



Prepared by:

Robyn Hooper, Executive Director

Kim Kaiser, Interim Field Operations Program Coordinator / Outreach Program Coordinator

Sue Davies, Aquatic Program Coordinator

Jess Booth, Interim Outreach Program Coordinator (2022) and Invasive Species Program Assistant (2021)

Contributions from:

Laura Gaster, Field Program Coordinator

Kathleen Meszaros, Invasive Species Program Assistant

Columbia Shuswap Invasive Species Society

P.O. Box 2853, Revelstoke, BC V0E 2S0

info@columbiashuswapinvasives.org

December, 2021

ACKNOWLEDGMENTS

The accomplishments and success of this organization can be attributed to our dedicated staff, Board of Directors, the generous funding agencies that contributed to the project, our expert contractors, consultants and numerous volunteers. Special thanks to our 2020-2021 outstanding Board Directors whose dedication and direction has continued to guide the CSISS on its trajectory of growth: Hamish Kassa (CSRD), Chris Cochran (Town of Golden), Diane Millar (MFLNRORD), John Braisher (Golden Area Rancher), Darren Komonoski (City of Revelstoke), Bruce Husband (Shuswap Agricultural Strategy Group), Adam Croxall (BC Hydro), Chris Gill (Shuswap resident and environmental consultant), Joe McCulloch (District of Sicamous), Peter Tarleton (Parks Canada), Warren Fortier (Little Shuswap Lake Band) and Laurel Corrigan (Revelstoke resident) (Appendix A). A special thank you to Joe McCulloch and Warren Fortier who finished their terms at Board Directors in October 2021 – their years of service and dedication to CSISS is much appreciated. In October 2021, CSISS also welcomed Erin Vieira (Shuswap Watershed Council) and Jeromy Schuetze (District of Sicamous) to the Board. We would like to thank Kathleen Meszaros, CSISS summer staff through Canada Summer Jobs for her exceptional effort engaging residents across the CSRD in invasive species outreach activities, hard work at field activities, and her adaptability to ongoing changes.

We are extremely grateful to the Columbia Basin Trust (CBT), Ministry of Forests, Lands and Natural Resource Operations and Rural Development (MFLNRORD), Ministry of Environment and Climate Change Strategy (ENV), Ministry of Transportation and Infrastructure (MoTI), the Columbia Shuswap Regional District (CSRD), Shuswap Watershed Council (SWC), the Habitat Conservation Trust Foundation (HCTF), Employment and Social Development Canada (Canada Summer Jobs Program), City of Salmon Arm, Parks Canada, BC Parks, BC Hydro, The Nature Trust, Shuswap Trails Alliance, Public Conservation Assistance Fund (PCAF HCTF), Environment and Climate Change Canada (Eco Action grant) for providing funding, partnership and various in-kind support. Additional thanks are due to the City of Revelstoke, Town of Golden, District of Sicamous, Central Kootenay Invasive Species Society, East Kootenay Invasive Species Council, Columbia Basin Environmental Education Network, Kootenay Conservation Partnership, Shuswap Trail Alliance, Wildsight Revelstoke, Gardom Lake Stewardship Society, Shuswap Trails Roundtable and Working Group, Invasive Species Council of BC and Wildsight Golden for their support in-kind and partnerships with the CSISS.



Figure 1. The 2019-2024 CSISS Strategic Plan goals, along with CSISS mission and vision statements.

Thank you to all our funders and partners in 2021!

This project was undertaken with the financial support of:
Ce projet a été réalisé avec l'appui financier de :



Environnement and
Climate Change Canada

Environnement et
Changement climatique Canada



Columbia
Basin **trust**

NATURE TRUST
BRITISH COLUMBIA



Canada



Salmon Arm



Public Conservation
Assistance Fund

Sicamous
LIVE MORE



HABITAT
CONSERVATION TRUST
FOUNDATION



CITY OF
REVELSTOKE



BChydro



Employment and
Social Development Canada

Emploi et
Développement social Canada

EXECUTIVE SUMMARY

April 2021 marked the start of the ninth operational season of the Columbia Shuswap Invasive Species Society (CISIS). Thanks to dedicated staff, diligent directors, knowledgeable partners and inspired volunteers, the CISIS expanded its programming and made significant progress on each goal identified in the 2019-2024 CISIS Strategic Plan:



Goal 1: Implement a collaborative and coordinated program

- Strengthened and expanded its network of partners;
- Collaborated with all levels of government, stakeholders, residents and NGO's;
- Worked with over 280 organizations, 68 of whom were new in 2021.



Goal 2: Educate, engage and inspire participation

- Completed targeted outreach to stakeholders and land managers;
- Hosted training workshops for government staff, contractors and the public;
- Engaged with over 2,163 people in the region and attended 48 events;
- Directly targeted outreach to various stakeholders through in-person and online;



Goal 3: Prevent the introduction of new invasive species

- Delivered the 'Plant Wise' message to 11 garden centers;
- Visited boat launches, marinas, and campgrounds with 'Clean Drain Dry';
- Evaluated CDD program effectiveness through direct observation;
- Completed 9 press releases and was featured in 52 news pieces;
- Regularly created engaging posts on Facebook, Instagram and Twitter.



Goal 4: Maximize the probability of detection and eradication

- Completed 850 targeted invasive plant surveys across the region;
- Reached over 1,325 landowners regarding invasive plant management;
- Completed 166 invasive mussel samples at 24 locations across 13 waterbodies;
- Deployed 20 substrate samplers to monitor for adult mussels;
- Installed a songmeter to detect American bullfrogs at one location.



Goal 5: Slow or reverse the spread of existing invasive species

- Completed mechanical treatment at 47 priority locations;
- Administered 4 herbicide spray contracts, treating 54 priority sites;
- Installed 'Do Now Mow' signage and 'Do Not Compost' signage across the region;
- Supported 7 weed pulls with 6 partner organizations.



Goal 6: Ensure program sustainability

- Employed six staff members in 2021 and 11 volunteer Board Directors;
- Maintained a similar operating budget;
- New funding sources and support from existing funding sources allow CISIS to continue and expand work in the Columbia Shuswap region;
- Followed a long term funding strategy, a detailed annual workplan and Strategic Plan
- Helped lead annual updates to the regional 2020-2025 CISIS Operational Plan.

Table of Contents

Acknowledgments	2
Executive Summary.....	5
Introduction	9
<i>Project Area</i>	9
Goal 1: Collaborative and Coordinated Programming.....	10
<i>Indigenous Peoples Engagement</i>	10
Goal 2: Educate, Engage and Inspire.....	11
<i>Media Coverage</i>	12
<i>Website and Social Media</i>	13
<i>Community Outreach</i>	14
<i>Workshops and Events</i>	15
<i>Measures of Success</i>	16
Outreach Program Evaluations	16
Social Media Metrics	17
Website Google Analytics.....	18
Goal 3: Prevent the Introduction of New Species.....	18
<i>PlantWise Program</i>	18
<i>Play, Clean, Go Program</i>	19
<i>Clean Drain Dry Program</i>	20
<i>Boater Outreach and Dock Outreach</i>	20
<i>Don't Let It Loose Program</i>	21

Goal 4: Maximize the Probability of Detection and Eradication of New Invasives	21
<i>Public Reports</i>	21
<i>Targeted Invasive Plant Surveys</i>	22
<i>Field Operations Funder Updates</i>	23
<i>CSRD Overview</i>	23
<i>BC Parks Overview</i>	24
<i>Blanket Creek Provincial Park Restoration Project</i>	25
<i>Shuswap Yellow Flag Iris Project Overview</i>	25
<i>City of Salmon Arm Overview</i>	27
<i>Ministry of Transportation and Infrastructure Overview</i>	28
<i>Parks Canada Overview</i>	29
<i>Nature Trust Overview</i>	30
<i>BC Hydro Overview</i>	31
<i>Aquatic Invasive Species Surveys</i>	31
Zebra and Quagga Mussels (<i>Dreissenid</i> spp.)	31
Invasive Freshwater Clam Surveys (<i>Corbicula fluminea</i> .)	32
Aquatic Invasive Plants	33
American Bullfrogs	33
Goal 5: Slow and Reverse the Spread and Minimize the Impact of Existing Invasives	33
<i>Mechanical Treatment</i>	33
<i>Chemical Treatment</i>	34

Goal 6: Program Sustainability.....	35
<i>References.....</i>	<i>37</i>
<i>Appendix A: CSISS Staff and Board Directors 2021</i>	<i>38</i>
<i>Appendix B: Events Attended by CSISS and partners 2021</i>	<i>39</i>
<i>Appendix C: Media coverage of CSISS activities in 2021</i>	<i>42</i>
<i>Appendix D: Marinas contacted by CSISS staff in 2021.....</i>	<i>43</i>
<i>Appendix E: Campgrounds contacted by CSISS staff in 2021.</i>	<i>44</i>
<i>Appendix F: CSISS Invasive Mussel Sampling Locations in 2021</i>	<i>45</i>

INTRODUCTION

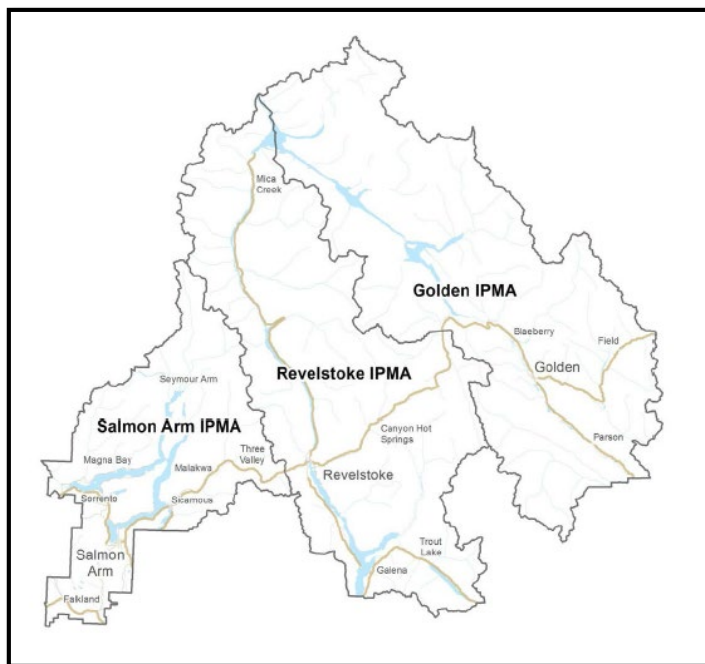
The CSISS was established in April of 2013 after a series of meetings and consultations with land managers, residents and other stakeholders with the aim to develop a collaborative and coordinated approach to invasive species management in the region. The CSISS joins a network of 12 regional invasive species groups in BC. These groups work in cooperation with each other, the Invasive Species Council of BC (ISCBC) and government agencies to inspire action, coordinate management and prevent the spread of invasive species within their jurisdictions.

