

**REPORT TO REGIONAL WATER SUPPLY COMMISSION  
MEETING OF WEDNESDAY, NOVEMBER 20, 2019**

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**SUBJECT      2019 Wildfire Management - Greater Victoria Water Supply Area**

**ISSUE SUMMARY**

To report on wildfire management conditions and activities in the Greater Victoria Water Supply Area (GVWSA) in 2019.

**BACKGROUND**

Overview

The 2019 wildfire season was fairly benign across the Province, with the second lowest number of fires in the last decade, and the third lowest area burned. The interior of the Province had a very wet summer, while Southern Vancouver Island experienced early season drought followed by wetter conditions resulting in a typical coastal fire season of 17 fire starts. There was one fire within the GVWSA, started by a tree falling on a powerline adjacent to Japan Gulch Reservoir on July 2. The fire was detected by the Watershed Protection early morning patrol, and brought under control within the working day.



July 2, Hatchery Road Fire (V60843) near Japan Gulch Reservoir, the tree that fell along with the downed powerline can be seen.

**Wildfire Season Weather**

The season started with moderate snow pack, but a hot dry March - May quickly diminished this soil moisture, and brought concerns about significant drought and an early start to burning conditions. Fortunately, a consistently northern weather flow brought moderating temperatures, occasional periods of rain, and higher humidity. The result was a summer with 25% more precipitation than long-term averages, and 135% more precipitation than 2018 between the end of June and early

September (Figure 1). General dry conditions ended abruptly with several days of rain from September 10 - 15.

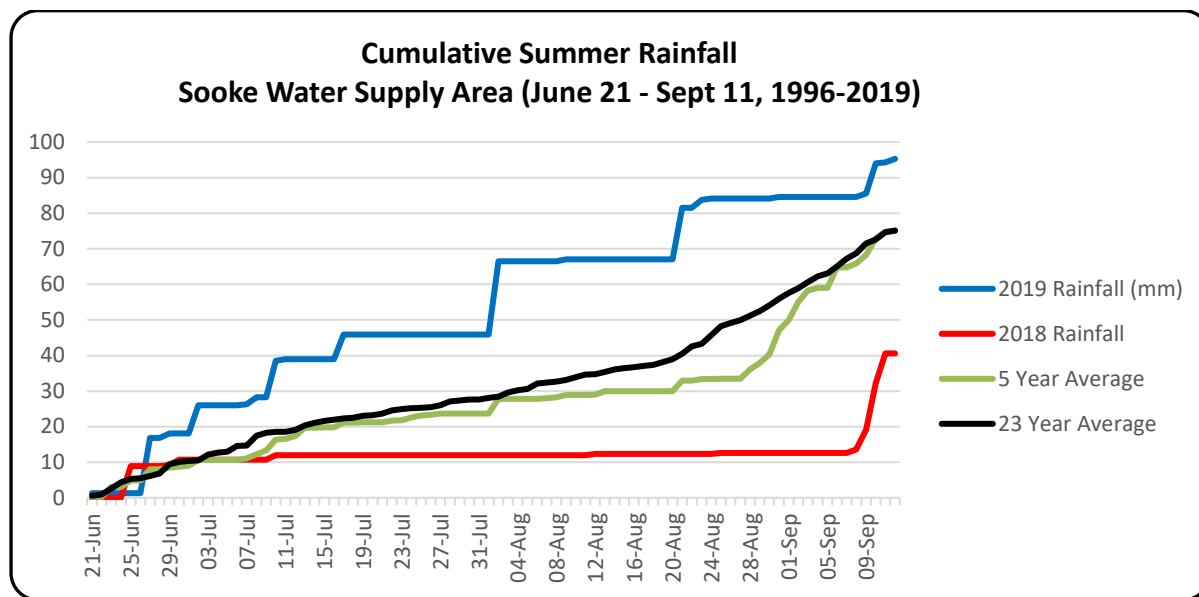


Figure 1: Cumulative Summer Rainfall, 2019 vs 2018, 5-year average and long term average.

### GVWSA Fire Hazard

In 2019, well spaced and significant rain during the fire season moderated the fire hazard and while the Fire Danger Rating remained High for long periods, it was the least number of days in Extreme since 2007 (Figure 2). It can also be noticed in Figure 2, that summers of lower Fire Danger Rating have occurred every six years over the last 18 years, although the dip in 2019 was not as low as in previous cycles.

