership and voting.
  - Membership clarification; there would be a maximum of 10 identified members plus up to 5 members from other bodies the Board considers appropriate.
  - Total of 15 members plus up to 13 First Nations representatives if they choose to participate.

### **6.2. Strategic Plan Update [Verbal]**

A. Fraser provided the following updates:

- Public engagement, originally due in November, has been delayed to early next year. Refining the engagement approach with plans for:
  - Pop-up events to engage people in recreation centers.
  - Virtual sessions to address strategic plan questions.
  - Survey to collect feedback online.
- Public engagement remains challenging, particularly in communicating risks and gauging public comfort levels. High interest group responses sometimes skew the data.
- In the new year, focus on discussing suggestions to garner more interest and enhance public engagement.

## **7. COMMITTEE BUSINESS**

### **7.1. Presentation: Water Quality Summary Report for Greater Victoria Drinking Water System - May to August 2024**

The presentation highlighted key regulatory requirements, monitoring parameters, and recent data trends.

Staff responded to questions from the Committee regarding:

- Temperature: Water temperature exceeded guidelines during summer, indicating the potential impact of climate change.
- Turbidity: Occasional exceedances due to sediment mobilization during peak watering times, addressed by adjusting treatment processes.
- Total Coliform Bacteria: Unusual spike in total coliform bacteria attributed to internal seiches (standing waves) in Sooke Lake Reservoir, which required increased treatment capacity.
- Algae Activity: Mild algae activity with no health concerns during the reporting period.
- Langelier Saturation Index (LSI): The industry has moved away from using a single LSI calculation. In 2021, the CRD completed a pH and corrosion study. This study modeled and distributed corrosivity and corrosion indices across the entire water system and validated these results with hundreds of samples from both public and private locations. This report was presented and received by both the Water Advisory Committee and the Regional Water Supply Commission.

## 7.2. Water Advisory Committee Proposal – Agricultural Water Rates

Discussion ensued on the following:

- Maintaining the Agricultural Water Rate to support farmers.
- Farmers who can't benefit from the lower rates due to high costs of connecting to the main water supply.
- Concern about hobby farms benefiting from rates meant for legitimate farmers. The Provincial government is looking into the BC Assessment farm status requirements.
- A phase two study of water rates was deferred in favor of maintaining current rates.
- The Committee would like to encourage the Provincial government to reassess farm statuses to better define who qualifies for the agricultural rates.
- Whether municipalities could provide subsidies to help farmers connect to the water supply infrastructure.

**MOVED** by T. Krawczyk, **SECONDED** by Commissioner K. Zimmerman,  
The Water Advisory Committee recommends that the Regional Water Supply Commission maintain the current agricultural water rate.

**CARRIED**

**MOVED** by K. Zimmerman, **SECONDED** by Commissioner T. Krawczyk,  
The Water Advisory Committee recommends that the Regional Water Supply Commission encourages a review by the Province of the conditions required for farm status by BC Assessment.

**CARRIED**

## 7.3. Presentation: Dam Safety Program

The presentation highlighted the CRD's Integrated Water Services (IWS) comprehensive dam safety program, which is critical for safeguarding public safety, protecting property, and ensuring a reliable water supply.

#### 7.4. Master Plan - Program Implementation Design RFP

Staff provided the following update:

- The RFP is intended to invite consultants to apply for the task of designing and implementing the Master Plan projects.
- This step is essential for taking the high-level Master Plan created in 2022 and breaking it down into detailed projects and implementation plans.
- The RFP will close in early December, and a consultant is expected to be hired early next year.
- The implementation will focus on assessing the various projects identified in the Master Plan and determining their priority based on risk.
- The consultant's role will include developing a comprehensive implementation plan for the identified projects.

#### 7.5. Summary of Recommendations from Regional Water Supply Commission

Received for information.

#### 7.6. Water Watch Report

Received for information.

### 8. NEW BUSINESS

#### 8.1. Report from the Juan de Fuca Water Distribution Commission

Commissioner Rogers stated that he would not be running for Vice Chair of the Juan de Fuca Water Distribution Commission in the next term. He expressed his gratitude to the Committee for their dedication and efforts in areas such as conservation, agriculture, and post-disaster initiatives. He also conveyed his hope that the Committee would continue its valuable work.

The Committee expressed their gratitude for his service and contributions. They acknowledged his significant role and the positive impact he has had on the Committee's work over the years.

### 9. ADJOURNMENT

**MOVED** by M. Doehnel, **SECONDED** by K. Zimmerman,  
That the November 26, 2024 Water Advisory Committee meeting be adjourned at 2:22 pm.  
**CARRIED**

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CHAIR

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SECRETARY



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Infrastructure & Water Services

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Victoria, BC, V9B 1H7

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March 18, 2025

File: 0400-20

The Honourable Brenda Bailey  
Minister of Finance  
PO Box 9048 Stn Prov Govt  
Victoria BC V8W 9E2  
***Via E-mail: FIN.Minister@gov.bc.ca***

Dear Minister Bailey:

**RE: REVIEW OF CONDITIONS REQUIRED FOR FARM CLASSIFICATION BY  
BC ASSESSMENT AUTHORITY**

At their February 12, 2025 meeting, the Capital Regional District (CRD) Board directed staff to advocate to the British Columbia Provincial Government (Province) for a review of the criteria used to identify farm classification under Section 23 of the *Assessment Act* and B.C. Reg. 411/95, the Classification of Land as a Farm Regulation (the "Farm Class Regulation"). The CRD understands that the Province is considering a review of BC Assessment Authority's criteria for farm classification. We write to support this initiative and urge the Province to proceed with the review to establish clearer definitions for qualifying agricultural land status.

The CRD considers food security increasingly critical. Vancouver Island's local food and agricultural production systems face many challenges, including the loss of farmland, cost of farm operation, aging farmer population, and rising food prices. The CRD is supporting agricultural production through the implementation of a Regional Foodlands Access Service to deliver programs that will support agriculture across the region. One of the first initiatives under the new service will seek to support new and expanding farmers by facilitating affordable access to productive farmland.

In addition, the CRD provides a lower agricultural water rate for properties with a BC Assessment farm classification, as specified by CRD Bylaw No. 2570. The CRD's Water Advisory Committee (Committee) provides advice to the Regional Water Supply Commission on water supply, quality, conservation, and land stewardship while considering social and environmental impacts. In recent years, the Committee has been considering how the CRD, through the agricultural water rate, can better support agricultural operations that strengthen the Island's food security. They strive to ensure that the agricultural water rate is fairly allocated to properties actively involved in producing food or animal feed, animals for food, or other horticultural crops that contribute to food security. However, reliance on BC Assessment's characterization of farm classification, has raised a concern that hobby farms might benefit from the lower water rates meant for commercial agricultural operations.

The CRD strongly supports the Province's review of BC Assessment's farm classification criteria. Establishing clearer and more equitable definitions will help ensure that agricultural resources and benefits, such as the lower agricultural water rate, are directed toward commercial agricultural operations that contribute meaningfully to food security on Vancouver Island. By addressing these challenges, we can better support our agricultural producers and strengthen the resilience of our regional food system. We urge the Province to move forward with this review to create a sustainable and thriving future for agriculture in British Columbia.

Thank you for your consideration and I look forward to your response.

Sincerely,



Alicia Fraser, P.Eng.  
General Manager  
Infrastructure & Water Services

cc: CRD Board  
CRD Regional Water Supply Commission  
CRD Water Advisory Committee  
Ted Robbins, Chief Administrative Officer, CRD



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# Risk Assessments Relating to Wildfire in a Changing Climate


Greater Victoria Water Supply Area



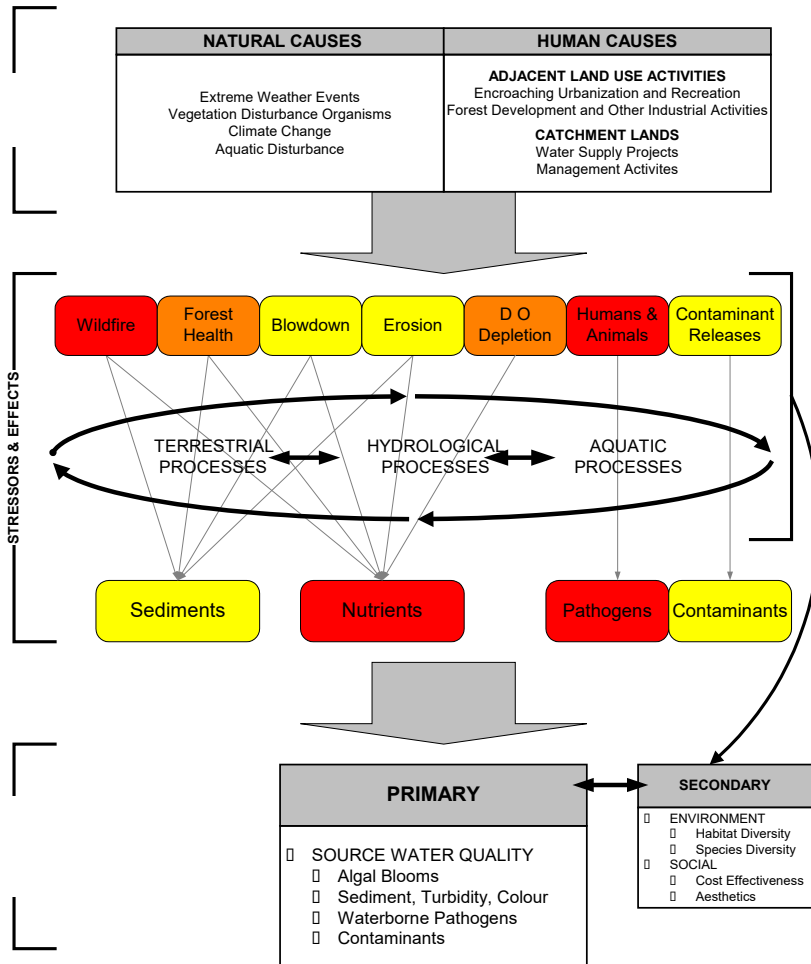
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# Overview of Presentation

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- Risk Assessment and Wildfire in the GVWSA
  - Factors Relating to Probability and Consequence
  - Projected Climate Change and Implications for Wildfire
  - Initiatives Undertaken to Improve our Understanding of Wildfire in a Changing Climate and the Effectiveness of Forest Management to Reduce Risk
  - Identifying and Mapping High Hazard Forest Stands
- 

# Risk Assessments Relating to the GVWSA

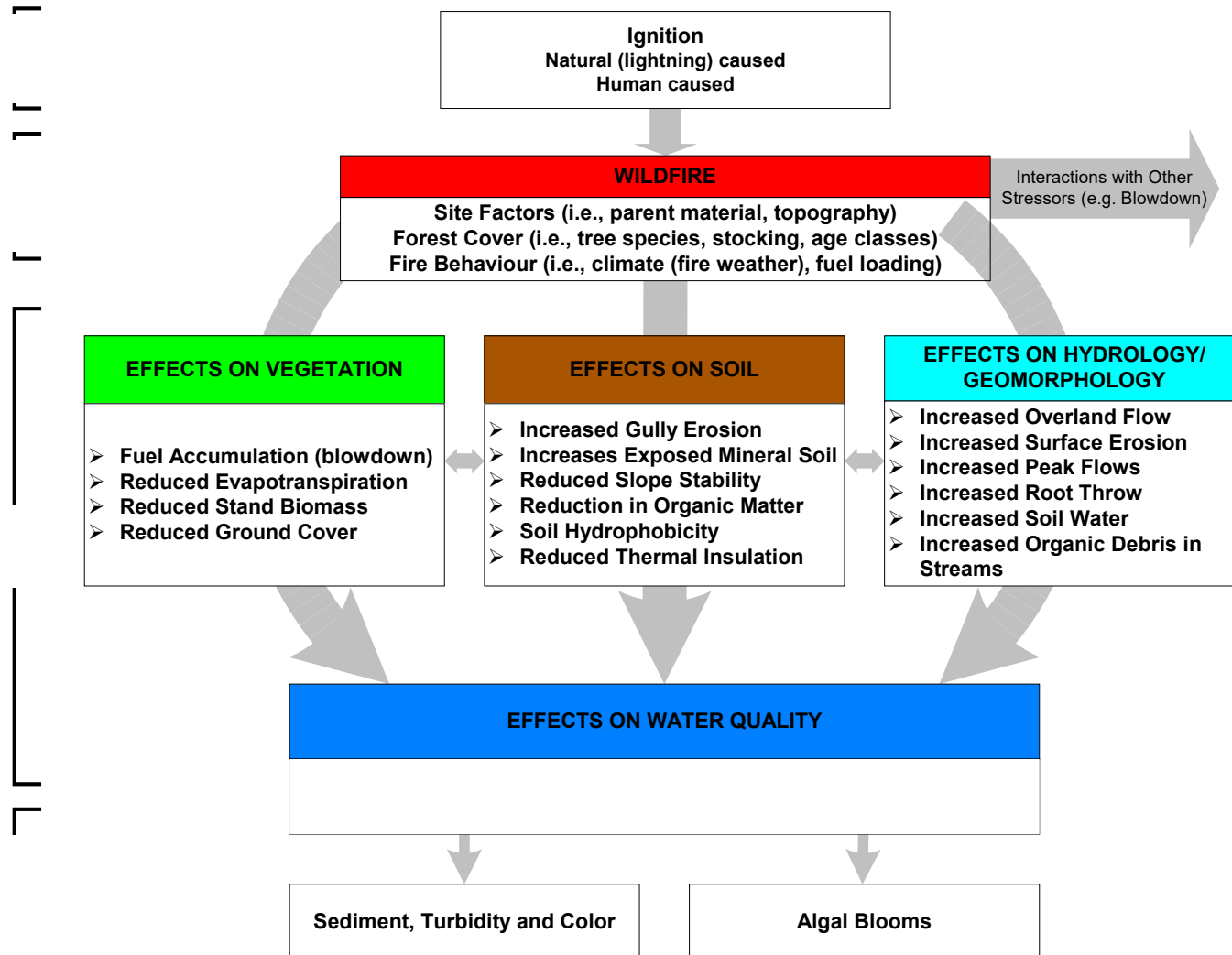


- Risk = Probability X Consequence
- Most assessments for the Regional Water Supply System have needed to identify and try and rank multiple risks
- A more detailed process is needed to characterize and assess specific risks and identify factors needing further investigation
- Detailed assessments also allow risk reduction strategies to be identified