Based on its constitution, the objectives of the CSISS are:

- To educate and engage public, private landowners, land and aquatic managers, First Nations and others about invasive species and their impacts.
- To establish and operate invasive species management programs.
- To do all other things as are incidental and ancillary to the attainment of the above purposes.

The summer of 2021 marked the Society's ninth season in operation. The six CSISS staff in 2021, including five returning staff, found new and innovative ways for the organization's ability to engage community members and residents as well as invest a presence in smaller communities across the regional district through the global pandemic – including online social media and physically distanced activities. The CSISS built and expanded connections within local communities and filled knowledge gaps regarding invasives on the landscape. In 2021, the CSISS continued operations, providing fee for service contract work to treat and monitor invasive plants, as well as grants to monitor waterways for aquatic invasive species, such as invasive zebra and quagga mussels.

Project Area



The Society's jurisdictional boundary includes the boundaries of the Columbia Shuswap Regional District (electoral areas A, B, C, D, E and F) (Figure 2). The CSISS operational area is divided into three Invasive Plant Management Areas (IPMAs) for planning purposes (Craig, 2013). This broad, ecologically diverse area includes the Ponderosa Pine (PP), Interior Douglas Fir (IDF), Interior Cedar Hemlock (ICH), Montane Spruce (MS) and high elevation Engelmann Spruce-Subalpine Fir (ESSF) biogeoclimatic zones (Craig, 2013).

Figure 2. The CSISS operating area, including the three IPMA boundaries in the region (Craig, 2013).

GOAL 1: COLLABORATIVE AND COORDINATED PROGRAMMING

The CSISS maintains a priority plant list for each Invasive Plant Management Area (IPMA) within the CSRD (Figure 2) to help partners coordinate programming and treatments. In addition to the plant lists, the CSISS maintains a regional species watchlist showing presence/absence of invasive mammals, birds, fish, amphibians, reptiles, invertebrates, fungi, and diseases. The CSISS continues to seek and engage partners to participate in collaborative planning and management. In doing so, the CSISS is the “one-stop-shop” for invasives in the CSRD and is the point of contact and lead on many invasive species-related issues in the region.

To maximize efficiencies and ensure program sustainability, the CSISS collaborates with invasive species groups within the Columbia Basin, regional committees across the province, the Invasive Species Council of BC (ISCBC), the Columbia Basin Trust (CBT), First Nations and various stewardship groups and NGOs. CSISS Interim Field Coordinator attended an ISCBC herbicide applicator certificate course in October 2021. The CSISS currently partners with over 280 groups, including over 450 subscribers to the CSISS newsletter. These partnerships expanded CSISS’ successful outreach program, which include PlantWise, Clean-Drain-Dry, Play Clean Go, and Don’t Let It Loose campaigns, and continued to secure joint funding (Columbia Basin Collaboration).

The CSISS has been working in collaboration with the East Kootenay Invasive Species Council (EKISC) and the Central Kootenay Invasive Species Society (CKISS) to implement coordinated invasive species strategies within the Columbia Basin. This includes designing shared outreach materials to maintain consistent messaging throughout the region, collaborating on advertising and promotion, attending regional meetings and training opportunities.

To maintain and grow presence across the region, CSISS staff attended and/or hosted over 50 regional meetings, training opportunities and workshops (Appendix D). The CSISS worked closely with the regional municipalities (City of Salmon Arm, City of Revelstoke, District of Sicamous, Town of Golden Wildsight Weed Coordinator) to provide staff training on invasive plant identification, provide high priority treatment lists and discuss other invasive plant management options. CSISS continued to work closely with the Columbia Shuswap Regional District to conduct extensive invasive plant surveys and respond to landowner requests/reports. The CSISS also collaborated with neighbouring regional groups to coordinate the invasive mussel monitoring program, participated in the Columbia Basin Aquatic Invasive Species (AIS) Steering Committee and Shuswap Water Quality Monitoring Meetings.

Indigenous Peoples Engagement

In 2021, the CSISS continued to develop Indigenous Peoples partnerships and collaborations. Staff cultivated relationships with various indigenous groups through networking at conferences and trail meetings, as well as undertook indigenous perspectives cultural training.

Engagement included:

- Working with Adams Lake Band and Little Shuswap Lake Band to sample for aquatic invasive species at reserve locations and to train band members in methods of clam surveying
- Shuswap Trails Working Group Meetings and networking with First Nations participants who included; Splatins, Neskonlith, Little Shuswap, and Adams Lake Indian Bands;
- Indigenous engagement meeting and trainings with the Invasive Species Council of BC and Splatins First Nation
- CSISS volunteer Board Member Warren Fortier from the Little Shuswap Indian Band
- Land Acknowledgement from Mike Archie, Cultural Advisor for Shuswap Indian Band at Blanket Creek Restoration event

All Indigenous Peoples within the CSISS region were invited to our Annual General Meeting and Workshops. Any Indigenous Peoples interested in participating in the CSISS or receiving training within the CSISS region are encouraged to contact CSISS staff.

GOAL 2: EDUCATE, ENGAGE AND INSPIRE

The CSISS continues to educate, engage and inspire residents and others to participate in invasive species management. CSISS staff received 126 requests for information and presentations in the past year. In 2021, CSISS education and outreach activities continued to focus on target audiences and pathways of invasion, with some adaptations to delivery based on the global pandemic, such as online workshops, phone/online meetings, increased social media and mail-out outreach and physically distanced information booths at boat launches. CSISS provided data on location of knotweed infestations (which can impact infrastructure) and other priority invasive plants to city and district planners. This dataset is now part of the land information systems that flag properties when applications are made for development.

In 2021, the CSISS was represented at 168 community events and meetings (See Appendix B for a complete list of events and meetings attended), hosted 23 online workshops/presentations, facilitated 6 online and 6 in-person training sessions/ tailgates/, supported 7 community weed pulls, and hosted 12 youth/school events (Figure 3).

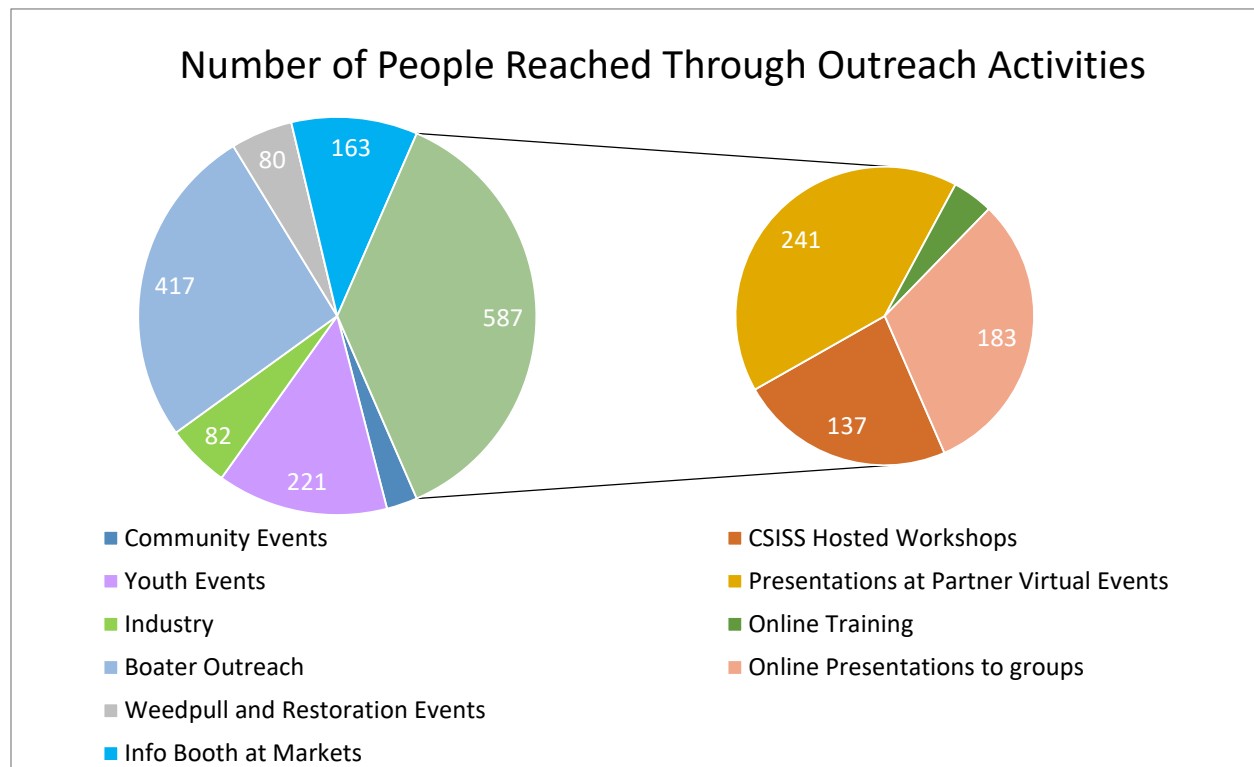


Figure 3. Chart showing a summary of outreach activities completed by CSISS in 2021.