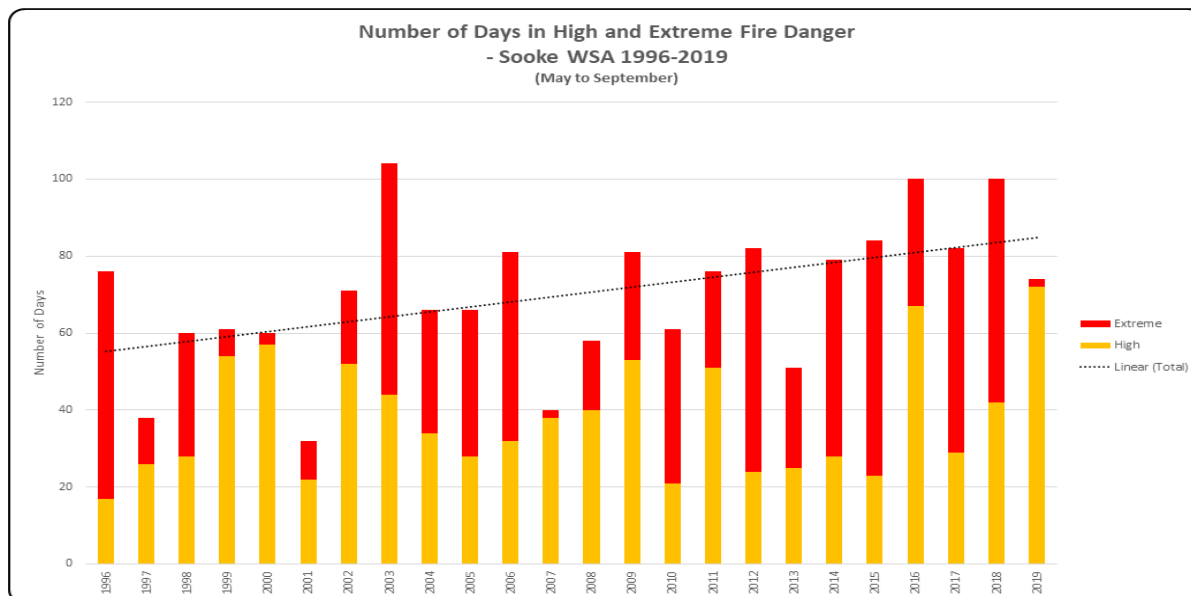


Figure 2: Days in High and Extreme Fire Danger, including trend line

### Wildfire Preparedness

The annual GVWSA Wildfire Preparedness Plan sets out the number of wildland firefighting resources deployed based on Fire Danger Rating. The resources deployed range from a low of one initial attack crew (two people with a four wheel drive truck with water tank, pump and fire tools), to three initial attack crews with seven further firefighters and two fire wardens on standby.

As a scheduled replacement, the primary water tender (9,000 L) was replaced this year with a new 16,600 L water tender. Three of the smaller initial attack trucks were also replaced, with only minor changes to their configuration. A significant capital investment in improving wildfire detection is nearing completion in 2019 with the installation of a long range infrared camera on Mt. Healy. Infrared camera detection technology is expected to provide notification of fires within minutes of starting and has been deployed widely in the southwest United States.

To increase preparedness for fire and emergency response, 19 additional helicopter landing sites (three existing primary sites) were identified throughout the GVWSA with improvements completed on most of the sites in 2019. Identified and maintained landing sites are valuable in improving fire response times and accessibility and also in providing medivac sites in the case of serious worker injury.

### Wildfire Prevention

Wildfire prevention activities in the GVWSA include mitigating high fire risk work (e.g. wetting down work sites), ground and air patrols. Both ground and air patrols monitor for fire and report or intercept unauthorized persons. The frequency of patrols increase as the fire danger rating rises. Trespass numbers were slightly lower this year than 2018, and no violation tickets were issued. Common trespass activities are cyclists, pedestrians and dog walkers straying off the Great Trail into the GVWSA. A decrease in the number of Extreme fire danger days reduced the need for air patrols down to only 74 flights.

Watershed Protection staff are supporting a broader CRD request for provincial government funding under the Community Resiliency Investment Program. This program provides funding for FireSmart planning and activities to protect high-value assets and critical infrastructure. In 2020 a CRD FireSmart Committee is to be formed for interested municipal partners in the region to assess existing planning and to support a coordinated approach for FireSmarting. Critical infrastructure in the GVWSA has already been assessed and FireSmart treated since 2008, with on-going maintenance and re-assessment.

