

SOOKE & CHARTERS RIVERS

KNOTWEED MANAGEMENT

PLAN April 1, 2026

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INTRODUCTION

Knotweeds present a significant threat to aquatic ecosystems, including fish and wildlife habitat, bank stability and water quality. Knotweed also presents a threat to food security and cultural values, as well as structural integrity of infrastructure, such as bridge abutments, roads and pumps. In the Sooke and Charters river systems, knotweed is present in limited amounts, and it is imperative to control these infestations while they remain small, to protect the important values of the river system.

This management plan seeks to support the proposed Pesticide Use Permit (PUP) required to begin management work to treat knotweed infestations within the Pesticide Free Zone adjacent to the Sooke and Charters River and rights-of-ways using aquatic herbicide Habitat Aqua (a.i. imazapyr) with adjuvant Aquasurf for foliar applications, and Roundup WeatherPRO (a.i. glyphosate) foliar and stem injection applications.

The 2026 to 2029 PUP will use both Habitat Aqua and Roundup WeatherPRO to protect the river system. This management plan proposes to treat all knotweed clones detected growing in or adjacent to the Sooke and Charters Rivers. Wherever feasible, foliar application methods will be used to limit the volume of herbicide entering the environment. Stem injection using Roundup WeatherPRO may be required in some instances if the knotweed foliage cannot be effectively accessed using foliar application. Habitat Aqua is specifically formulated for use in and adjacent to aquatic environments and will be the preferred product for knotweed treatments during the 2026 to 2029 treatment period. These treatments will occur as foliar applications. The use of Habitat Aqua is an important strategy not only for treatment efficacy, but also to limit the risk of knotweed developing herbicide resistance, as Habitat Aqua (a.i. imazapyr) chemistry and modes of action are different from that of the glyphosate products previously used for primary treatment in this project. Habitat Aqua is well-suited for knotweed treatments not only to water's edge, but also emergent, wetted plant applications. All foliar treatment applications will be made as targeted spot treatments with the intention of limiting drift and non-target vegetative damage.

The extent of knotweed adjacent to the Sooke and Charters Rivers is currently limited to a total area of ~0.15 ha.”

The management plan includes surveys, two or three treatment passes of all sites (known and newly detected) and ongoing annual monitoring.

The goal of the Knotweed Management Plan is to prevent knotweed from expanding outside of the Sooke and Charters Rivers and eventually to eradicate knotweed from these river systems in their entirety.

TREATMENT AREA & SITES

Knotweed is present in limited amounts along the Sooke and Charters Rivers. The general area for this project includes Charters Rivers, at and downstream of the Jack Brooks Hatchery, and the Sooke River, from the confluence of the Charters River downstream (See Appendix 1 – FIGURE OF RIVER INVASIVE KNOTWEED DISTRIBUTION & PROPOSED PESTICIDE USE PERMIT TREATMENT LOCATIONS (2026-2029)). The project area includes locations where no knotweed has been observed in the past as well as known sites which will be surveyed and treated if new growth appears (See Appendix 2 - KNOTWEED TREATMENT SITE SUMMARY SOOKE AND CHARTERS RIVERS.).

The project team has completed surveys upstream through the Charters and Sooke River Systems, including areas within the areas managed by CRD Watershed Protection in the Greater Victoria Water Supply Area (GVWSA) where the public is excluded. The source population was identified at the confluence of the Sooke and Charters rivers. Surveys were completed by Jessica Boquist, Marie Robertson (outside of GVWSA) and by CRD Watershed Protection staff, including Marie Robertson, within the GVWSA.

The Sooke Potholes Regional Park and Sooke Pothole Provincial Park were inventoried and knotweed was not identified in either Park or upstream of the Parks.

HERBICIDE PRODUCTS

Table 1. Proposed herbicide and adjuvant products to be used for Knotweed treatments at the Sooke and Charters Rivers, 2026-2028.