The CSISS continues to receive significant numbers of requests for information and presentations. This year the CSISS focused on targeting our message to people most likely to be vectors of spread of invasive species (Figure 3).

In total, the CSISS had direct interactions with 2,163 people (Table 1). The CSISS outreach program continues to review and evaluate for improvements annually. After presentations and workshops, CSISS staff distributed feedback forms to participants and will work to incorporate suggestions for the 2021 season.

Table 1: Community Events and Activities Attended by CSISS Jan- Dec 2021.

Type of Event Hosted/ Campaign Delivered	# Events	Direct Interactions
Youth Events (8 within Columbia Basin)	11	221
Weed Pulls/Restoration Events (4 within Columbia Basin)	7	80
Play Clean Go Outreach (22 within Columbia Basin)	28	688
PlantWise Outreach Events (21 within Columbia Basin) (11 Garden Centers received outreach, 5 within Columbia Basin)	27	607
Clean Drain Dry / Aquatic Outreach: 22 Marina staff briefings (2 Columbia) 26 Boater outreach events (13 Columbia) 5 Pet stores visited (2 Columbia) Visited 43 Boat launches (14 Columbia)	55	1211
Events total in the Columbia Basin	36	700
Events total for CSISS 2021	48	2163

Media Coverage

Since January, the CSISS delivered 9 e-newsletters, 9 press releases, and has been mentioned in 52 news pieces (See Appendix C for a full listing of media interactions). Behaviour change 'Play Clean Go' and 'Clean Drain Dry' messaging was shared in the following publications:

- BC Backroad Mapbooks, Thompson Nicola/ Kootenay Rockies editions: circulated for a 3 year period 2021-2023 to thousands of residents and visitors to the region;
- The Kootenay Mountain Culture magazine: completed a collaborative advertisement with other Columbia Basin invasive species groups;
- Play Clean Go messaging placed in hiking maps supplied by Tourism Golden, See Revelstoke and Shuswap Tourism.

See Revelstoke supported media coverage with a dedicated 'Sustain the Stoke' website page dedicated to preventing the spread of invasive species in the Revelstoke area and highlighting CSISS campaigns (Figure 4). See Revelstoke supplemented the website page by sharing a series of social media posts and event promotion for Wildflower week.

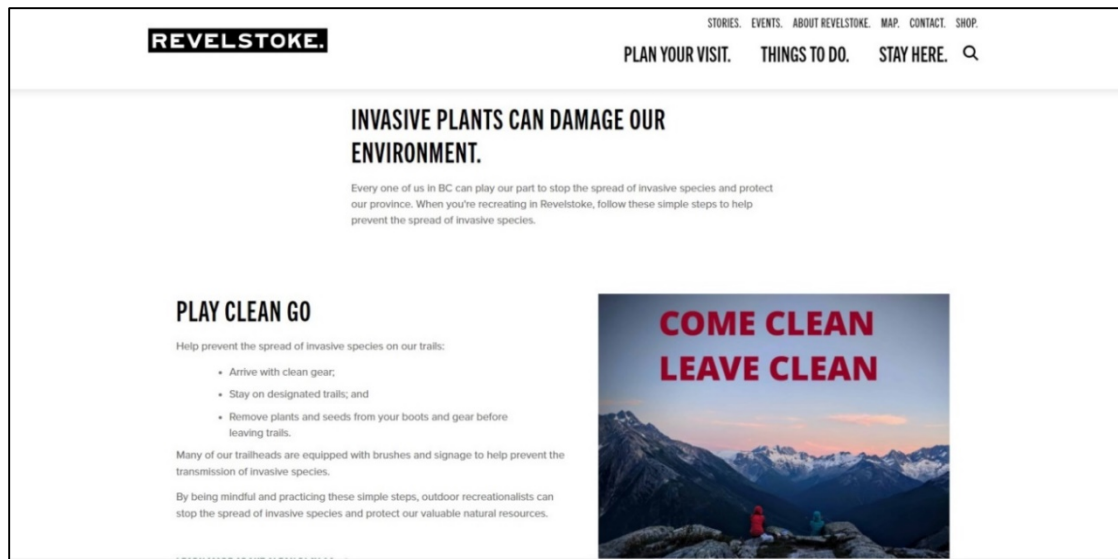


Figure 4. See Revelstoke- Sustain the Stoke website page.

Website and Social Media

In 2021, the CSISS website was updated by a professional website designer. Improvements included increased security, a modernized look, and enhanced identification and reporting features. The website continues to be a user-friendly platform for both public and land managers to enable people to connect with events and resources for the management of invasive species (Figure 5). The CSISS website is updated regularly with news and events and is found at: www.columbiashuswapinvasives.org.

The CSISS also hosts a Facebook page and posts updates of events, information and reminders of behavior change activities throughout the year. The CSISS Facebook page now has 578 followers and CSISS Instagram has 939 followers. The CSISS continues to deliver quarterly e-newsletters to more than 450 recipients highlighting our local and regional events and activities. Social media accounts were actively used as platforms to encourage best practices, promote events and share relevant news with followers. The CSISS actively participated in the ISCBC's Invasive Species Action Month on social media throughout the month of May.

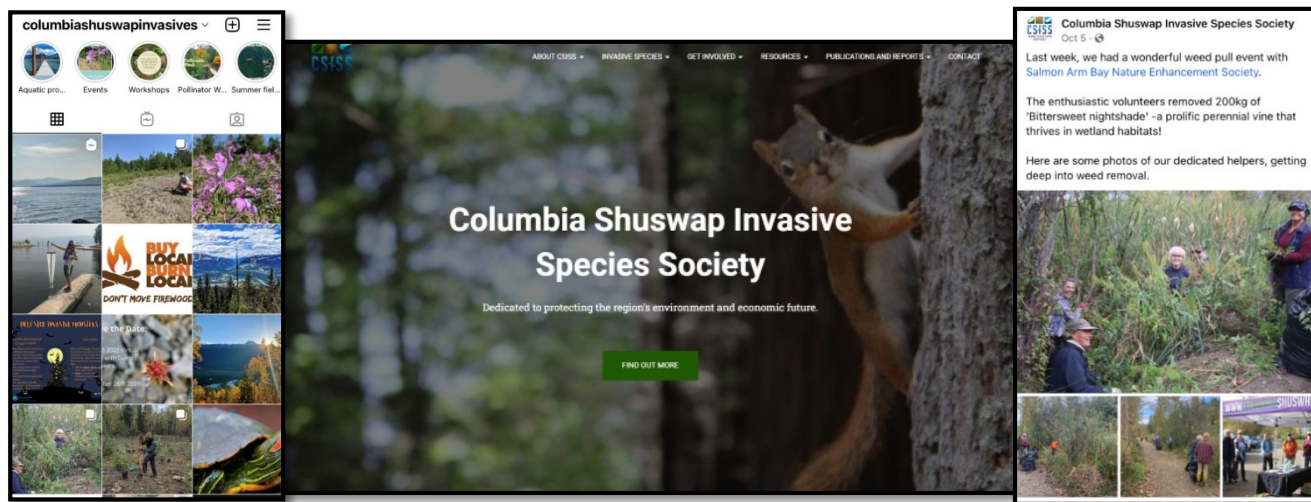


Figure 5. Preview of the CSISS Instagram page (left), the CSISS website page (centre), and the CSISS Facebook page (right).

Community Outreach

The CSISS partnered with numerous non-profit groups to raise awareness about invasive species in the Columbia-Shuswap region. CSISS provided outreach brochures to partner organizations to distribute at workshops and information booths throughout the region, as well as at accommodation and tourist locations, such as marinas, campgrounds and resorts.

Due to public health restrictions regarding COVID-19, the CSISS was not able to attend large gatherings and events where we normally reach thousands of individuals. Some summer CSISS outreach programming was limited by the presence of heat and smoke. Instead, the CSISS focused on online training and webinars, small group training sessions and used social media to reach the general public and targeted groups.

As restrictions and conditions allowed the CSISS hosted outdoor invasive species education sessions with:

- Wildsight Revelstoke summer 'WildInsight' youth program (2 sessions)
- Fall School Education visits (7 sessions, see Appendix B for a complete list sessions attended)

Weed pulls were limited in 2021, however with support from partner organization and smaller group sizes, CSISS was able engage volunteers across the region in removing priority species (Table 2).



Figure 6. Himalayan Balsam being removed by GASP volunteers in July (left) and Jess Booth, Outreach Program Assistant facilitating interactive invasive species education with school groups (right).

Table 2: The CSISS supported 7 weed pulls/ mechanical treatment contracts in collaboration with community groups.

Target Species	Location	In Collaboration with:
Spotted Knapweed	Golden Rotary Trail	Wildsight Golden
Himalayan Balsam	Illecillewaet Walkway	Glacier Adventure Stewardship Program
Himalayan Balsam	Cress Creek Salmon Arm	The Shuswap Lady Striders
Himalayan Balsam	Cress Creek Salmon Arm	The Shuswap Lady Striders
Spotted Knapweed	Martha Creek Provincial Park	BC Parks
Burdock	Blanket Creek Provincial Park	BC Parks
Burdock, Spotted Knapweed	Golden	Golden Cycling Club
Bittersweet Nightshade	SABNES Foreshore Trail	Salmon Arm Bay Nature Enhancement Society

Workshops and Events

To build capacity amongst partners, interested residents and stewardship groups, the CSISS hosted various workshops and training opportunities in 2021. Workshops, presentations and training opportunities were either moved to an online format or taught in-person with reduced group sizes.