### Wildfire Response

There was one small 0.03 hectares (ha) fire in the GVWSA on July 2, discovered by the watershed patrol at approximately 6:20 a.m. This small fire started as a result of overnight high winds that blew over a tree affected by root rot, striking and breaking the BC Hydro powerline that services the Kapoor tunnel outlet. The live line on the ground sparked a fire in the vegetation under the powerline. Nine CRD Watershed Protection personnel and one CRD electrician responded to the fire over the course of the day. CRD crews actioned the fire once BC Hydro personnel arrived to assess and ground the downed line. Weather was favourable with light rain and reduced wind. Final fire mop-up was completed by 1 p.m. and the powerline was repaired and re-energized by BC Hydro by 2:30 p.m. The fire was patrolled daily and called "out" on July 5. Staff spread grass seed and erosion control wood straw to mitigate potential impact on water quality in Japan Gulch Reservoir that was



not in active use for water supply. No change in water quality parameters was noted in Japan Gulch Reservoir as a result of the fire or suppression efforts.



CRD Watershed Protection crew on Hatchery Road powerline fire.



Despite the moist weather conditions, the fire burned down to mineral soil and nearly reached Japan Gulch Reservoir (seen in the background). The photo also shows the placement of wood straw (light coloured material) on the shoreline for erosion control.

This fire emphasized the vulnerability of the GVWSA from powerlines held by both BC Hydro and the CRD in the GVWSA. The tree that fell was one of a few danger trees that had been marked by CRD staff for removal but was awaiting BC Hydro to bring in a contract tree service. The work has now been completed and there is a greater sense of urgency to ensure powerline vegetation management is completed in a timely manner.

In 2019 there were no calls for CRD Initial Attack crew assistance or resources on provincial wildfires under the terms of the CRD-BCWS Wildfire Resource Agreement.