Trade Name	Habitat Aqua	Aquasurf Adjuvant	Roundup WeatherPRO
Active Ingredient	Imazapyr	Surfactant blend	Glyphosate
PCP #	32374	32152	33653
Application Rate	4.68 L/ha	0.25% v/v (added to Habitat Aqua)	6L/ha foliar, 5 mL/stem injection
Comments	Well suited for use in and adjacent to aquatic ecosystems and will provide protection from herbicide resistance developing in the knotweed by using a different herbicide chemistry as compared to glyphosate products. This is the preferred herbicide product for use on and adjacent to the xx River.	Used with Habitat Aqua to achieve better efficacy.	Retained as a secondary foliar treatment option or where stem injection is the preferred treatment method at a given site.

METHODS

Several factors can influence treatment efficacy, and it is important to have access to more than one herbicide and treatment method to ensure effective control can be obtained under varying site and growth conditions over the course of the growing season.

Foliar Spray

- Selective, foliar spot applications are the preferred treatment method as it minimizes the volume of herbicide product entering the environment. Foliar spray applications can be made by backpack. This spray options will be used to make careful targeted applications, directly and uniformly to the leaves of invasive knotweed.
- Habitat Aqua is specifically formulated for use in and adjacent to aquatic environments and will be the preferred product for knotweed treatments during the treatment period. These treatments will occur as foliar applications. Targeted foliar spray applications of Habitat Aqua in and adjacent to water are considered safe for aquatic life and the overall environment.
- Roundup WeatherPRO will be retained as a secondary foliar treatment option and is not suitable for use over water. To eliminate incidental contact with water when using Roundup WeatherPRO in close proximity, drift shielding in the form of a nozzle cone or wind barrier will be employed.
- Foliar applications near culturally sensitive or recreational structures will employ drift shielding in the form of a nozzle cone or wind barrier if deemed necessary by the applicator.

Stem Injection

- Applied through hand-held injection devices that deliver specified amounts of herbicide to hollow-stem plants (knotweed spp.)
- Inject 5 mL per stem of concentrated Roundup WeatherPRO into each cane between the second and third internode. Most effective if stems are at least 1.25 cm in diameter.
- Plants are to be actively growing at the time of application.

Timing

- July to September - Treatment application will occur during the dry season when water levels will not rise for an extended period following pesticide application, allowing for the breakdown of glyphosate (half-life 32 days when not exposed to water).

TREATMENT HERBICIDE & APPLICATION METHOD SELECTION

Non-chemical treatment options were critically evaluated for efficacy in treating knotweed during project development, along with the potential unintended risks. The outcome of this evaluation determined that the proposed herbicide products will achieve the greatest treatment efficacy while minimizing impacts to adjacent ecosystems, aquatic life and the public.

Herbicide and application methods were selected based on chemistry suitability to site type, treatment efficacy, product toxicology, limiting the quantity of herbicide entering the environment and potential non-target effects.

All knotweed sites (existing and new) will be monitored throughout the growing season for treatment efficacy and non-target effects.

Foliar Spray

Wherever feasible, foliar application methods will be used to limit the volume of herbicide entering the environment. Habitat Aqua is specifically formulated for use in and adjacent to aquatic environments and will be the preferred product for knotweed treatments during the treatment period. These treatments will occur as foliar applications. All foliar treatment applications will be made as targeted spot treatments with the intention of limiting drift and non-target vegetative damage.

Stem Injection

Stem injection *may* be selected as the preferred treatment method in the following circumstances:

- Where knotweed foliage cannot be effectively accessed using foliar application
- Where Habitat Aqua herbicide is not available and the knotweed clone occurs in close proximity to water or a private residence and shrouding/shielding, to prevent foliar drift, is not practicable.
- Where foliar applications are not achieving effective control of knotweed. For example, if treatment monitoring after the first treatment pass is indicating low efficacy, the stem injection method may be preferred for the second treatment pass to ensure sufficient translocation of herbicide to the root system.

Table 2. Summary of herbicide site type and application method suitability at the Sooke and Charters Rivers.