CSISS hosted workshops included:

- Invasive Plant and Management Workshop: Trails and Recreation Areas Focus
- PlantWise and Pollination Networking for your Garden with guest speakers Brenda Beckwith and Valerie Huff
- Invasive plant ID workshop: Yellow Flowers
- Invasive plant identification walk with Wildsight Revelstoke and Revelstoke Local Food Initiative (July 2021)
- Invasive plant identification walk and Plant Press workshop with Revelstoke Wildflower Festival (in-person August 2021)

Online workshops were well-attended and reached a wide audience throughout the province. The online format proved successful in engaging participants and the CSISS received positive feedback from workshop participants (Figure 7). The CSISS held in person invasive plant identification walks and plant pressing workshops and collaborated with other environmental groups. The in person events were well attended by a diverse range of community members.

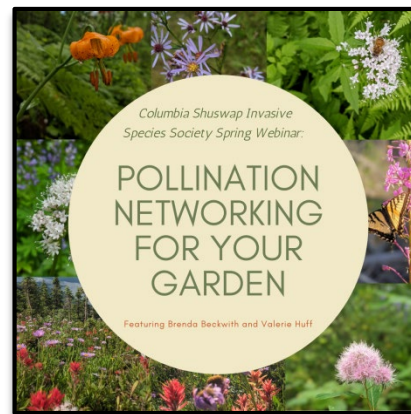


Figure 7. Kim Kaiser Outreach Program Coordinator presenting an Invasive Species Plant Identification walk on the Revelstoke Greenbelt under smoke filled skies (left) and Spring Pollination Online Workshop poster (right).

Measures of Success

Outreach Program Evaluations

The CSISS continues to use feedback to help evaluate the effectiveness of our workshops and programs (Figure 9 and 10). This season the CSISS also conducted covert observations to determine boater compliance with the 'clean drain dry' messaging through drain plug observations (Figure 8). Understanding compliance and reviewing results from surveys help guide our future outreach programming (Figures, 8, 9 and 10).

Drain Plug Observations

- Drain plug removal on leaving lake was 100%
- Drain plug insertion upon entering lake less than 20%
- The discrepancy in behaviours between entering and leaving the lake is likely explained by people reinserting their drain plug at home, rather than at the boat launch
- The fact that 100% of boaters leaving the lake removed their drain plug is an encouraging result
- CSISS staff plan to repeat and refine these observation techniques in 2022

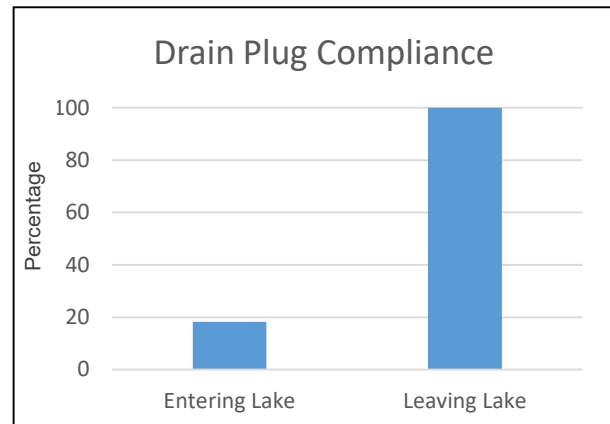


Figure 8: Percentage of boaters observed removing or reinserting their watercraft drain plug.



Figure 9. Survey Results from CSISS evaluation forms in 2021

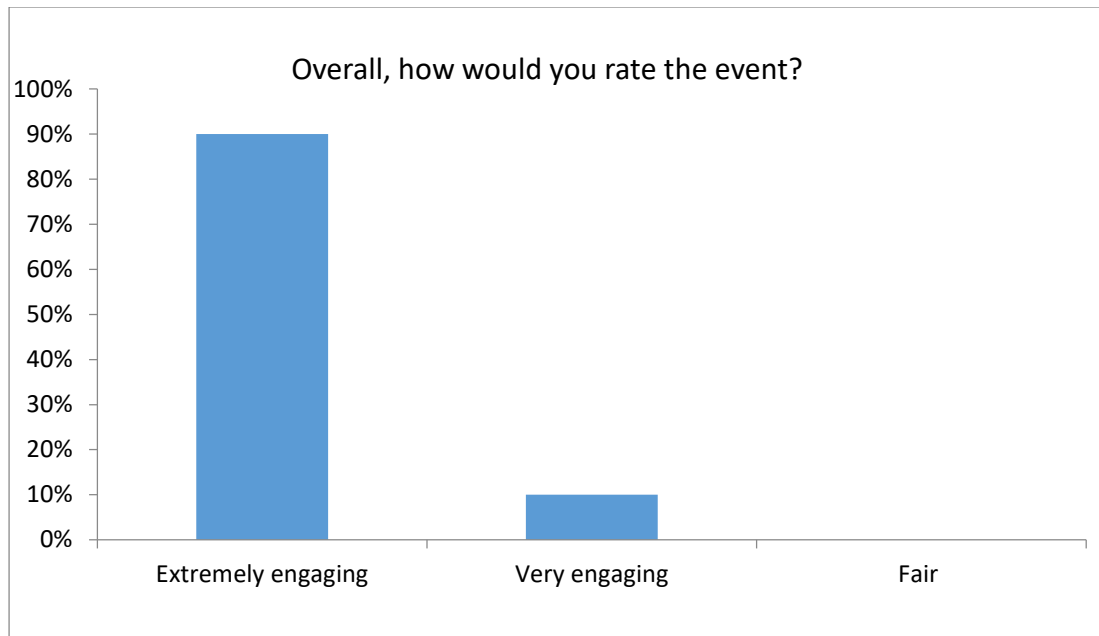


Figure 10. Survey Results from CSISS evaluation forms in 2021

Social Media Metrics

The CSISS utilizes Facebook analytics to help develop engaging content and guide future social media campaigns. In 2021, the CSISS reached 34,697 people through Facebook and engaged with many others through posting to targeted groups, such as gardening pages, outdoor recreation groups, community pages and aquatic related pages.

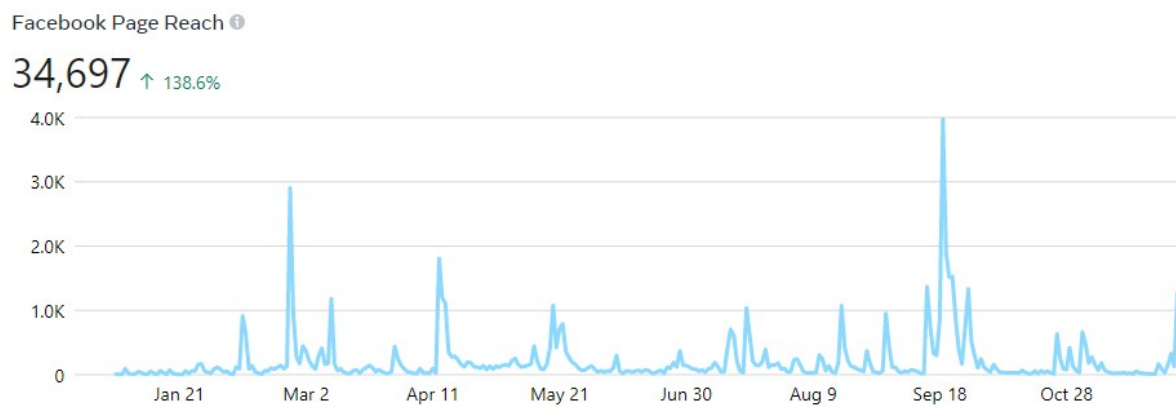


Figure 11. Number of people reached through @ColumbiaShuswapInvasives Facebook page in 2021.

Website Google Analytics

Google analytics results show over 4,434 website users in 2021. Metrics were used to determine which pages were most trafficked by users. The CSISS webpage had an average of 12 daily users and 32 page views in 2021. Audience behavior data was used to determine the most frequently visited webpages (Figure 12).

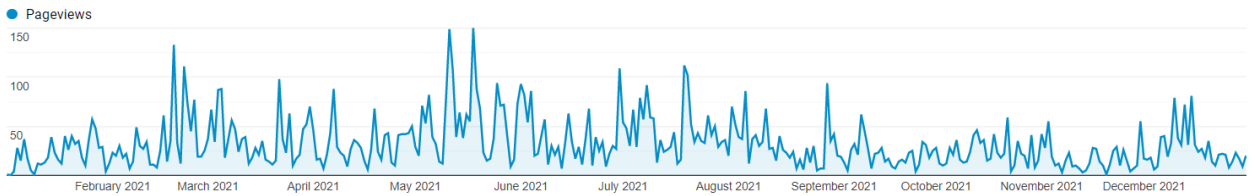


Figure 12. Number of page views of www.columbiashuswapinvasives.org webpage from Jan-Dec 2021.

Data from google analytics will continue to be used to reconfigure website layout and content in order to optimize public access to important resources and information regarding invasive species awareness and management.

GOAL 3: PREVENT THE INTRODUCTION OF NEW SPECIES

The CSISS focuses on various behaviour change programs in partnership with others to help prevent the introduction of new species. The CSISS provides training, resources and best management practices to partners in order to help prevent new introductions (*see Workshops and Events section above*).

PlantWise Program

The CSISS continued to actively partner with the Invasive Species Council of British Columbia (ISCBC) to deliver the PlantWise Program, encouraging key groups such as the horticulture industry and consumers to commit to choosing and utilizing only native or non-invasive plants instead of their invasive alternatives.

CSISS staff delivered the PlantWise message and distributed 2021 updated PlantWise Brochures at 27 community-based events, workshops and meetings, speaking to youth, home gardeners, land managers, and stewardship groups, directly reaching 607 individuals.

In April and May, the CSISS visited 11 garden centres and nurseries to providing PlantWise Materials and assessing inventory. Seed mixes were found to be the most common source of invasive plants in the region and many garden centers had removed invasive seed mixes, including Baby's Breath and English Ivy from their stock. Feedback from garden centres emphasised the importance of consumer demand, when packs are removed from shelves and returned some companies automatically discontinue supplying those seeds the subsequent year. In general, most garden centers in the region are interested in following PlantWise practices.