## Wildfire Identified as a Major Risk to the GVWSA



# Conceptual Model for Wildfire Risk



# Detailed Assessment of Risk Factors

## Source

### Ignition(s)

**Cause:** Lightning, Powerlines, Human Activity  
(escaped pile or slash burn, accidental operational fire, trespass, vandalism)

**Location:** within GVWSA or on adjacent lands

**Number of Ignitions:** single, multiple at different locations

### Stressors

(Factors that Contribute to Wildfire Probability, Spread and Consequences)

#### Forest Fuels

(tree density, height to live crown, ladder fuels, combustible ground vegetation, amount and continuity of small woody debris, thickness of organic soil layers)

#### Landscape Weather Conditions

(temperature, relative humidity, wind speed and direction)

#### Within Stand Weather Conditions

#### Large Scale Weather Events

(outflow from the BC Interior)

#### Fuel Moisture

#### Terrain

(slope and aspect)

#### Uniformity and Continuity of Forest Canopy

#### Fire Behaviour

(crown or surface fire, intensity, rate of spread)

#### Timing of Detection

(in relation to ignition time, fire size and rate of spread)

#### Suppression Response

(speed, access, water availability, ground resources, air support)

### Additional Factors Contributing to Consequences

#### Water Supply Catchment Affected

#### Overall size of the wildfire

Size and Location of Areas Burned to Moderate and High Burn Severity

Values at Risk (Infrastructure, Facilities, Old Forest) Consumed or Damaged by Wildfire

Number and Proportion of Individual Drainages Affected by Moderate and High Burn Severity

Potential for Slope Stability and Erosion Issues in Burned Areas  
(steepness and stability of slopes, depth(s) and type(s) of soil)

Intensity, Duration, and Frequency of Rainfall on Burned Areas Prior to Stabilization

Sediment Transport and Debris Flow Potentials

Connectivity to Streams and Reservoirs

Proximity of Inflows from Burned Areas to Water Supply Intake

Amount of Ash, Sediment, and Woody Debris Entering the Water Supply Reservoir

Behavior/Circulation of Ash, Sediment, and Woody Debris within the Reservoir

Interactions with other stressors such as wind throw, storm damage, and tree mortality from forest insects and disease that can increase forest fuel levels.

- Lots of factors shape wildfire probability and consequences
- Numerous factors need to occur together
- Key factors influenced by climate change

## Potential Consequences of Wildfire

(These factors interact and are cumulative)

### Vegetation and Soil

- Tree mortality or damage
- Loss or damage to forest understory vegetation
- Exposed soil
- Loss of organic layers
- Damage to soil organisms
- Reduced soil productivity
- Reduced water infiltration
- Potential for water repellent conditions
- Loss of forest with high conservation and wildlife habitat values

### Water Quality

- Sediment in water
- Turbidity guidelines exceeded
- Taste and odor issues from algal blooms
- Potential for increase in toxin-producing algae with increased nutrients
- Exceedances of guidelines for minerals and elements (e.g., Mg)

### Hydrology/Geomorphology

- Increased peak flows
- Surface erosion
- Sediment transport
- Stream channel scouring and sediment deposition
- Potential for gully, landslides and/or debris flows
- Increased water temperatures

### Water Supply

- Interference with water disinfection processes
- Potential for boil water order
- Increased potential for disinfection by-products
- Need to switch to alternate supply

### Aquatic Systems

- Input of nutrients, inorganic and organic sediment, charcoal, ash, chemicals and elements (e.g., Mg) and woody debris
- Reduced water transparency
- Increased productivity and algal blooms
- Altered nutrient ratios
- Damage to organisms from sediment and woody debris
- Damage to fish habitat

### Infrastructure

- Damage to communication facilities
- Damage to powerlines
- Damage to water supply intake due to woody debris and sediment
- Damage to drainage structures and roads from increased water flows
- Need to flush water supply system
- Clogging of filters at valves



## Mixed Severity Wildfire Regime



Low to moderate intensity fires

Fire behaviour can be reduced by high humidity and moister fuels in dense stands

Larger Douglas-fir or other thick barked trees survive

Burns may be patchy and limited in size



High intensity crown fires associated with outflow conditions and high winds

Wildfire can reach the forest canopy, spread rapidly, and affect large areas

All forest types can burn with high severity killing most trees and damaging soils

# Key Factors Relating to Probability



- Timing of ignition within fire season
- Number and timing of ignitions
- Terrain
- Forest fuels – type, amount, distribution and moisture content
- Weather during burn period which determines the number of ‘spread event days’



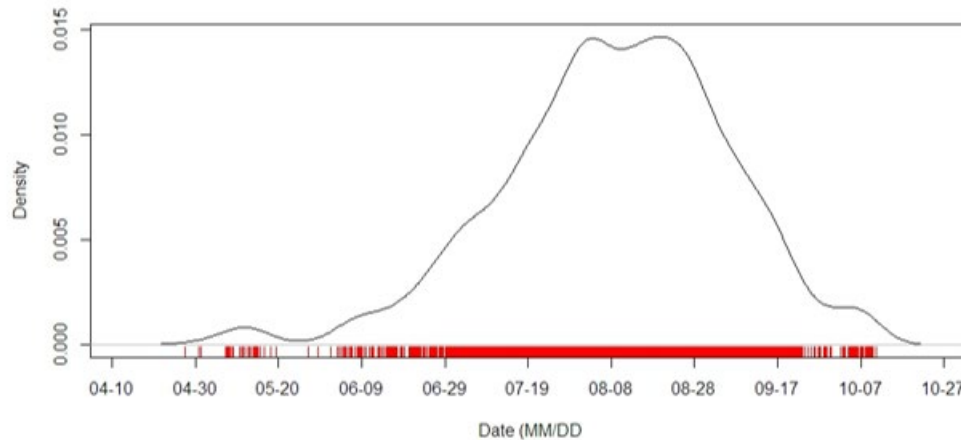
# Key Factors Influencing Consequences



- Proportion of watershed or drainage burned
- Severity of the burn
- Connectivity to reservoir
- Timing of burn in relation to onset of fall rains
- Intensity, duration and frequency of fall and winter precipitation events

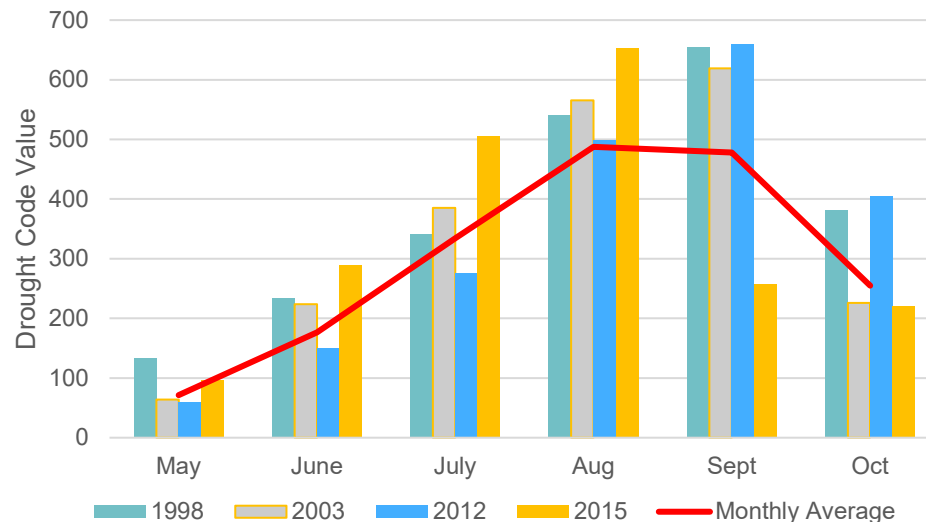


# Current Timing of Fire Season and Fire Danger



Average trend  
April to October

Seasonal probability of the number of days of FWI >28 on average in the GVWSA in the current climate from Perrakis et al. 2019



Considerable variation in  
forest fuel moisture and  
fire danger within and  
between years

# Projected Climate Change and Wildfire in the GVWSA

By the 2050s\*, on average:



More days above 25°C and more nights above 16°C

|        | Past (°C) | 2050s Change (°C) | 2080s Change (°C) |
|--------|-----------|-------------------|-------------------|
| Summer | 20        | 2.9 (2.3 to 5.1)  | 4.7 (4.1 to 8.7)  |
| Summer | 10        | 2.8 (2.3 to 4.3)  | 4.6 (3.9 to 7.4)  |



Longer, hotter, and more frequent heat waves

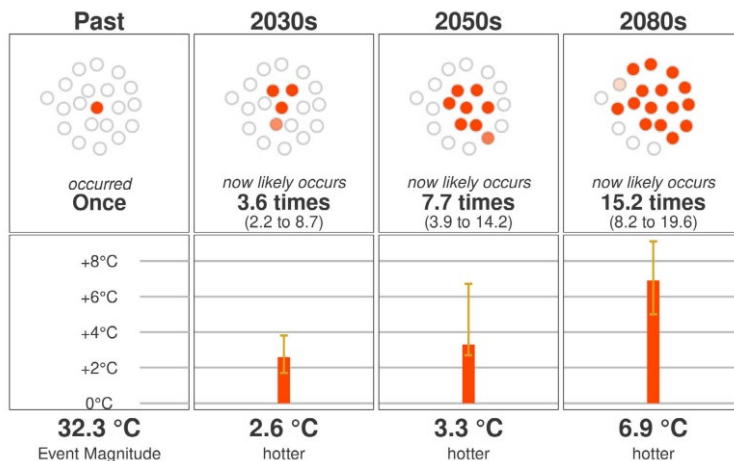
|  |    |               |               |                |
|--|----|---------------|---------------|----------------|
| HW Maximum length (days) <sup>13</sup> | 3  | 4 (3 to 5)    | 4.5 (4 to 10) | 8.5 (6 to 43)  |
| Number of days reaching TX >25 °C      | 12 | 28 (22 to 41) | 40 (30 to 70) | 62 (57 to 111) |



Less summer rainfall and longer dry spells

|        | Past (mm) | 2050s (mm) | 2080s (mm) | 2050s Change (%) | 2080s Change (%) |
|--------|-----------|------------|------------|------------------|------------------|
| Summer |           |            |            |                  |                  |
| Rain   | 159       | 135        | 129        | -15 (-32 to -2)  | -19 (-46 to -4)  |

Frequency and increase in intensity of an extreme daytime high temperature event that occurred once in 20 years on average in the past (1981-2010)




## Implications:

- Longer wildfire seasons
- Drier forest fuels for extended periods
- More days (and nights) when a wildfire can spread
- Greater tree mortality from drought and forest insects and diseases which will increase forest fuel loadings and h