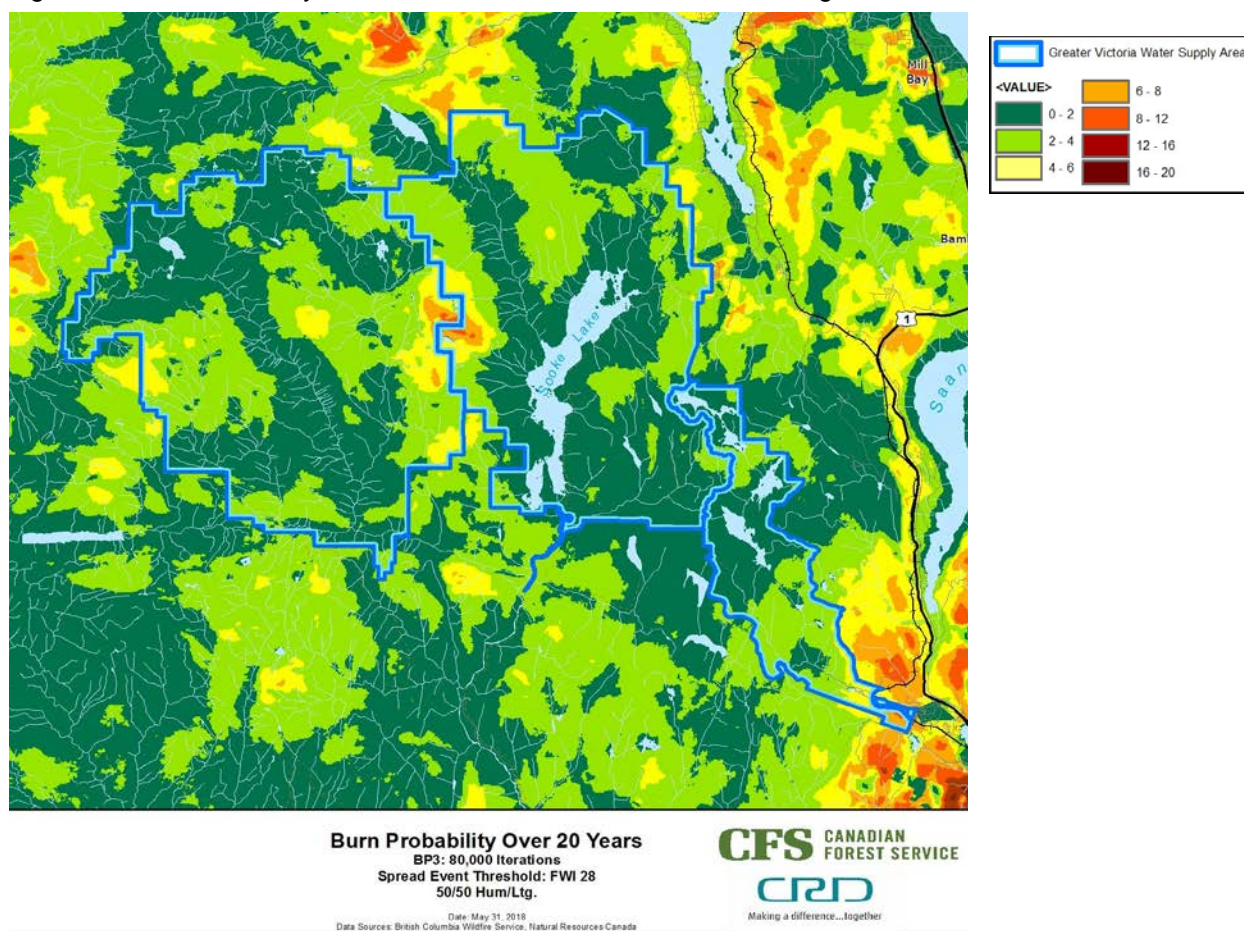


## Fuel Management

In 2015, Watershed Protection staff completed a GVWSA Wildfire Management Plan, and began a recommended priority to implement fuel breaks to protect the Sooke WSA and Reservoir from approaching wildfires. Three major shaded fuel breaks in the south, west and northeast (last phase this fall) have been completed, with plans for a further break to be implemented in the northwest in 2020-2021 (see Appendix A map).

In 2018, CRD partnered in a project with the Pacific Forestry Centre of the Canadian Forest Service to analyze the probability of wildfire in the GVWSA using updated fuel typing, forest cover, weather, ignition patterns and wildfire history for southern Vancouver Island. A fire growth model (BurnP3) was used to run 80,000 iterations of a fire season which simulated over 250,000 fires in and within 15 km of the GVWSA. The simulation results were used to produce a map (Figure 3) showing a range from 0 – 2% probability (dark green), to 12 – 16% probability (red) of an area in the GVWSA burning over a 20 year period during the modelling iterations. The map should be used to consider relative fire risk within and near the GVWSA.

Figure 3: Burn Probability in the GVWSA Based on Wildfire Modelling



Other informative modelling results included the most common fire size as 4 ha, with infrequent but large fire sizes up to 2,681 ha, which was considered a conservative maximum size given actual wildfires experienced in similar forest types on southern Vancouver Island in the last three years.

The modelling also highlighted the hazard associated with dry and very windy conditions that made it possible for wildfires to escape suppression efforts and grow large very quickly.

The second priority for fuel management from the GVWSA Wildfire Management Plan is to reduce or manage forest fuels within forest stands to break up large areas of continuous fuel loading. The burn probability map is being used to identify areas in the Leech WSA, in which to plan and trial within-stand treatments prior to consideration of these methods in the Sooke and Goldstream WSAs.

One of the methods to be tested is prescribed burning in locations where forest stands have elevated levels of woody fuel, with trees that are mature enough to tolerate low intensity ground fire. In addition to decreasing the level of ground fuels naturally and more cost effectively, the treatment can accelerate the transition from a young forest stand structure, to a mature forest stand structure. With so much of the Leech WSA of similar forest age and stand structure, it is important to strategically change some portions to increase stand diversity and fire resistance across the landscape. Treatment prescriptions for trial areas will be prepared including a plan for pre-and post water quality monitoring. A prescribed burning trial in the Leech WSA will only be undertaken when the appropriate weather, soil and fuel moisture conditions occur to ensure a controllable ground fire with the desired fire intensity.

## **CONCLUSION**

2019 represented a year of reduced wildfire risk from the previous five years, but a downed powerline fire start in the GVWSA was a reminder of the importance of wildfire suppression preparedness and prevention throughout the fire season. Implementation of current fuel management projects to protect Sooke WSA from approaching wildfires continued with plans in 2020 to develop within-stand fuel management using prescribed burning on a trial basis in the Leech WSA.

## **RECOMMENDATION**

That the Regional Water Supply Commission receive this report for information.

Submitted by:	Nigel Burrows, R.P.F., Manager Wildfire, Security & Emergency Response
Concurrence:	Annette Constabel, M.Sc., R.P.F., P.M.P., Senior Manager, Watershed Protection
Concurrence:	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Robert Lapham, M.C.I.P., R.P.P., Chief Administrative Officer

## **ATTACHMENT:**

Appendix A: 2019 GVWSA Adjacent Wildfires and Fuel Management Map