Additionally, the CSISS supplied non-invasive seed packs from Kinseed Ecologies at outreach events this year. Seed packs were available for a recommended \$5 donation and included CSISS contact information and the benefits of gardening with native plants.

Adapting outreach program to an online approach allowed CSISS to host a Plant Wise Pollinator workshop in the spring with guest speakers Brenda Beckwith and Valerie Huff from Kinseed Ecologies who presented tips and strategies for enhancing gardens to create habitat and connectivity within pollination networks.

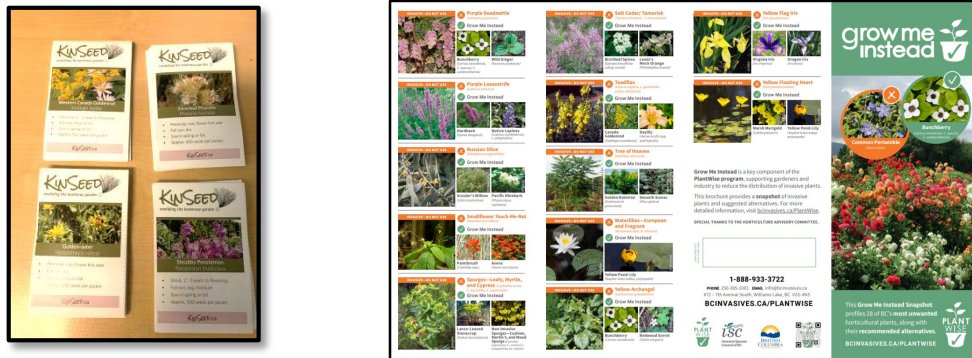


Figure 13: Kinseed non-invasive seed packs used as an outreach resource at community events (left). The 2021 updated 'Grow me instead' brochure distributed across the region at events (right).

Play, Clean, Go Program

In 2021, the CSISS promoted Play Clean Go, a program encouraging trail users to reduce the spread of invasive species by cleaning equipment, clothing, vehicles and pets when arriving at and leaving a recreation site.

Through partnerships with trail user groups, race organizers, Indigenous Peoples, and youth outdoor education programs, the CSISS successfully delivered the Play Clean Go message at 28 community or online events, directly reaching 688 individuals (Table 1).

The CSISS continued to attend trails meetings to engage with local trail users and provide input on regional activities. All major running and biking races/ events were cancelled due to physical distancing measures. In response, the CSISS focused outreach efforts on the creation of permanent boot brush kiosks at busy parks in the Shuswap and in Revelstoke (Figure 14).



Figure 14. Revelstoke Greenbelt boot brush station and Kiosk (left) and Template for BC parks boot brush (right).

Clean Drain Dry Program

The goal is to prevent the spread of aquatic invasive species (AIS) through messaging around both 'Clean, Drain, Dry' (CDD) and 'Stop at Inspection Stations'.

- Marina staff received phone calls in spring, materials by post, an invitation to a recorded webinar, and some received in-person visits as restrictions eased for summer (Appendix D).
- Campgrounds, especially those with a lake focus, were visited or called to provide CDD messaging and materials (Appendix E).
- Other industry groups contacted by staff in 2021 included campgrounds with a lake focus, BC wildfire fighters, and BC Recreation Site Managers.
- CSISS staff attended several AIS related online conferences and meetings in 2021 (Appendix B). Post-COVID lockdown, staff attended various meetings in person where possible (outdoor and socially distanced).
- Facebook/Instagram posts averaging 2 per week throughout year, including a Facebook based photo contest.
- Facebook posts more information and Instagram posts more image focused with abridged information content.
- Four aquatic focused press releases resulting in 11 published articles (Appendix C).
- Engaging videos created and posted (Figure 15).



Figure 15: [Inspirational video with integrated messaging](#)

Boater Outreach and Dock Outreach

- Staff used behaviour change materials, such as stickers and chamois cloths to help people perform CDD. Staff asked boaters to put stickers on trailer hitch.
- Twenty-six boater outreach booth days throughout the season reached 227 boaters
- Further 263 boaters were reached during sampling operations. Boater outreach days were reduced in 2021 due to the hazards of working outdoors in extreme heat, and excessively smoky conditions.



Figure 16: Boater Outreach booth at Finlayson Boat



Figure 17: Clean Drain Dry sticker applied to trailer hitch.

Don't Let It Loose Program

The 'Don't Let It Loose' program promotes returning or rehoming unwanted pets, rather than releasing them into the environment where they may become invasive. Additionally, the program focuses on ensuring live bait fish or other non-native species are not released by anglers/hunters.

- All aquariums/pet stores in the region were visited by CSISS staff in 2021.
- Provincial messaging around zebra mussel infested Moss Balls was shared online and with pet/aquarium stores.
- American Bullfrog Invader Alert posters were installed at 22 potential dumping areas (sensitive wetland areas accessible to the public) in the region.
- CSISS shared the Don't let It Loose message on social media platforms by running campaigns such as 'Invasive Catch of the Day' and posting directly onto target Facebook groups such as fishing and aquarium pages.

GOAL 4: MAXIMIZE THE PROBABILITY OF DETECTION AND ERADICATION OF NEW INVASIVES

The CSISS maximized the probability of detection and eradication of new invasives by raising public awareness and delivering invasive species workshops described above. Additionally, CSISS staff responded to invasive species reports and conducted terrestrial and aquatic targeted invasive species surveys on behalf of partner agencies.

Public Reports

CSISS categorizes reports from the public in four ways: 1) requests for information, 2) invasive plant reports, 3) noxious weed complaints, and 4) landowner outreach. Depending on the nature and priority of the report, CSISS confirms by a site visit and/or responded with landowner extension, an outreach letter, or by enacting the provincial Early Detection Rapid Response (EDRR) protocol.

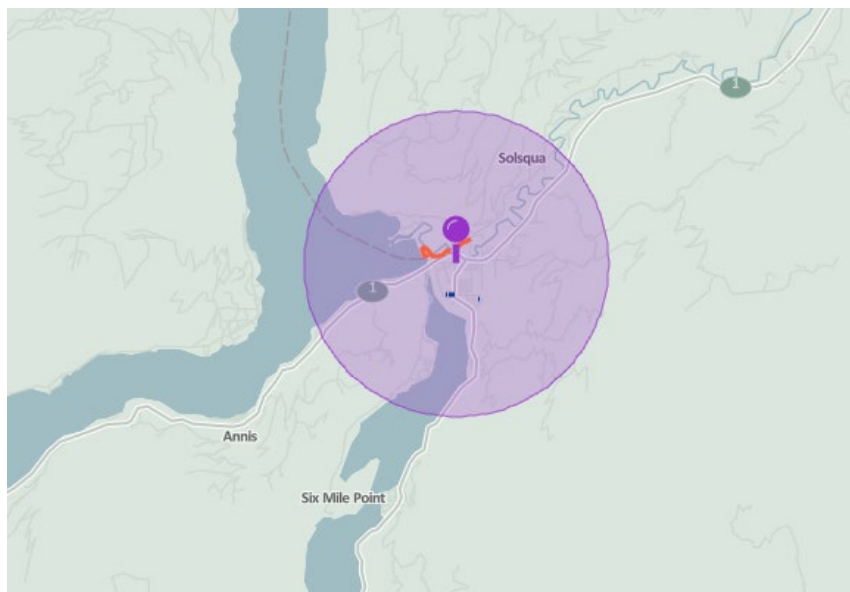
In total, CSISS had:

- 130 requests for information,
- 37 invasive plant reports, and
- 41 in-person landowner visits.

In addition, CSISS completed landowner outreach specific to invasive knotweed through Canada Post's targeted mailing campaign, reaching 1,284 homes and businesses (1,166 residences, 6 farms, and 112 businesses) in Sicamous. (Figure 18. Map 1). Each year, CSISS focuses on a new landowner outreach mailing campaign for a particular species and part of the region to best use resources.



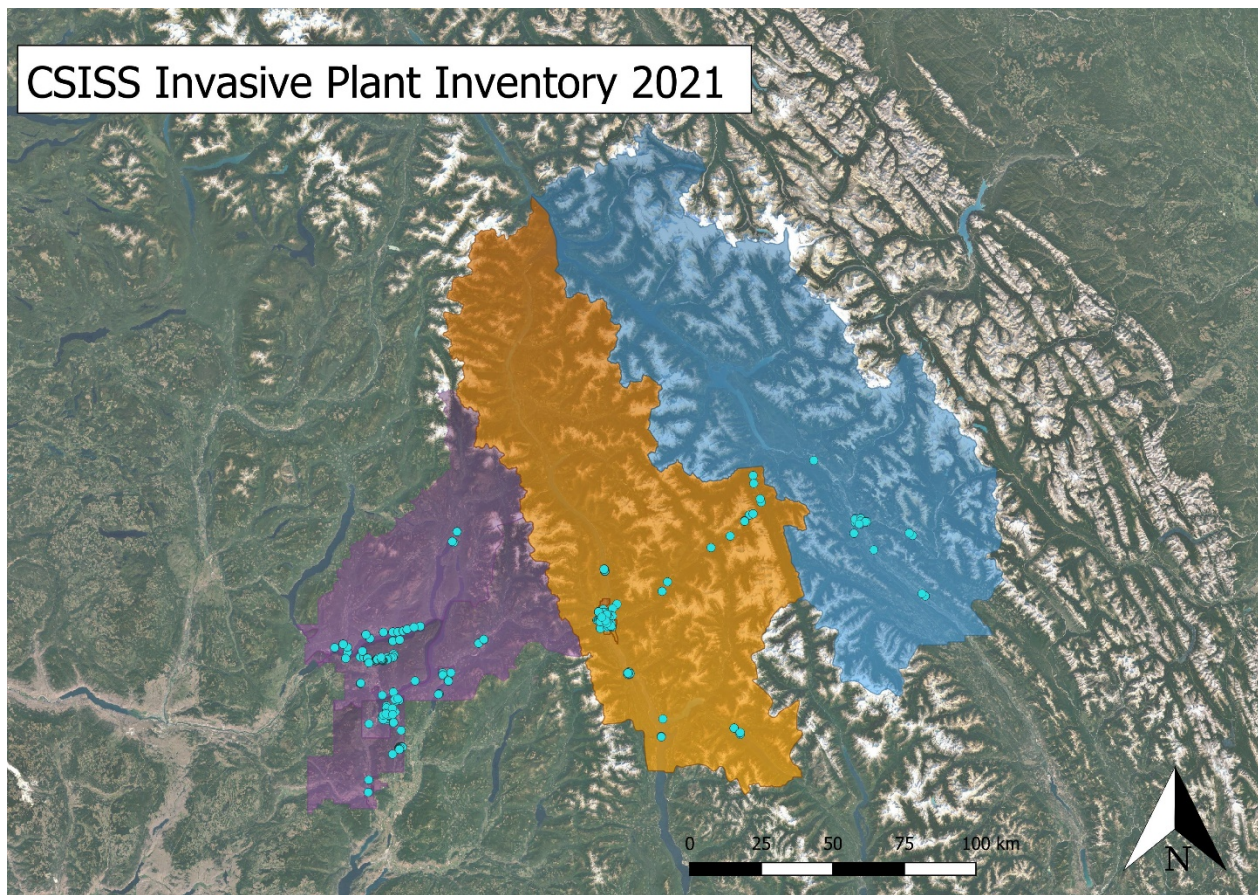
Figure 18. Targeted knotweed mail-out through Canada Post