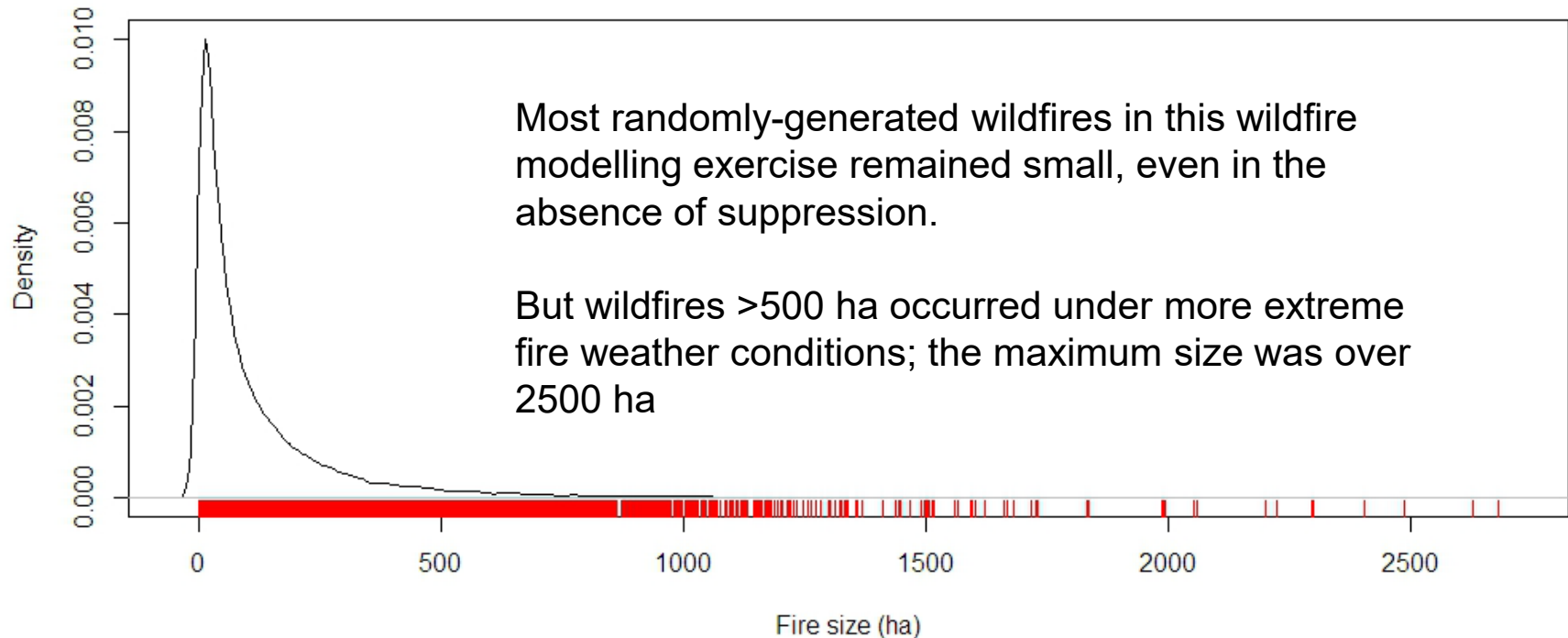
# Initiatives to Better Understand Wildfire Risk in a Changing Climate

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In partnership with the University of Victoria and the Canadian Forest Service:

- Identify fire size distribution and areas of high burn probability in the current climate.
  - Research past wildfires in the GVWSA and impacts to Sooke Lake Reservoir
  - Model the effects of climate change on forest in the GVWSA
  - Model how climate change will affect wildfire in these stands
  - Model the effectiveness of active forest management in reducing risk
  - Identify the location of high hazard forest stands in relation to values at risk
- 

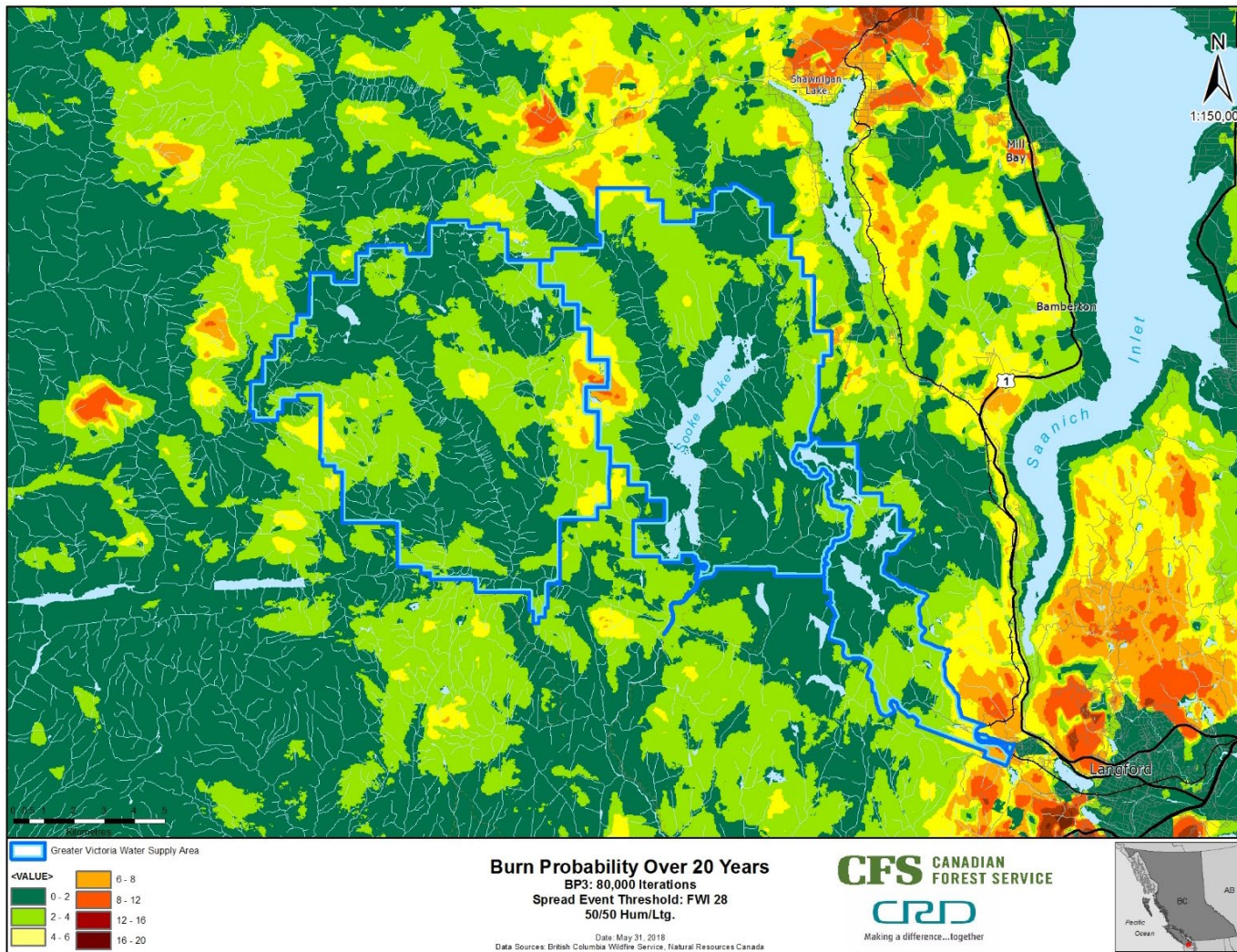
## Probability of Wildfire Size in Current Climate



**Frequency Distribution of Wildfire Size from the Burn Probability Analysis by Perrakis et al. (2019), considering only wildfires in the modelling that affected the Greater Victoria Water Supply Area (N=22,376, mode=4 ha).** The wildfire sizes were based on modelling using randomly generated ignitions and fire weather conditions and current fuel type designations in the GVWSA in the absence of any suppression response. While most wildfires did not grow beyond a few hectares, fires of several hundred hectares to over 2,500 ha occurred.



# Spatial Burn Probability in Current Climate



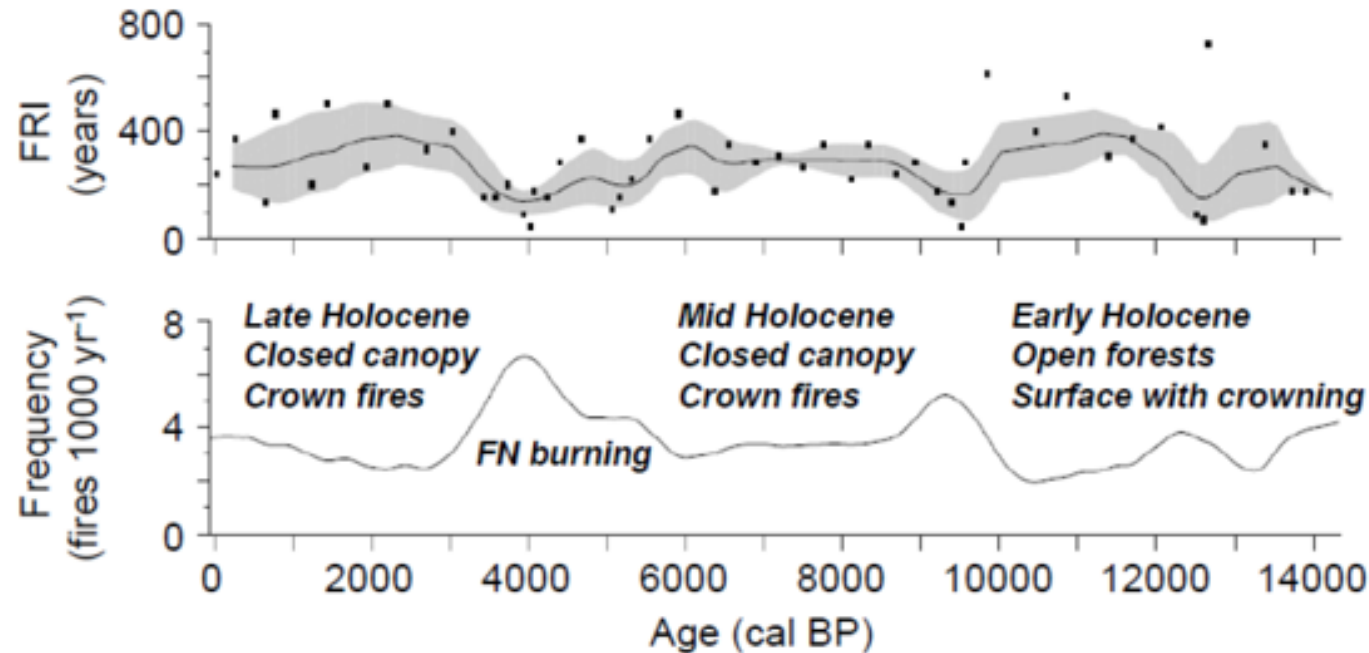
Randomly generated lightning and human-caused fires based on past ignition patterns.

Forest fuel types derived from general inventory information

Validation for existing focus on landscape level fuel breaks at or near boundaries of GVWSA

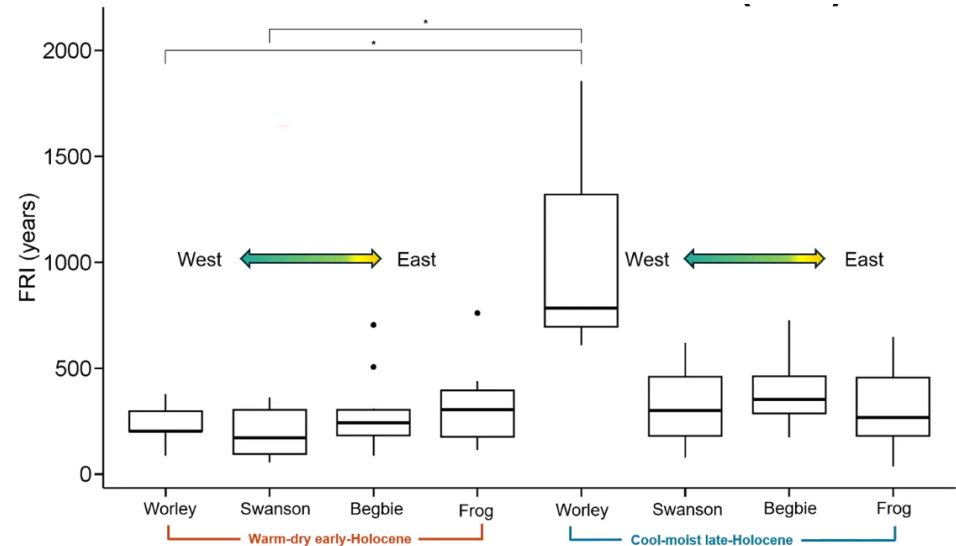
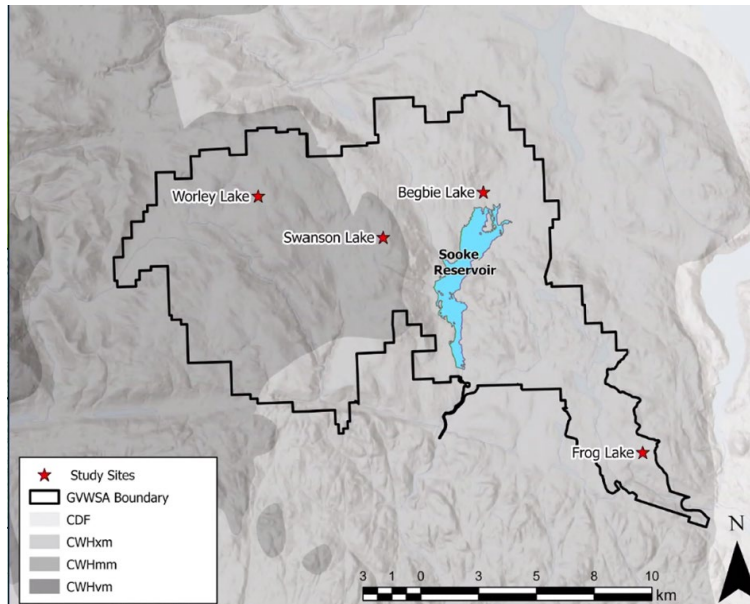
**Probability of Areas Within and Adjacent to the Greater Victoria Water Supply Area Burning During A Wildfire Using Existing Data on Wildfire Starts and Fire Weather Conditions (Perrakis et al. 2019)** The map output is based on 80,000 iterations of modelling randomly generated human and lightning-caused wildfire starts (based on past patterns) and area burned given existing forest fuel types without suppression. Burn probability is expressed burning over a 20-year period. The greatest threat of wildfire to the GVWSA in this simulation is from lightning strikes within the area into the area from surrounding lands.