Site Type	Herbicide	Application Method	Comments
Emergent, wetted plants	Habitat Aqua with Aquasurf	Foliar	Habitat Aqua is a registered aquatic herbicide formulated to be used for the treatment of emergent plants in and adjacent to water. The toxicology data indicates that there are no ill effects to aquatic life when used in accordance with the herbicide label.
Plants occurring within 5 m of wetted edge to High-Water Mark	Habitat Aqua	Foliar	Preferred herbicide and method for this site type.
	Roundup WeatherPRO	Foliar with shrouding to prevent risk of drift.	Shrouding may include nozzle cone or wind barrier.
Plant foliage that cannot be effectively accessed using foliar application	Roundup WeatherPRO	Stem injection	Roundup WeatherPRO is currently the only herbicide product registered for the use of stem injection in Canada.

APPENDIX 1. FIGURE OF RIVER INVASIVE KNOTWEED DISTRIBUTION & PROPOSED PESTICIDE USE PERMIT TREATMENT LOCATIONS (2026-2029).

Figure 1. Image of Sooke and Charters River Knotweed Observations and Proposed Pesticide Use Permit Treatment Locations



APPENDIX 2. KNOTWEED TREATMENT SITE SUMMARY SOOKE AND CHARTERS RIVERS.

SiteID	Interim site name	UTM Zone	UTM Easting	UTM Northing	General Description
484359	n/a	10	447639	5361084	South Coast - Sooke; north of Hwy 14; in Sooke River; east of Phillips Rd; southeast of Phillips & Riverstone Dr junction
528547	n/a	10	447711	5361285	Vancouver Island - Sooke; north of Hwy 14; west side of Sooke River; east of Phillips Rd & northeast of Riverstone Dr junction
512179	n/a	10	447521	5361957	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River; south of Sooke Potholes Provincial Park; south of Charters Creek confluence
480427	n/a	10	447293	5362176	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River; south of Sooke Potholes Provincial Park; south of Charters Creek confluence
480426	n/a	10	447814	5361465	Vancouver Island - Sooke; on east shore of Sooke River; west of Sooke River Rd; just south of Charters Creek confluence; south of Sooke Potholes Provincial Park
To be entered	Placemark 2	10	447251	5362516	Vancouver Island - Sooke; north of Hwy 14; Sooke River
To be entered	Placemark 3	10	447246	5362409	Vancouver Island - Sooke; north of Hwy 14; Sooke River
To be entered	Placemark 4	10	447263	5362217	Vancouver Island - Sooke; north of Hwy 14; Sooke River
To be entered	Placemark 6	10	447344	5362125	Vancouver Island - Sooke; north of Hwy 14; Sooke River
To be entered	Placemark 7	10	447314	5362087	Vancouver Island - Sooke; north of Hwy 14; west bank of Sooke River
To be entered	Placemark 8	10	447431	5362040	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River
To be entered	Placemark 9	10	447491	5362000	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River
To be entered	Placemark 10	10	447568	5361963	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River
To be entered	Placemark 11	10	447655	5361882	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River
To be entered	Placemark 12	10	447740	5361818	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River

To be entered	Placemark 13	10	447805	5361570	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River
To be entered	Placemark 14	10	447815	5361467	Vancouver Island - Sooke; north of Hwy 14; west bank of Sooke River
To be entered	Placemark 15	10	447720	5361002	Vancouver Island - Sooke; north of Hwy 14; west bank of Sooke River
To be entered	Placemark 16	10	447797	5361033	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River
To be entered	Placemark 17	10	447859	5361013	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River
To be entered	Placemark 18	10	448107	5360937	Vancouver Island - Sooke; north of Hwy 14; east bank of Sooke River
To be entered	Placemark 19	10	448062	5360823	Vancouver Island - Sooke; north of Hwy 14; west bank of Sooke River
To be entered	Placemark 20	10	447525	5360277	Vancouver Island - Sooke; north of Hwy 14; west bank of Sooke River
To be entered	Placemark 21	10	447340	5362515	Vancouver Island - Sooke; north of Hwy 14; Charters River