Map 1. Canada Post targeted mail-out for knotweed. Residences within the radius of the purple circle.

Targeted Invasive Plant Surveys

In 2021, the CSISS inventoried 249 sites and completed 850 invasive plant surveys. Priority invasive plants were found in all 3 of CSISS's Invasive Plant Management Areas (IPMA's). Priority invasive plants inventoried in 2021 include: garlic mustard, blueweed, bohemian knotweed, cypress spurge, field scabious, giant knotweed, Himalayan blackberry, leafy spurge, poison hemlock, policeman's helmet, rush skeletonweed, scotch broom, scotch thistle, teasel, wild chervil, wild parsnip and yellow flag iris (Map 2). CSISS entered all invasive plant surveys, site surveys, treatment records and monitoring records completed on behalf of partner/funding agencies into the Provincial Invasive Alien Plant Program (IAPP) database.



Map 2. Invasive Plant Inventories in the Columbia Shuswap Region 2021

Field Operations Funder Updates

CSRD Overview

In 2021, the CSISS completed invasive plant inventories of Columbia Shuswap Regional District properties including landfills, transfer stations, parks, fire halls and parcels (Figure 19). In addition to inventories, the CSISS administered and monitored landfill and transfer station invasive plant chemical treatments, completed mechanical removal of priority invasive plants, and completed landowner outreach throughout the region.

CSISS identified 7 landfills and transfer stations for priority invasive plant treatment. A certified herbicide applicator treated 5 sites and 0.0122 hectares over two rounds of treatment from May to September 2021. CSISS staff completed herbicide monitoring at 4 of the sites, all sites passed inspection. CSISS staff completed mechanical treatment at 2 sites, removing a total of 0.0002 Ha of priority invasive plants. From previous years, CSISS found a reduction of infestation size at some sites treated and 4 locations had 'No Weed Found' for priority species

In 2021, CSISS staff also inventoried 36 CSRD properties: 28 parks, 4 fire halls and 2 parcels.

In total, CSISS staff mechanically treated 5 sites and 0.0090 Ha. CSISS found a reduction of infestation size at some sites treated and 3 locations had 'No Weed Found' for priority species in 2021.

A high priority site of leafy spurge along the CSRD rail trail near Sicamous discovered in 2018 was approved for treatment and chemically treated in 2021 (Figure 19).



Figure 19. Leafy spurge on Rail Trail (left), Lake View Community Park (right).

BC Parks Overview

In 2021, the CSISS inventoried Martha Creek, Blanket Creek and Shelter Bay Provincial Parks focusing on expansion project areas and completed multiple mechanical treatments at each of the Parks (Figure 20). A certified herbicide applicator completed herbicide treatment at Martha Creek, Blanket Creek, and Shelter Bay Provincial Parks within the expansion project area. BC Parks Rangers and CSISS staff completed mechanical treatment at Blanket Creek Provincial Park and a community weed pull took place at Martha Creek Provincial Park. CSISS entered all data into the Provincial Invasive Alien Plant Program (IAPP) database.

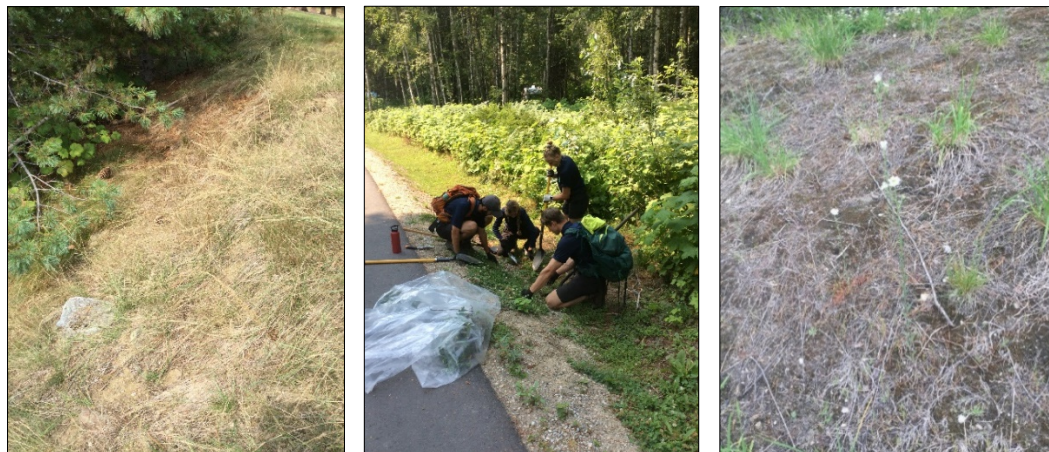


Figure 20. Martha Creek Provincial Park leafy spurge (left), BC Parks Rangers at Blanket Creek Provincial Park (centre), Shelter Bay Provincial Park priority invasive plant, hoary alyssum (right).

Blanket Creek Provincial Park Restoration Project

The CSISS is now in the second year of a collaborative restoration project with BC Parks in Blanket Creek Provincial Park. The site has been impacted by invasive plants, such as knapweed species. Blanket Creek Provincial Park is located within the traditional territories of the Okanagan and Secwepemc First Nations and holds important conservation values such as kokanee spawning habitat and winter ungulate range. The park also contains mature second growth stands of western hemlock and western red cedar.

The project aims to remove and displace invasive species by re-establishing native species and promote a resilient native plant assemblage for the future. Shearing Environmental Consultants Ltd provided expertise to help plan restoration and choose indigenous vegetation to support the natural ecosystem.

Through the spring and summer plants installed and seeded in the fall of 2020, were watered weekly. Despite our best efforts the heatwave and drought periods of the 2021 summer impacted some plants, resulting in some die off and poor growth.

This fall, the CSISS expanded the restoration site with support from Invasive Species Council of British Columbia's Stronger BC Teams and a volunteer event with See Revelstoke Tourism and Wildsight Revelstoke. Over the course of 8 days, 441 trees and shrubs were planted, 100 cottonwood stakes were installed, and a 2300 m² area was seeded. This project was undertaken with the financial support of Environment and Climate Change Canada (Eco Action grant), Habitat Conservation Trust Foundation (restoration grant), and BC Parks License Plate funding. In kind support provided by See Revelstoke (volunteers), Wildsight Revelstoke (volunteers, indigenous land acknowledgement, refreshments), Revelstoke Tree Care (mulch donation) and Jake and Jay (soil donation).

Watch the update video by the CSISS: <https://www.youtube.com/watch?v=PnU-obPUiVA>



Figure 21. Blanket Creek Provincial Park restoration project consultants (left), ISCBC Stronger BC Action Team Salmon Arm and volunteers installing trees and shrubs in the restoration area (centre and right).

Shuswap Yellow Flag Iris Project Overview

In 2021, the CSISS completed detailed site inventory for invasive yellow flag iris (YFI) in sites around the Shuswap, including White Lake, Turner Creek, McGuire Lake, Gardom Lake, and Little White Lake (Figure 22). Using iPads and a GIS mapping program, there is a combined infestation size of 0.0935 Ha in the Shuswap: 0.0611 Ha at White Lake and Little White Lake, 0.0259 Ha at Gardom Lake, 0.0001 Ha at McGuire lake, and 0.064 Ha at Turner Creek. Shuswap Trail Alliance crews mechanically treated all infestations of yellow flag iris at White Lake as highest priority, as well sites at Turner Creek and McGuire Lake, while CSISS worked to coordinate and monitor these efforts. CSISS received funding from Environment and Climate Change Canada (EcoAction Community grant) and the Habitat Conservation Trust Foundation to help with this project. CSISS leveraged funding through a wage subsidized summer student position and other grant funding for outreach activities. CSISS staff completed deadheading of