# Wildfire History within the GVWSA



**Fire Return Interval, Frequency and Type in the Sooke Water Supply Area Over the Last 14,000 Years** (based on analysis of charcoal and pollen in a sediment core taken from Begbie Lake just north of Sooke Lake Reservoir). Figure taken from Brown and Trofymow 2016.

# Spatial Variation in Wildfire History within the GVWSA



Ross Horrell 2024

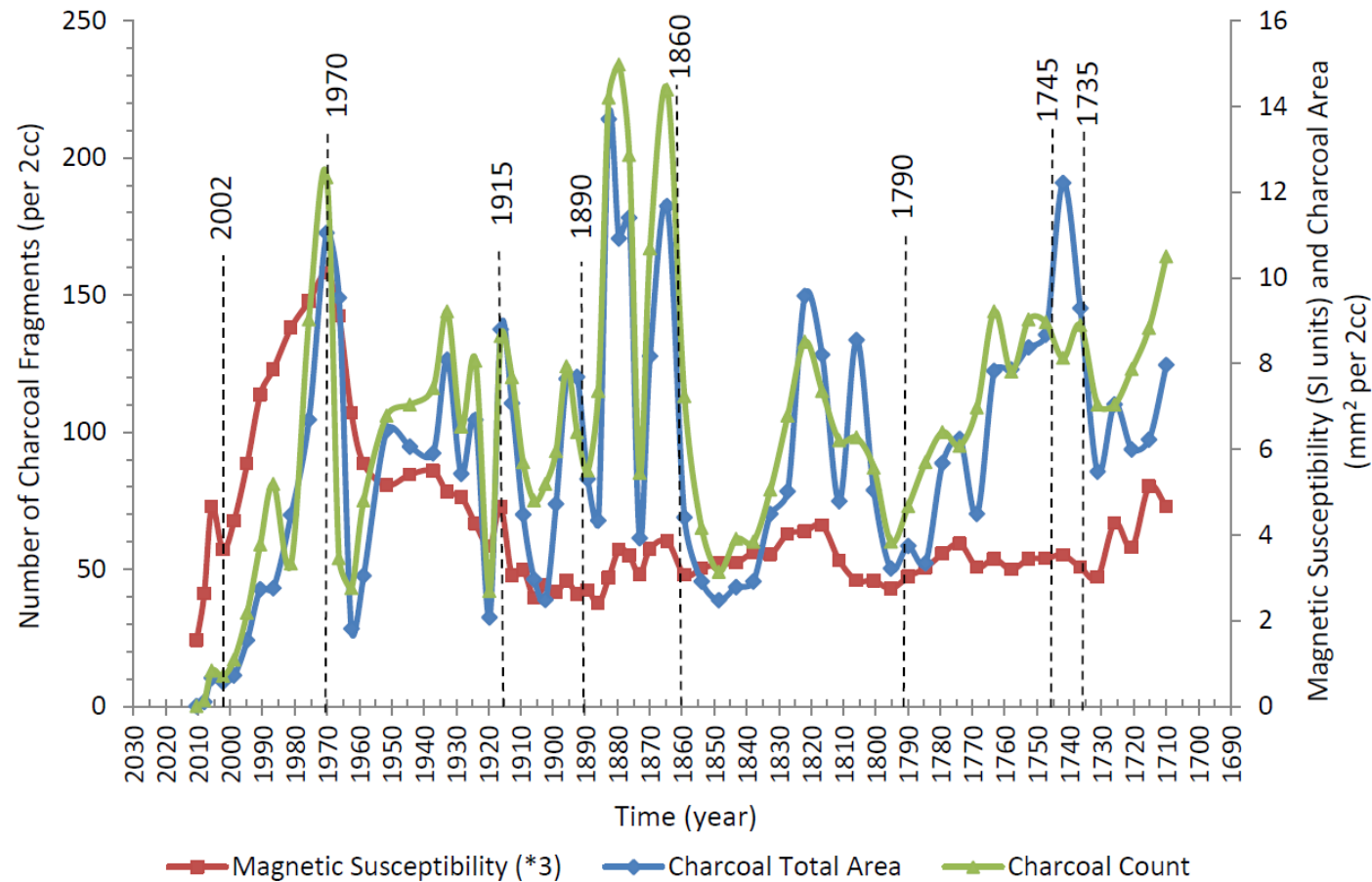
Sediment cores from small lakes used to compare past warm dry climate and current climate to assess potential effects of climate change (Herralt 2024).



# Evidence of Wildfire Impacts in Sooke Lake Reservoir



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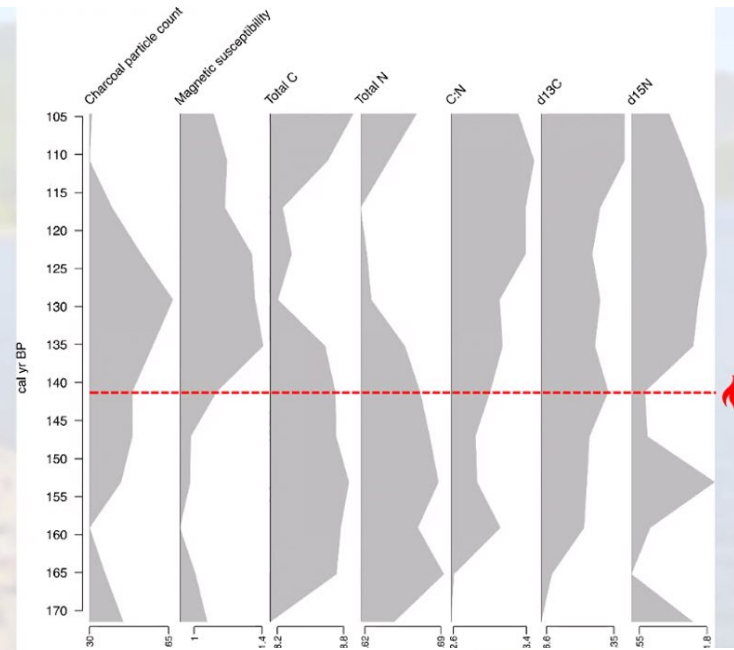


Trends in the Amount of Charcoal and Sedimentation within the North Basin Sample Site in Sooke Lake Reservoir in Relation to Years with Recorded Wildfire and Reservoir Raising Events (graph from Charpentier et al. 2015)

# Evidence of Wildfire Impacts in Sooke Lake Reservoir

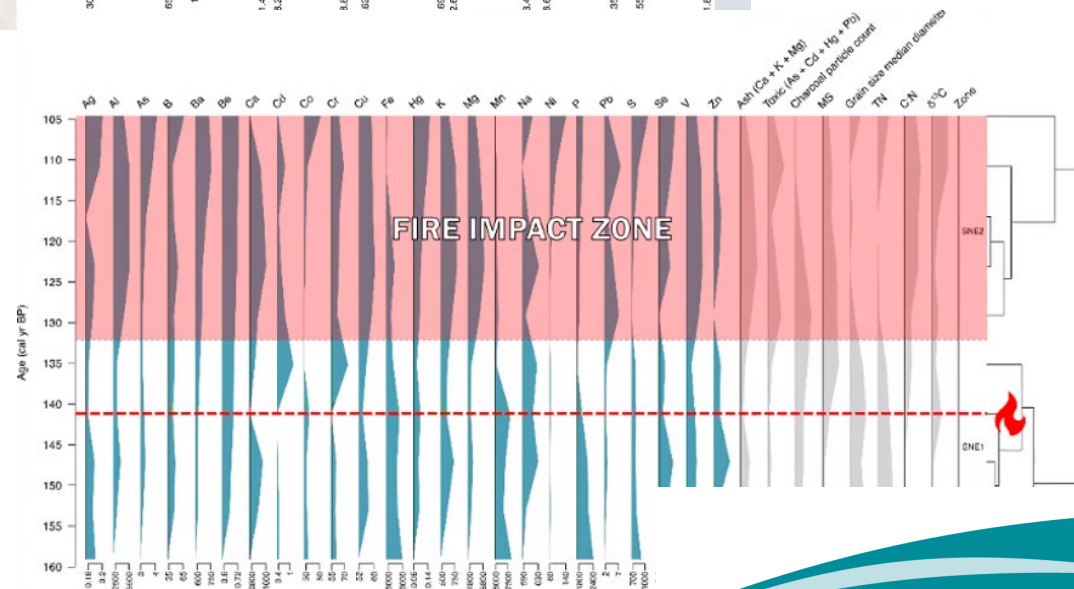
## EXAMPLE 2: SOOKE LAKE NORTH CA. 1810 CE FIRE INDICATORS

- Modern climate & vegetation
- Sediment sampled from the modern reservoir
- Key fire indicators including charcoal, magnetic susceptibility, total C & N, and  $\delta^{15}\text{N}$  change around 1810 CE
- Strong evidence of fire disturbance

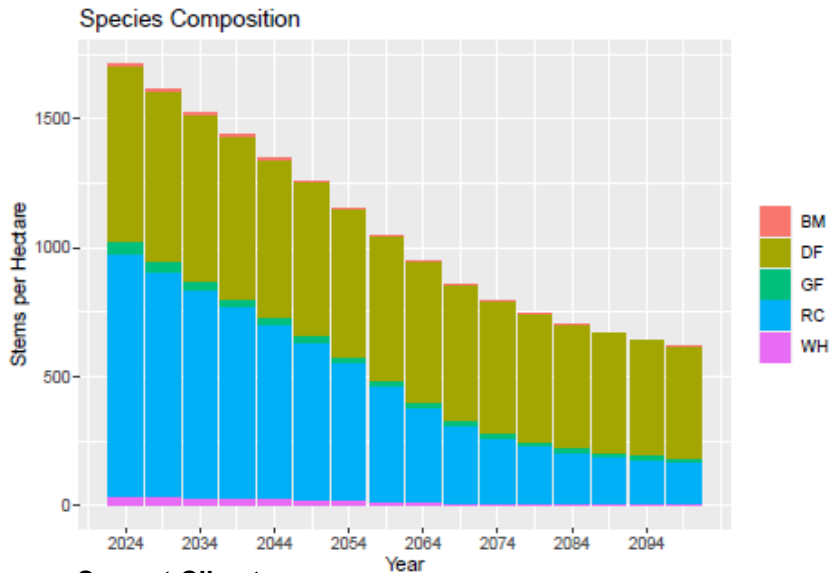


## INORGANIC ELEMENTS

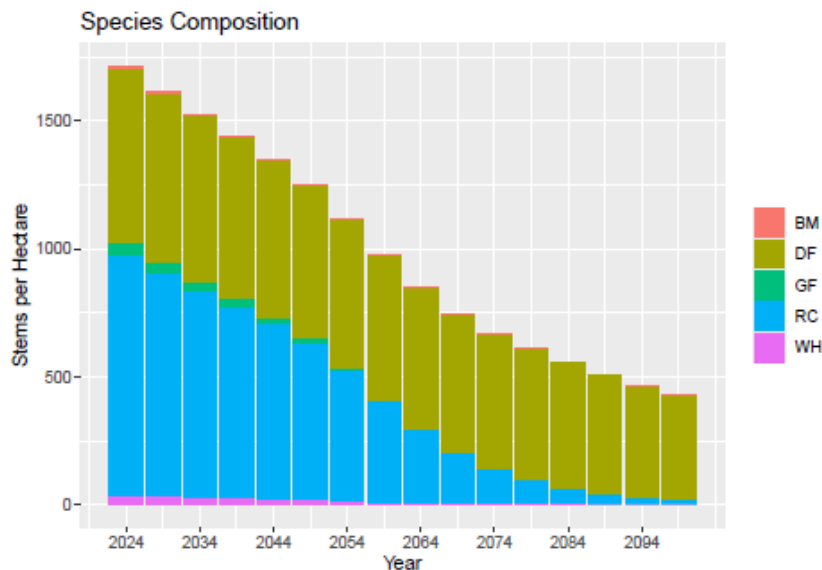
- Concentrations of many elements change significantly around 1815 CE
- Timing matches changes in other key fire indicators
- Strong evidence of fire disturbance
- Changes last for >25 years



# Modelling the Effects of Climate Change on Forests



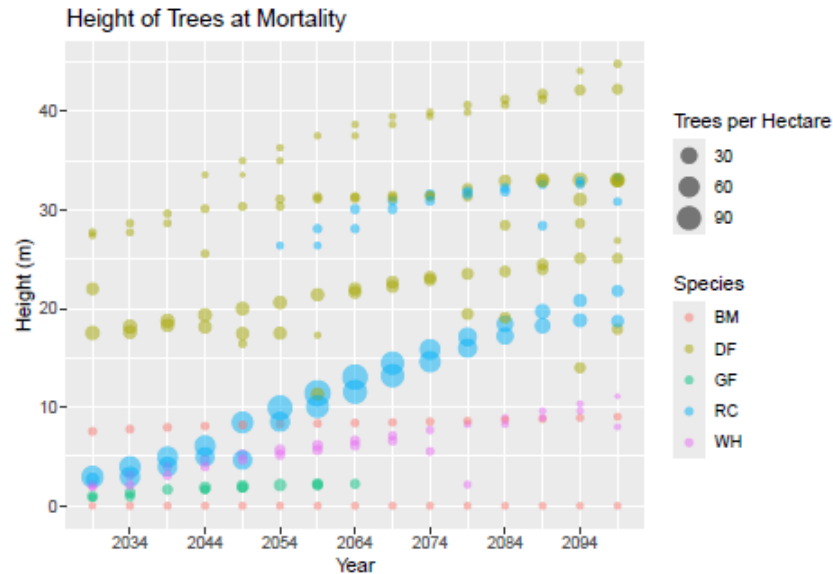
## Current Climate



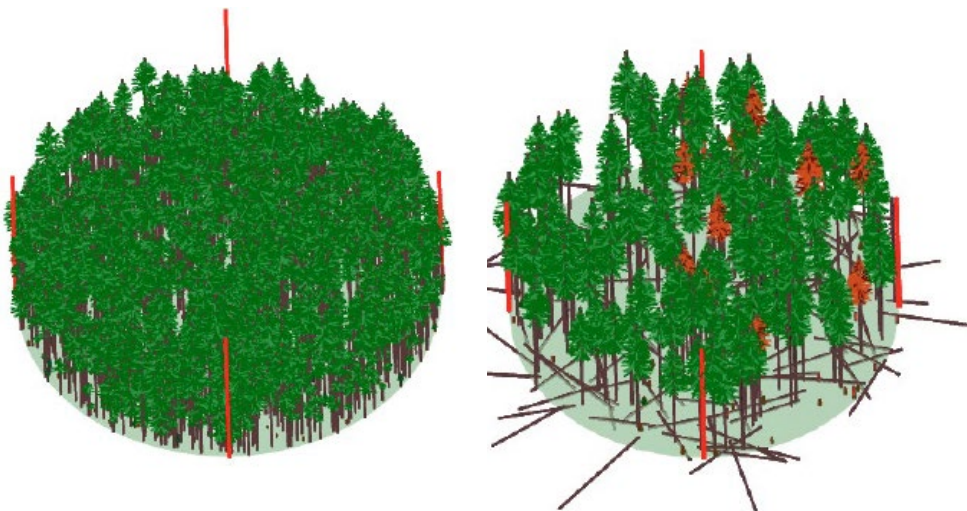
## SSP5-85

- NSERC Alliance Project with UVic, CFS, ESSA and CRD
- Applying the Forest Vegetation Simulator to coastal forest
- Using actual forest plot data from the GVWSA
- Modelling forest change between 2024-2100
- Nine climate models
- Three greenhouse gas scenarios
- Comparing effects with forest change using current climate

# Key Model Outputs



Current Climate



- Tree species composition over time by size categories
- Growth in height
- Growth in diameter
- Change in volume of material
- Tree mortality by species and size categories

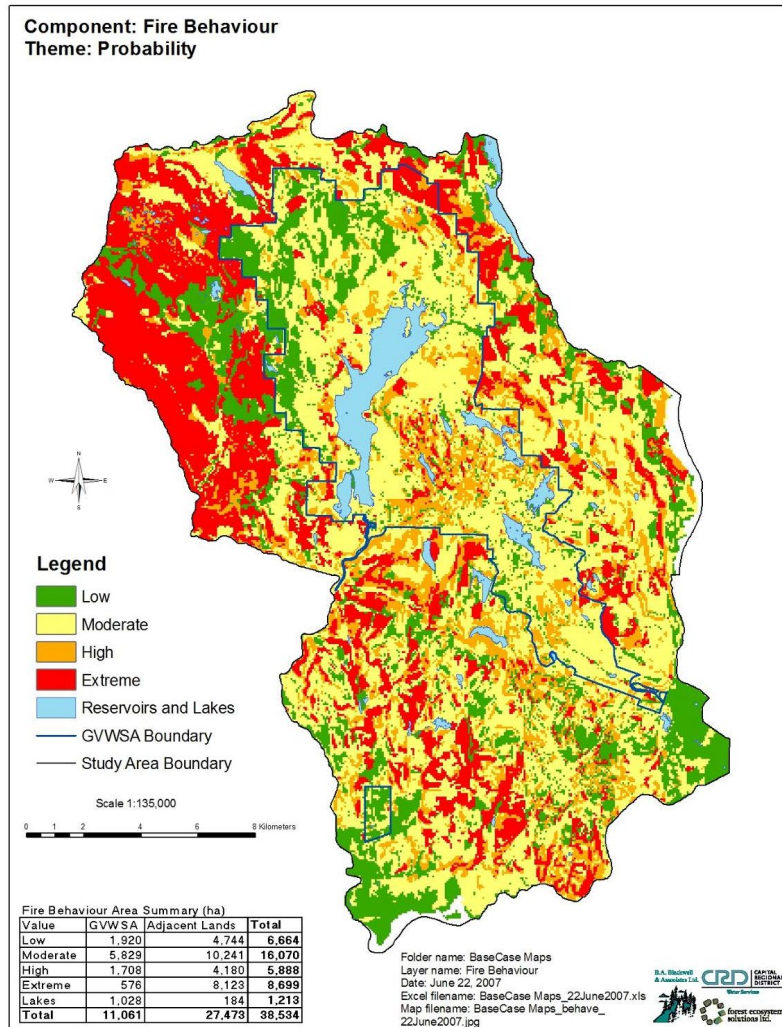


# Modelling Wildfire in a Changing Climate



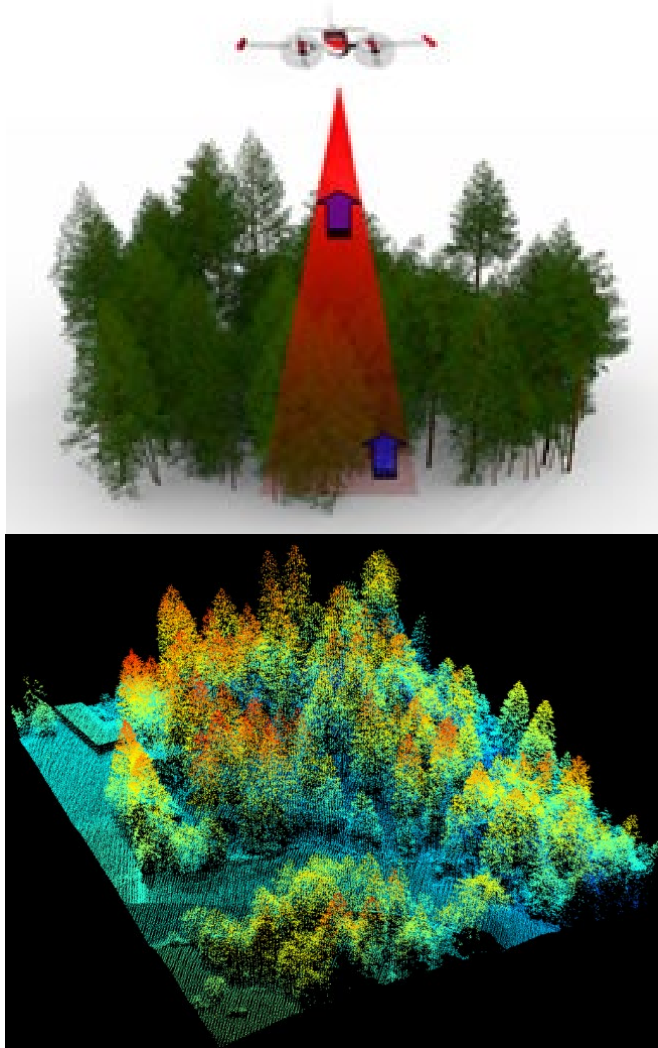
- Identify the characteristics of forest stands with high fuel hazard and crown fire potential
- Determine how climate change will affect fuel hazard and wildfire behaviour
- Determine most effective forest fuel treatments to reduce hazards

# Applying Model Results to the GVWSA



- Identify the location of stands with high wildfire hazard in relation to values at risk.
- Identify areas where forest fuel reduction would have the greatest benefit in reducing wildfire risk.
- Determine how much area needs to be treated to effectively reduce risk.
- Given limitations with existing forest inventories in identifying these stands, a new inventory approach is needed.

# LiDAR-Derived Enhanced Forest Inventory

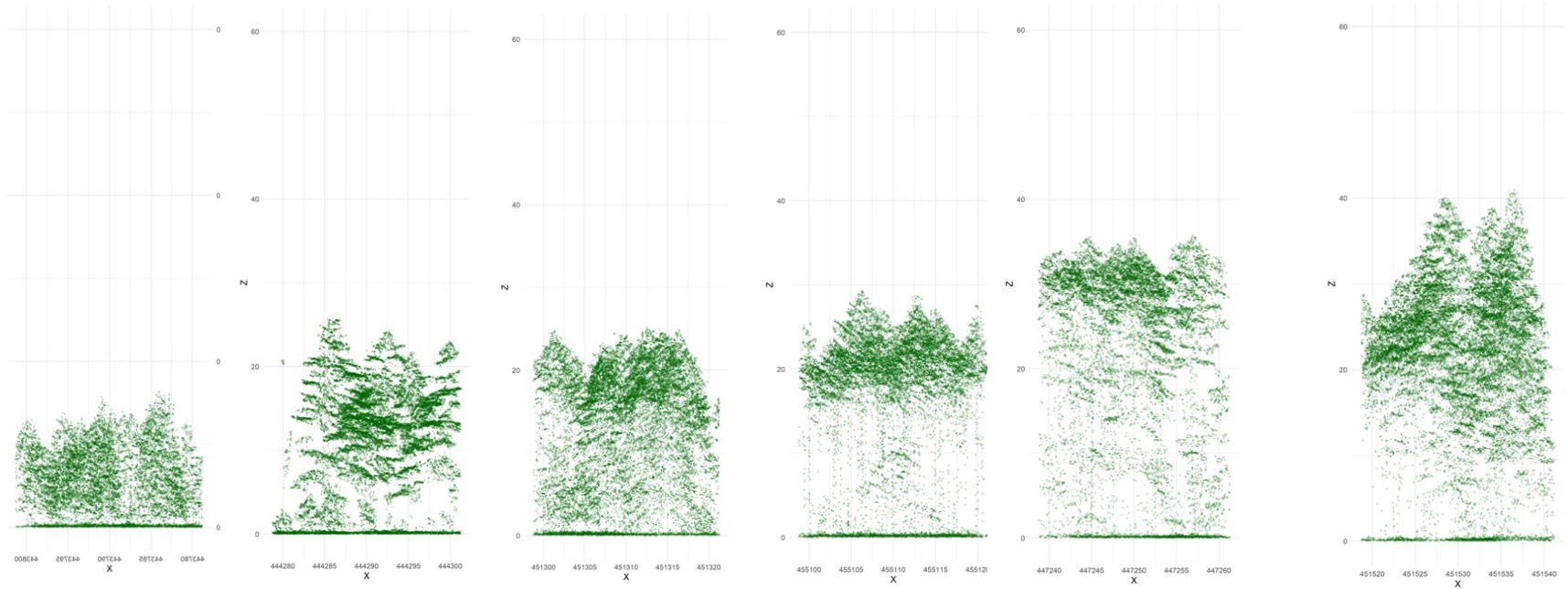


- LiDAR generates a three dimensional 'point cloud' of all ground features.
- The points are analyzed to identify forest structure and representative structural types.
- These structure of these forest types can then be related to the high hazard forest stands identified in the wildfire and climate modelling.