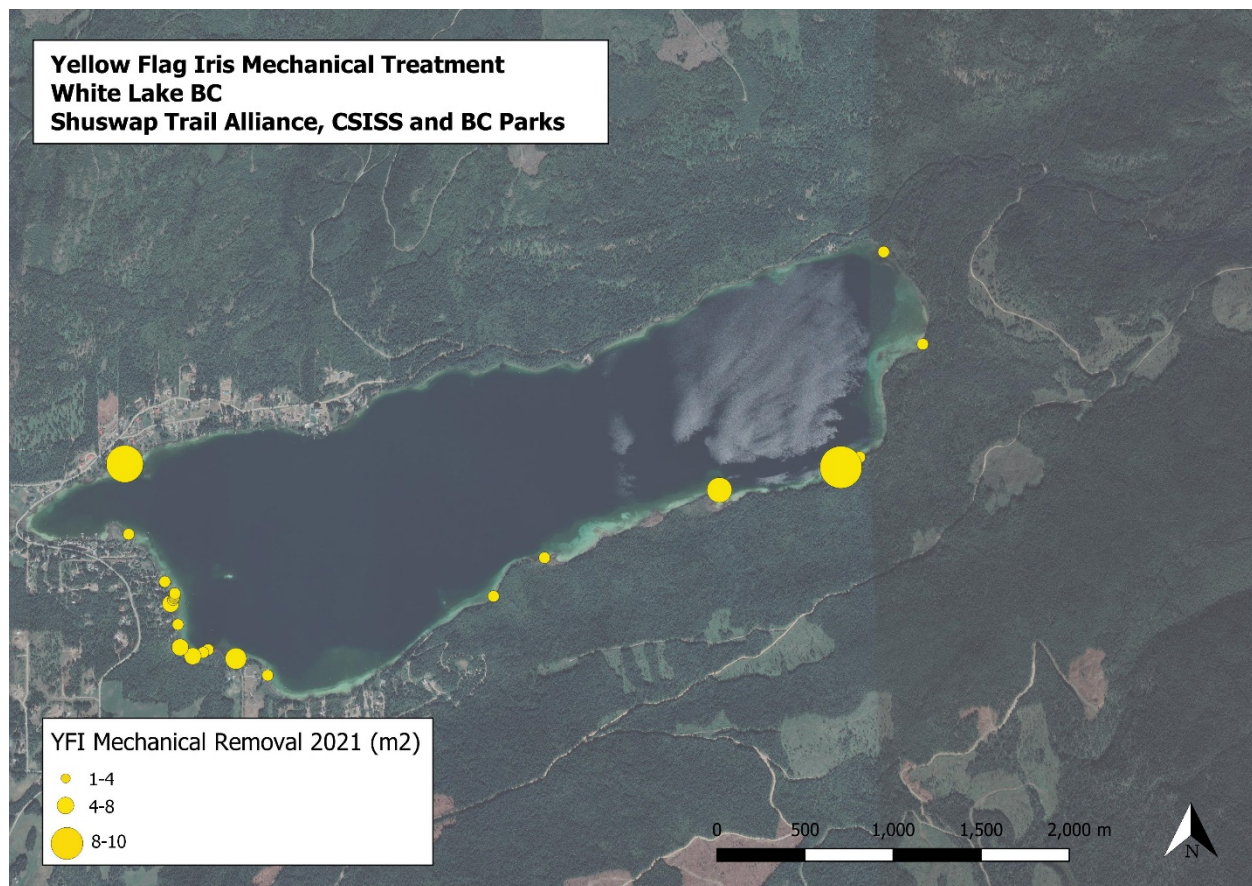
yellow flag iris seed pods and flowers at a majority of locations on Little White Lake. CSISS staff completed mechanical treatment monitoring at each waterbody to ensure successful treatment.

Community weed pulls and restoration events usually take place at Little White Lake, however due to COVID-19 and physically distancing protocols no weed pulls took place there in 2021. However, the ISCBC Stronger BC Action team completed deadheading of 0.0173 ha on Little White Lake.

In total, mechanical treatment from digging removed 0.0047 Ha from White Lake with efforts from CSISS staff, BC Parks staff and the Shuswap Trail Alliance crews. Monitoring and further treatment is recommended for future years, as with all invasive species, especially aquatic/riparian plants, eradication is a multi-year effort.



Figure 22. Invasive yellow flag iris infestation on White Lake (left), yellow flag iris removal at Turner Creek (centre), Shuswap Trail Alliance completing removal at White Lake (right).



City of Salmon Arm Overview

In 2021, CSISS staff inventoried 57 priority sites on municipal properties, completing 81 invasive plant surveys (some sites have more than one plant species). CSISS administered and coordinated a herbicide contract to ensure effective treatment timing for priority species. Spot treatment of herbicide occurred at 40 municipal priority sites over two passes from May to September 2021. CSISS completed herbicide monitoring at 15 of the treated sites, all sites passed inspection. CSISS staff completed mechanical treatment at 6 municipal priority sites with a total of 147 m² of invasive plant material removed. Through additional funding, CSISS coordinated a work plan for the Invasive Species Council of BC Stronger BC Salmon Arm Team to complete mechanical and chemical treatment for various land managers and this workplan included municipal properties in Salmon Arm. The ISCBC StrongerBC team completed mechanical treatment at an additional 7 sites in the City. CSISS installed 9 Do Not Mow signs along City right-of-ways to alert roadside mowers and public of the infestation.



Figure 23. Wild parsnip infestation (left), spot application of herbicide treating blueweed (centre), installation of 'Do Not Mow' signage (right).

Ministry of Transportation and Infrastructure Overview

As part of the CSISS's contract with the MoTI, CSISS staff completed pre-season maintenance contractor meetings regarding invasive plant identification and best management practices. Sessions covered new and existing priority invasive plants in the area, mowing schedules, knotweed/ do not mow signage, best management practices for mowing/ ditching/ gravel pit activities and reporting. Emcon Services (Golden and Revelstoke) and AIM Roads (Salmon Arm) took part in the contractor meetings.

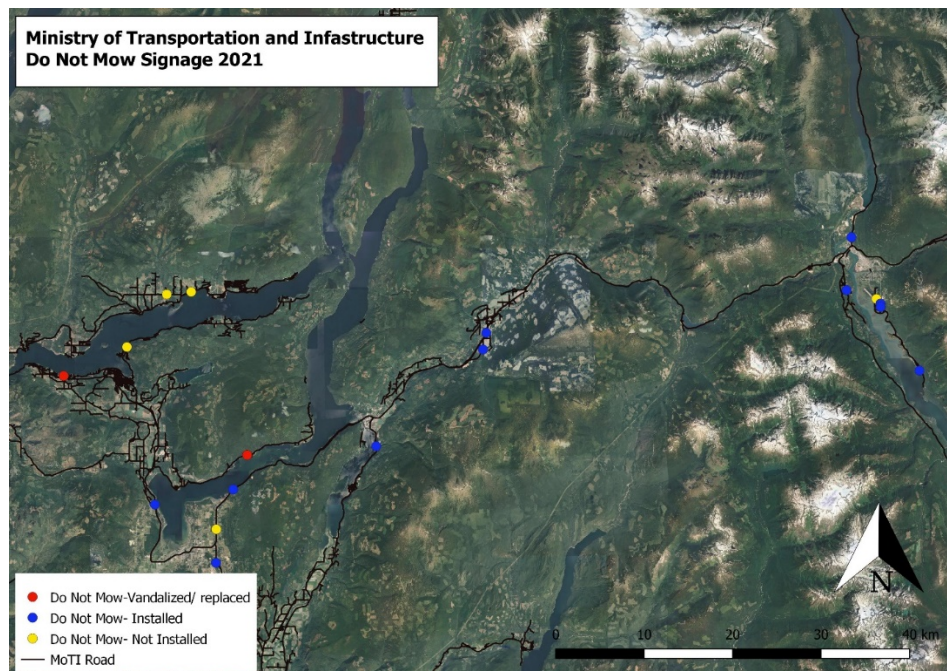
CSISS staff installed 14 Do Not Mow signs for knotweed infestations along MoTI right-of-ways, prior to mowing (Map 2, Figure 24). During signage installation, CSISS staff directly spoke with adjoining private landowners delivering information about knotweed. CSISS sent roadside contractors mapping files containing the locations of knotweed infestations with signage and without signage.

Throughout the season, CSISS staff re-visited Do Not Mow signage sites and replaced or repaired two vandalized signs. CSISS staff removed, cleaned and stored the signage in a secure CSISS lock-up after the mowing season ended.

During the mowing season, CSISS continued communication with mowing contractors and MoTI staff. CSISS staff continued to monitor for Early Detection and Rapid Response (EDRR) species, and report new priority sites to the Province, no MoTI Provincial EDRR sites were found in 2021 by CSISS.



Figure 27. Do Not Mow signage installed for the MoTI in 2021.



Map 2. Ministry of Transportation and Infrastructure Do Not Mow Signage in 2021.

Parks Canada Overview

The CSISS, acting as a qualified contractor on behalf of Parks Canada, completed Invasive Alien Plant (IAP) Herbicide Monitoring in Mount Revelstoke and Glacier National Parks (MRG) at sites allocated for spot application of herbicide treatment. The sites monitored are found within the integrated control zone on the highway corridor, both high and very high priority invasive species are managed in this zone.

In total, CSISS monitored 21 sites for herbicide effectiveness spanning two rounds of treatment from a certified pesticide applicator in both Mount Revelstoke and Glacier National Parks (Figure 28).



Figure 28. Mount Revelstoke and Glacier National Parks: inventory prior to spot herbicide application at Meadows in the Sky Parkway(left), Rogers Pass Discovery Center (centre) and Rogers Pass Compound (right).

Nature Trust Overview

As part of the Columbia Shuswap Invasive Species Society's contract with the Nature Trust, CSISS completed a comprehensive inventory of priority invasive alien plants on the Foreshore property, mechanically treated high priority invasive alien plants. All invasive plant inventory, treatment and monitoring data was entered into the provincial Invasive Alien Plant Program (IAPP) database.

Following COVID-19 and physical distancing protocols, a community weed pull took place in 2021 with the Salmon Arm Bay Nature Enhancement Society (SABNES), treating invasive nightshade. Additional treatment along the foreshore was possible through Nature Trust staff involvement.



Figure 29. Salmon Arm Foreshore boardwalk (left), mechanical treatment with Nature Trust and CSISS (centre), and bittersweet nightshade infestation(right).