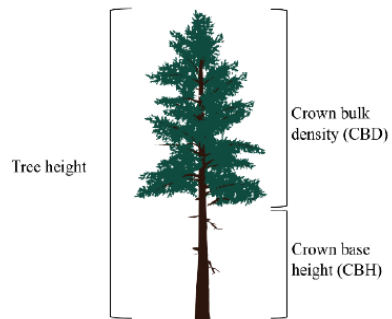
This project is being carried out for the CRD by the University of Victoria in consultation with the Forest Inventory and Analysis Branch of the Provincial Ministry of Forests.



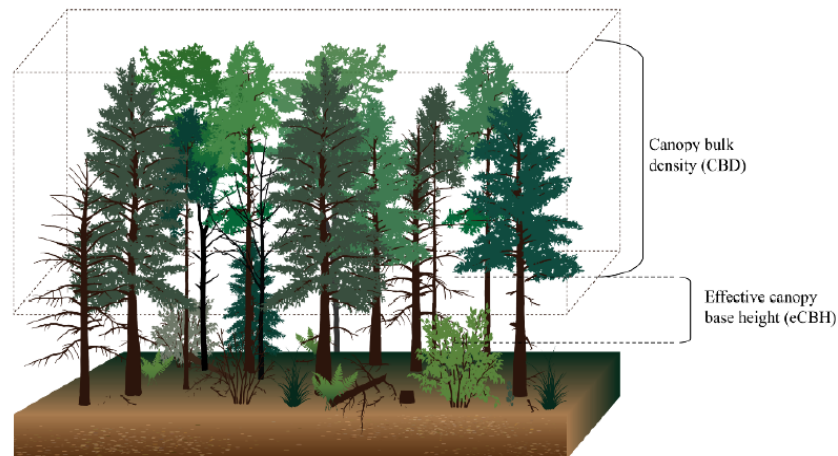
# Forest Types Related to Fuel Type Characteristics



**Tree scale**



**Stand scale**

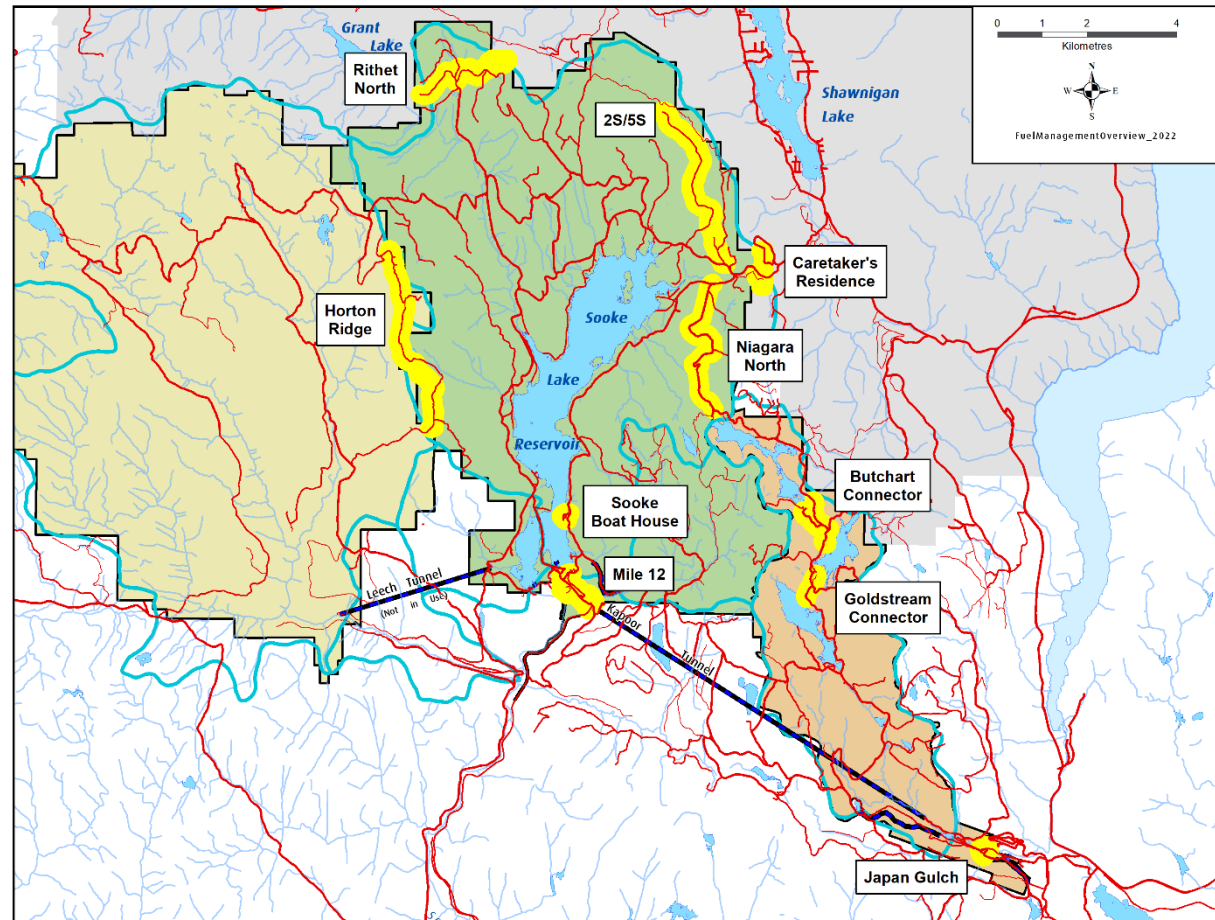
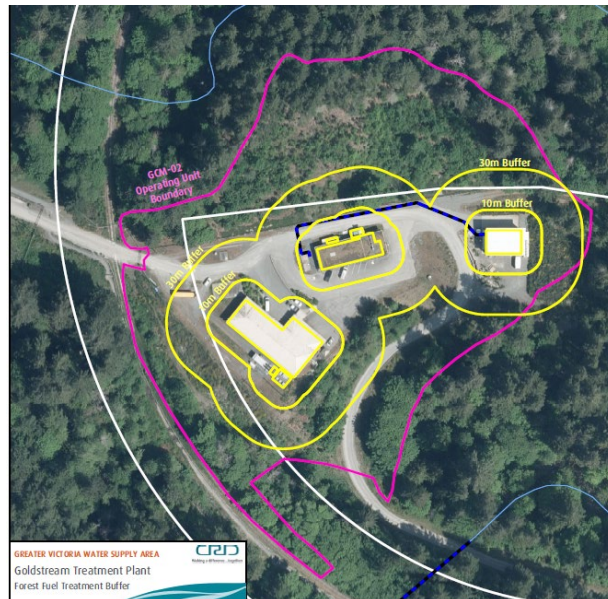
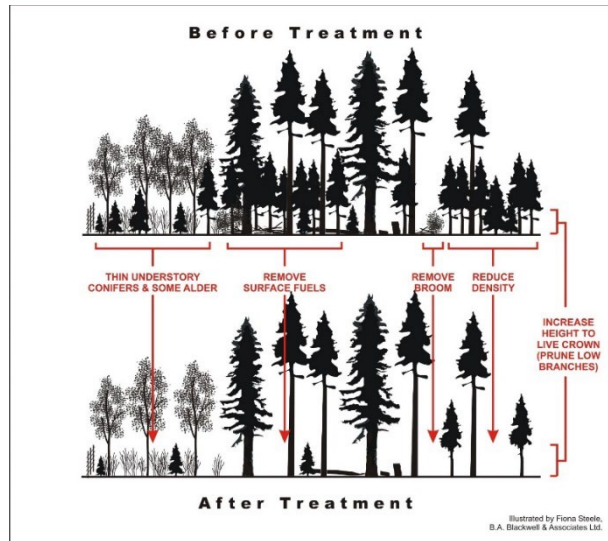





# Results Will be Used to Enhance Existing Forest Fuel Management in the GVWSA



Making a difference...together

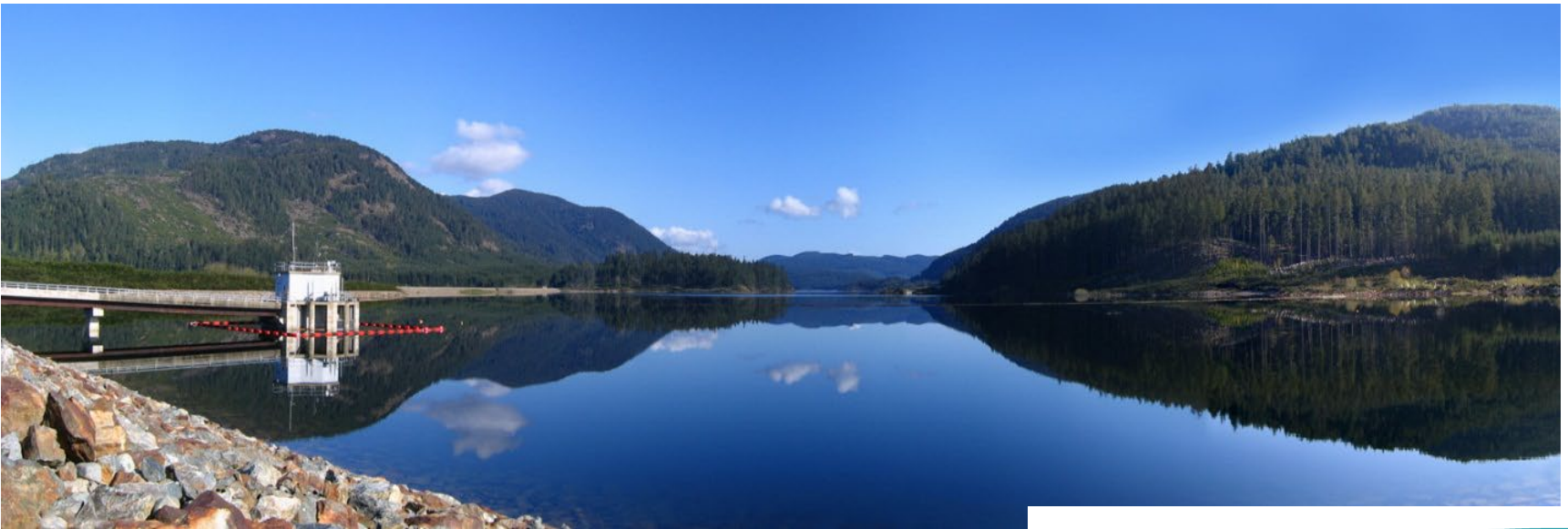


The challenge now is to identify high hazard forest stands within the GVWSA that are priorities for forest fuel reduction

- Wildfire is an integral part of the ecology of the Douglas-fir forests in the GVWSA. Douglas-fir is adapted to fire and resilient in a warmer and drier climate.
  - Large-scale wildfires with high burn severity occur infrequently when multiple factors align. In such wildfires, all forest types can burn.
  - Projected climate change will increase the length of fire season, the drying of forest fuels, and the number of dead trees. It is uncertain if lightning strikes, or major summer outflow and wind events will increase with projected climate change.
  - Existing wildfire program enhancements, fire smart fuel reduction, and forest fuel corridors to contain wildfire spread have reduced current and future risk associated with wildfire in the GVWSA.
  - The results of modelling changes to forest and wildfire with climate change and the enhanced forest inventory will provide the information needed to identify priority stands and their location in relation to values at risk and inform decisions relating to active management in the upcoming forest management plan.
- 
- A decorative graphic consisting of several overlapping, curved teal and light blue shapes that sweep across the bottom right corner of the slide.



# Questions?





# Capital Regional District

## **HOTSHEET AND ACTION LIST**

### Regional Water Supply Commission

Wednesday, January 15, 2025

1:30 PM

CRD Board Room  
6<sup>th</sup> Floor, 625 Fisgard Street  
Victoria, BC

The following is a quick snapshot of the FINAL Regional Water Supply Commission decisions made at the meeting. The minutes will represent the official record of the meeting. A name has been identified beside each item for further action and follow-up.

#### **2. ELECTION OF CHAIR**

Commissioner Baird was acclaimed as Chair.

#### **3. ELECTION OF VICE CHAIR**

Commissioner Harper was elected Vice Chair.

#### **5. ADOPTION OF MINUTES**

The minutes of the November 20, 2024 and November 22, 2024 meetings were adopted as circulated.

#### **9. COMMISSION BUSINESS**

The following was received for information:

9.1 Summary of Recommendations from Other Water Commissions

9.2 Water Watch Report

#### **13. MOTION TO CLOSE THE MEETING**

That the meeting be closed in accordance with the Community Charter, Part 4, Division 3:

1. Personal information under Section 90 (1)(a) [1 Item]

**CARRIED**

#### **14. RISE AND REPORT**

The Commission rose from its closed session without report.



# Capital Regional District

## HOTSHEET AND ACTION LIST

### Regional Water Supply Commission

Friday, November 22, 2024

11:30 AM

Board Room, 6<sup>th</sup> Floor  
625 Fisgard Street  
Victoria, BC

The following is a quick snapshot of the FINAL Regional Water Supply Commission decisions made at the meeting. The minutes will represent the official record of the meeting. A name has been identified beside each item for further action and follow-up.

#### 8. COMMISSION BUSINESS

##### 8.3 Bylaw No. 4652, Water Advisory Committee Bylaw Amendment

- Recommendation:** The Regional Water Supply Commission recommends that the Committee of the Whole recommend that the Capital Regional District Board:
- a) That Bylaw No. 4652 cited as "Water Advisory Committee Bylaw No. 1, 1997, Amendment Bylaw No. 1, 2024", be introduced and read a first, second, and a third time.
  - b) That Bylaw No. 4652 be adopted.
  - c) That, upon adoption of Bylaw No. 4652, the revised Water Advisory Committee Terms of Reference be approved for 2025.

**CARRIED**

**The following items were received for information:**

**8.4. Capital Project - Field Operations Centre Building**

**8.5. 2024 Public Education Summary - Greater Victoria Water Supply Area**



# Capital Regional District

## **HOTSHEET AND ACTION LIST**

### Regional Water Supply Commission

Wednesday, November 20, 2024

11:30 AM

CRD Board Room  
6<sup>th</sup> Floor, 625 Fisgard Street  
Victoria, BC

The following is a quick snapshot of the FINAL Regional Water Supply Commission decisions made at the meeting. The minutes will represent the official record of the meeting. A name has been identified beside each item for further action and follow-up.

#### 3. ADOPTION OF MINUTES

The minutes of the October 16, 2024 meeting were adopted as circulated.

#### 7. CONSENT AGENDA

Items 7.1 and 7.2 were received for information.

#### 8. COMMISSION BUSINESS

##### 8.1 Regional Water Supply Development Cost Charges Waivers or Reductions Options

###### Recommendation:

1. That, subject to Regional Water Supply Commission approval of the Regional Water Supply Development Cost Charges Bylaw, staff be directed to develop a waivers or reductions program and make the necessary amendments to the 2025-2029 financial plan.
2. That, once funding is in place, staff be directed to proceed with the development of a waivers or reductions bylaw, focussed on not-for-profit, non-governmental affordable housing agencies for the Regional Water Supply Development Cost Charges program.

**CARRIED**

##### 8.2 Strategic Plan Engagement Summary

**RECEIVED**

Motion to adjourn the November 20, 2024 meeting at 1:09 pm and reconvene at 9:00 am on Friday, November 22, 2024.

**CARRIED**

### 8.3 Water Advisory Committee Bylaw Amendment

- Recommendation:** The Regional Water Supply Commission recommends to the Capital Regional District Board:
1. That Bylaw No. 4652 cited as “Water Advisory Committee Bylaw No. 1, 1997, Amendment Bylaw No. 1, 2024”, be introduced and read a first, second, and a third time.
  2. That Bylaw No. 4652 be adopted.

### 8.4 Capital Project – Field Operations Centre Building

**CARRIED**

**RECEIVED**

### 8.5 2024 Public Education Summary – Greater Victoria Water Supply Area

**RECEIVED**

**CAPITAL REGIONAL DISTRICT - INTEGRATED WATER SERVICES****Water Watch**

Issued March 17, 2025

**Water Supply System Summary:****1. Useable Volume in Storage:**

| Reservoir  | March 31<br>5 Year Ave |        | March 31/24 |        | March 16/25 |        | % Existing<br>Full Storage |
|------------|------------------------|--------|-------------|--------|-------------|--------|----------------------------|
|            | ML                     | MIG    | ML          | MIG    | ML          | MIG    |                            |
| Sooke      | 92,658                 | 20,385 | 92,727      | 20,400 | 92,727      | 20,400 | 100.0%                     |
| Goldstream | 9,311                  | 2,049  | 9,825       | 2,162  | 9,907       | 2,179  | 99.9%                      |
| Total      | 101,970                | 22,433 | 102,552     | 22,561 | 102,634     | 22,579 | 100.0%                     |

**2. Average Daily Demand:**

|                                |           |            |
|--------------------------------|-----------|------------|
| For the month of March         | 105.2 MLD | 23.15 MIGD |
| For week ending March 16, 2025 | 104.9 MLD | 23.08 MIGD |
| Max. day March 2025, to date:  | 111.3 MLD | 24.48 MIGD |

**3. Average 5 Year Daily Demand for March**

|                       |   |  |
|-----------------------|---|--|
| Average (2020 - 2024) | 104.6 MLD <sup>1</sup>                    | 23.01 MIGD <sup>2</sup>                              |
|                       | <sup>1</sup> MLD = Million Litres Per Day | <sup>2</sup> MIGD = Million Imperial Gallons Per Day |

**4. Rainfall March:**

|                         |                                  |
|-------------------------|----------------------------------|
| Average (1914 - 2024):  | 159.0 mm                         |
| Actual Rainfall to Date | 92.6 mm (58% of monthly average) |

**5. Rainfall: Sep 1- Mar 16**

|                        |                             |
|------------------------|-----------------------------|
| Average (1914 - 2024): | 1,339.1 mm                  |
| 2024/2025              | 1,152.0 mm (86% of average) |

**6. Water Conservation Action Required:**

To avoid possible leaks this spring, now is the time to winterize your sprinkler system.  
Visit our website at [www.crd.bc.ca/water](http://www.crd.bc.ca/water) for more information.

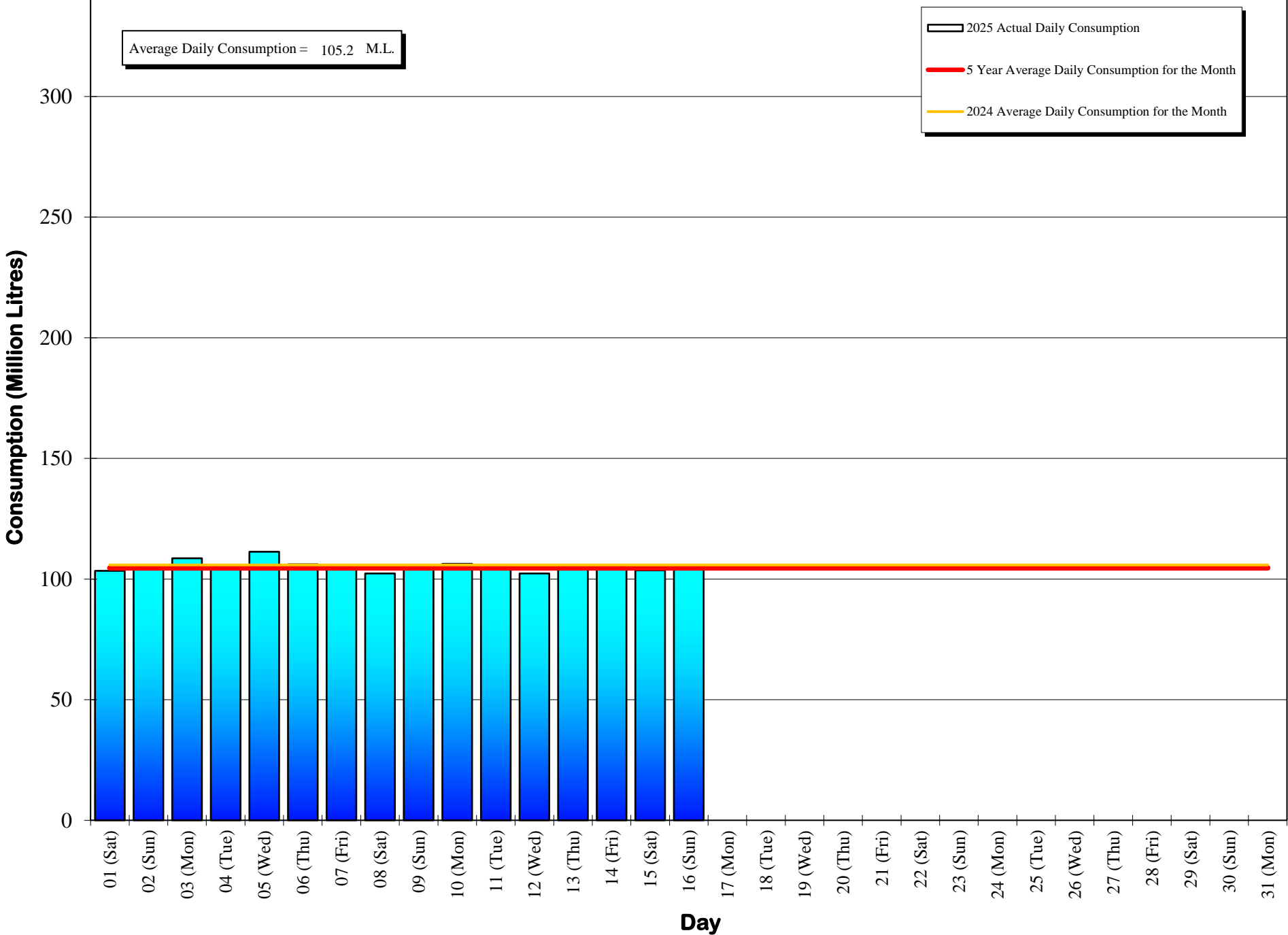
If you require further information, please contact:

Alicia Fraser, P. Eng.  
General Manager, CRD - Integrated Water Services  
or  
Glenn Harris, Ph D., RPBio  
Senior Manager - Environmental Protection

Capital Regional District Integrated Water Services  
479 Island Highway  
Victoria, BC V9B 1H7  
(250) 474-9600



Daily Consumption  
March 2025



## Daily Consumptions: - March 2025

| Date         | Total Consumption  |                     | Air Temperature @ Japan Gulch |          | Weather Conditions | Precipitation @ Sooke Res.: 12:00am to 12:00am |                             |               |
|--------------|--------------------|---------------------|-------------------------------|----------|--------------------|--|-----------------------------|---------------|
|              | (ML) <sup>1.</sup> | (MIG) <sup>2.</sup> | High (°C)                     | Low (°C) |                    | Rainfall (mm)                                  | Snowfall <sup>2.</sup> (mm) | Total Precip. |
| 01 (Sat)     | 103.4              |                     | 22.8                          | 12       | 4                  | Cloudy / P. Sunny                              | 0.0                         | 0.0           |
| 02 (Sun)     | 104.3              |                     | 22.9                          | 12       | 6                  | Cloudy / Showers                               | 0.2                         | 0.2           |
| 03 (Mon)     | 108.6              |                     | 23.9                          | 11       | 5                  | Cloudy / P. Sunny                              | 0.0                         | 0.0           |
| 04 (Tue)     | 104.6              |                     | 23.0                          | 8        | 4                  | Cloudy / Showers                               | 7.4                         | 0.0           |
| 05 (Wed)     | 111.3              | <=Max               | 24.5                          | 9        | 2                  | Cloudy / P. Sunny / Showers                    | 0.4                         | 0.0           |
| 06 (Thu)     | 106.1              |                     | 23.4                          | 11       | 1                  | Sunny / P. Cloudy                              | 0.0                         | 0.0           |
| 07 (Fri)     | 104.2              |                     | 22.9                          | 10       | 1                  | Cloudy / P. Sunny / Showers                    | 0.2                         | 0.0           |
| 08 (Sat)     | 102.3              | <=Min               | 22.5                          | 9        | 5                  | Cloudy / Rain                                  | 27.0                        | 0.0           |
| 09 (Sun)     | 104.8              |                     | 23.1                          | 8        | 1                  | Cloudy / Showers                               | 7.9                         | 0.0           |
| 10 (Mon)     | 106.3              |                     | 23.4                          | 9        | 0                  | Cloudy / P. Sunny                              | 0.0                         | 0.0           |
| 11 (Tue)     | 105.3              |                     | 23.2                          | 6        | 2                  | Cloudy / Showers                               | 8.2                         | 0.0           |
| 12 (Wed)     | 102.3              |                     | 22.5                          | 8        | 3                  | Cloudy / Showers                               | 9.2                         | 0.0           |
| 13 (Thu)     | 105.3              |                     | 23.2                          | 7        | 1                  | Cloudy / P. Sunny / Showers                    | 4.1                         | 0.0           |
| 14 (Fri)     | 105.7              |                     | 23.2                          | 8        | 1                  | Cloudy / Showers                               | 1.7                         | 0.0           |
| 15 (Sat)     | 103.6              |                     | 22.8                          | 7        | 2                  | Cloudy / Rain                                  | 17.6                        | 0.0           |
| 16 (Sun)     | 105.5              |                     | 23.2                          | 8        | 2                  | Cloudy / P. Sunny / Showers                    | 8.7                         | 0.0           |
| 17 (Mon)     |                    |                     |                               |          |                    |  |                             |               |
| 18 (Tue)     |                    |                     |                               |          |                    |  |                             |               |
| 19 (Wed)     |                    |                     |                               |          |                    |  |                             |               |
| 20 (Thu)     |                    |                     |                               |          |                    |  |                             |               |
| 21 (Fri)     |                    |                     |                               |          |                    |  |                             |               |
| 22 (Sat)     |                    |                     |                               |          |                    |  |                             |               |
| 23 (Sun)     |                    |                     |                               |          |                    |  |                             |               |
| 24 (Mon)     |                    |                     |                               |          |                    |  |                             |               |
| 25 (Tue)     |                    |                     |                               |          |                    |  |                             |               |
| 26 (Wed)     |                    |                     |                               |          |                    |  |                             |               |
| 27 (Thu)     |                    |                     |                               |          |                    |  |                             |               |
| 28 (Fri)     |                    |                     |                               |          |                    |  |                             |               |
| 29 (Sat)     |                    |                     |                               |          |                    |  |                             |               |
| 30 (Sun)     |                    |                     |                               |          |                    |  |                             |               |
| 31 (Mon)     |                    |                     |                               |          |                    |  |                             |               |
| <b>TOTAL</b> | 1683.6 ML          | 370.37 MIG          |                               |          |                    | 92.6   | 0                           | 92.6          |
| <b>MAX</b>   | 111.3              | 24.48               | 12                            | 6        |                    | 27.0   | 0                           | 27.0          |
| <b>AVG</b>   | 105.2              | 23.15               | 8.9                           | 2.5      |                    | 5.8  | 0                           | 5.8           |
| <b>MIN</b>   | 102.3              | 22.50               | 6                             | 0        |                    | 0.0  | 0                           | 0.0           |

1. ML = Million Litres

2. 10% of snow depth applied to rainfall figures for snow to water equivalent.

|  |            |
|--|------------|
| Average Rainfall for March (1914-2024)         | 159.0 mm   |
| Actual Rainfall: March                         | 92.6 mm    |
| % of Average                                   | 58%        |
| Average Rainfall (1914-2024): Sept 01 - Mar 16 | 1,339.1 mm |
| Actual Rainfall (2023/24): Sept 01 - Mar 16    | 1,152.0 mm |
| % of Average                                   | 86%        |

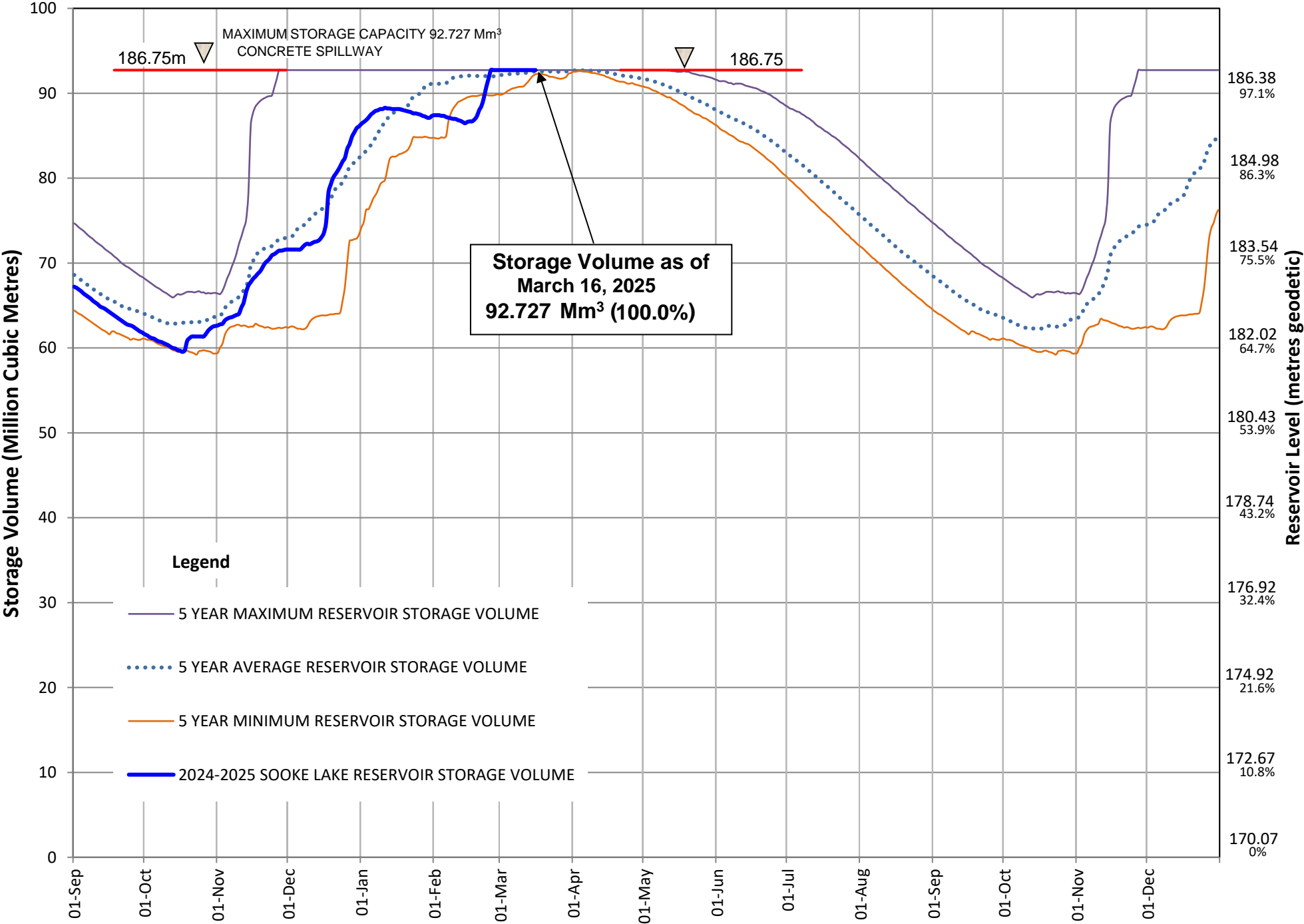
|                                      |
|--------------------------------------|
| Number days with precip. 0.2 or more |
| 12                                   |

Water spilled at Sooke Reservoir to date (since Sept. 1) =

0.88 Billion Imperial Gallons

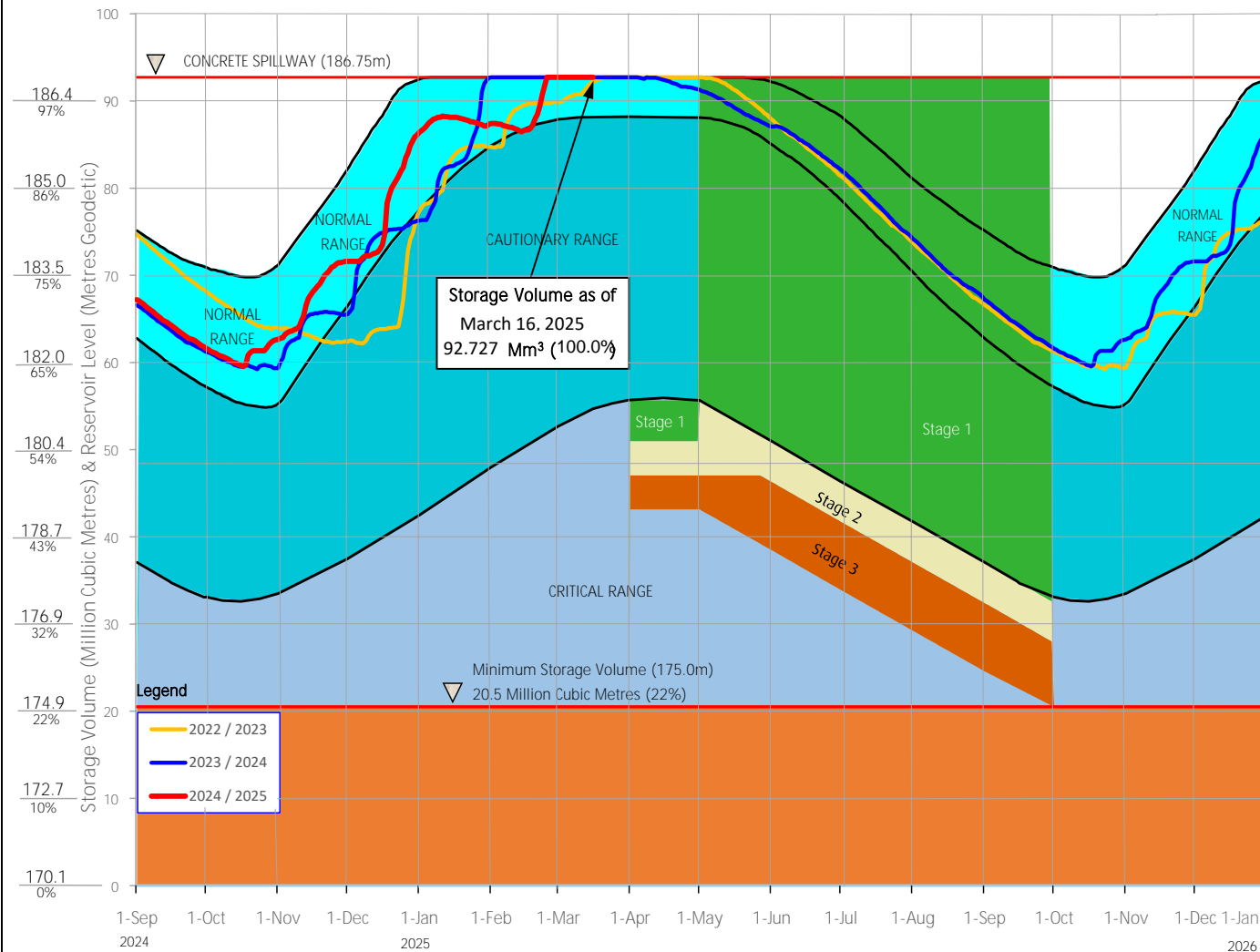
4.00 Billion Litres

**SOOKE LAKE RESERVOIR STORAGE SUMMARY**  
**2024 / 2025**



# Sooke Lake Reservoir Storage Level

## Water Supply Management Plan



## FAQs

How are water restriction stages determined?

Several factors are considered when determining water use restriction stages, including,

1. Time of year and typical seasonal water demand trends;
2. Precipitation and temperature conditions and forecasts;
3. Storage levels and storage volumes of water reservoirs (Sooke Lake Reservoir and the Goldstream Reservoirs) and draw down rates;
4. Stream flows and Inflows Into Sooke Lake Reservoir;
5. Water usage, recent consumption and trends; and customer compliance with restriction;
6. Water supply system performance.

The Regional Water Supply Commission will consider the above factors in making a determination to implement stage 2 or 3 restrictions, under the Water Conservation Bylaw.

At any time of the year and regardless of the water use restriction storage, customers are encouraged to limit discretionary water use in order to maximize the amount of water in the Regional Water Supply System Reservoirs available for nondiscretionary potable water use.

Stage 1 is normally initiated every year from May 1 to September 30 to manage outdoor use during the summer months. During this time, lawn watering is permitted twice a week at different times for even and odd numbered addresses.

Stage 2 is initiated when it is determined that there is an acute water supply shortage. During this time, lawn water is permitted once a week at different times for even and odd numbered addresses.

Stage 3 is initiated when it is determined that there is a severe water supply shortage. During this time, lawn watering is not permitted. Other outdoor water use activities are restricted as well.

For more information, visit [www.crd.bc.ca/drinkingwater](http://www.crd.bc.ca/drinkingwater)

**CRD**  
Making a difference...together

**Useable Reservoir Volumes in Storage for March 16, 2025**