BC Hydro Overview

In total, nine knapweed sites have been located along BC Hydro transmission line corridor 60L271G. In 2020, 0.0487 Ha of spotted knapweed was inventoried on BC Hydro transmission line circuit 60L271G Golden, BC across the nine site locations.

Following recommendations after inventory and chemical treatment in 2020, spot application of herbicide was completed at eight sites within the Golden IPMA, BC Hydro transmission line corridor 60L271G in 2021. All treatments were completed by a certified pesticide applicator using the herbicide Clearview to treat spotted knapweed. In total, 0.1854 Ha were treated on July 17-18 2021. Note, the area treated is larger than area found on the landscape due to spray allowances surrounding physical plant area. Herbicide monitoring was completed at 8 sites. All sites passed with 80-100% efficacy (Table 1).

Mechanical treatment of .0001 Ha of spotted knapweed was completed at one site on July 17, 2021. The location is adjacent to a horse stable where the private land owner is actively hand pulling spotted knapweed on her property.



Figure 30. Golden IPMA herbicide monitoring on BC Hydro transmission line in 2021.

Aquatic Invasive Species Surveys

Zebra and Quagga Mussels (*Dreissenid* spp.)

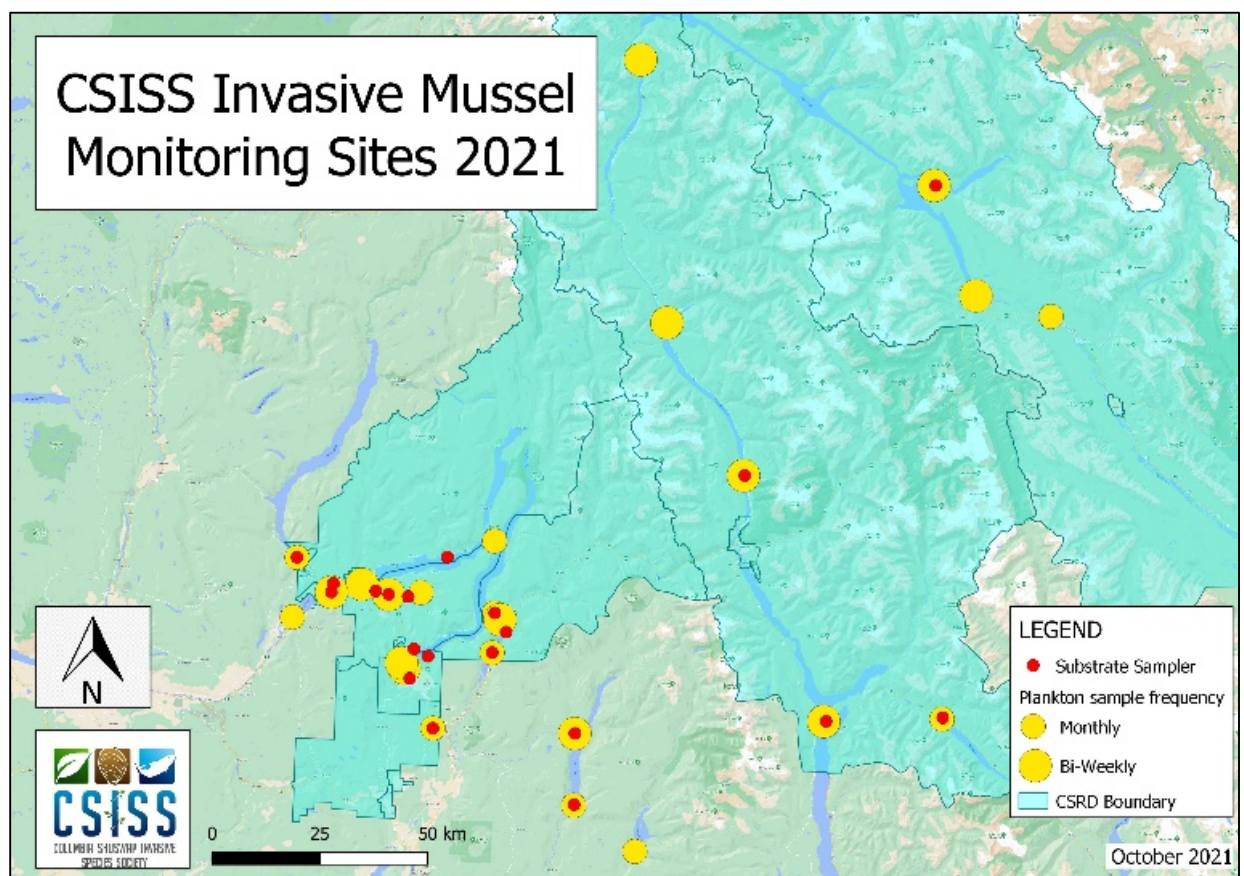
Following the Provincial Dreissenid mussel risk matrix, CSISS sampled plankton at sites on critical and high priority waterbodies throughout the region, either monthly or bi-weekly (Appendix F). Sampling results:

- Sites were monitored between June 3rd to October 19th.
- One hundred and sixteen plankton samples were collected from 24 sites on 13 waterbodies (Appendix F, Map 3).



Figure 31. Substrate sampler being inspected for invasive mussel adult settlement

- Further 8 sites (Shuswap Lake, Mara Lake, White Lake) were monitored for adult mussels by the Stronger BC Action Team (Figure 31).
- Three waterbodies (Mabel Lake, Sugar Lake Little Shuswap lake), are outside of the CSISS operating area (Map 3). CSISS sampled these locations because there was no other agency available to sample them, and they are in the Shuswap Watershed, therefore with potential impacts to the CSRD region.
- The Province (ENV) provides funds to monitor waterbodies through the Habitat Conservation Trust Foundation (HCTF). Additional funds were obtained from the Shuswap Watershed Council.
- All waterbodies tested negative for ZQM veligers and adults at all locations sampled by CSISS. There are currently no known occurrences of ZQM in the Province of BC.



Map 3. Locations of sites sampled for ZQM by CSISS in 2021.

Invasive Freshwater Clam Surveys (*Corbicula fluminea*.)

During spring of 2021, the Province used divers to sample deeper locations in the Salmon Arm of the Shuswap Lake for invasive clams (*Corbicula fluminea*). Data from the dive surveys is consistent with what was being observed from the shoreline surveys in 2020. Densities were low, size classes were in a similar range (up to 20mm length), and presence was limited to the photic zone (C. Silverio, ENV, June 2021).

Local First Nations Groups were contracted by the Province to help with shoreline surveys throughout the Shuswap watershed in both spring and fall. CSISS helped train surveyors in survey techniques. No clams were found in locations not already found in 2020.

Rototilling and harvesting for milfoil control has been identified as a potential mechanism of clam spread. Rototilling for milfoil control in infested areas (Salmon Arm Reach) was cancelled in summer 2021. Fortunately, milfoil growth was reduced in 2021 in areas affected by the 2020 algal bloom (Salmon Arm area) and therefore harvesting was not necessary.

Aquatic Invasive Plants

All CSISS shore-based ZQM sampling sites were surveyed for aquatic invasive plants. A number of invasive plants are present in the Columbia Shuswap region including: Eurasian watermilfoil (*Myriophyllum spicatum*), yellow flag iris (*Iris pseudacorus*), curly-leaf pondweed (*Potamogeton crispus*), watercress (*Nasturtium officinale*), and fragrant waterlily (*Nymphaea odorata*). Aquatic plant growth in 2021 was reduced in areas affected by the 2020 algal bloom (Salmon Arm Bay). No new infestations of invasive plants were discovered in 2021.

American Bullfrogs

American bullfrogs are not known to exist in the Columbia Shuswap Region. In 2020, there was a report of a bullfrog at Square Lake near Falkland. With support from Provincial staff, the CSISS installed a Wildlife Acoustics song meter mini to record potential bullfrog calls for two weeks in June 2021 (calling season). The data was analysed using Kaleidoscope Pro software. No bullfrog calls were detected.

A bullfrog was also reported at Wadey campground on Lake Revelstoke in late 2020. During June, staff surveyed campers at Wadey and other nearby camping areas. Campers were shown both images and recorded bullfrog calls. No campers recalled seeing a bullfrog, or hearing the distinctive calls of bullfrogs.

Western toads are common in the both areas and are commonly mistaken for bullfrogs as they are often quite large. They are regularly seen moving through campsites and other forest areas during their migration to and from waterbodies for breeding.

GOAL 5: SLOW AND REVERSE THE SPREAD AND MINIMIZE THE IMPACT OF EXISTING INVASIVES

The CSISS works hard to slow and reverse the spread of existing invasive species and reduce their impacts. Collaboration, clear and effective communication, community participation and establishing realistic, obtainable treatment goals all play a role in minimizing the impact of invasives.

Mechanical Treatment

In 2021, the CSISS mechanically treated 47 priority invasive plant sites, removing a total of 0.1101 Ha of material. The invasive plants treated consist of: garlic mustard, blueweed, bull thistle, burdock, common tansy, diffuse knapweed, English ivy, greater celandine, Himalayan blackberry, hoary alyssum, leafy spurge, meadow knapweed, poison hemlock, policeman's helmet, rush skeletonweed, spotted knapweed, St. John's wort, teasel, wild chervil, wild parsnip and yellow flag iris (Figure 33). As part of mechanical treatment, the CSISS supported 7 weed pulls throughout the Columbia Shuswap region. Due to COVID-19, physical distancing was maintained along with mask wearing and hand sanitization during weed pulling activities. As well, weed pulls were with designated partner organization teams as opposed to larger public events due to COVID-19 safety concerns.



Figure 33. yellow flag iris removal (left), SABNES weed pull (centre), and garlic mustard infestation (right).

Chemical Treatment

In 2021, the CSISS administered four herbicide spray contracts treating 54 priority sites and 1.0454 Ha of land. All treatments were carried out by a certified herbicide applicator. The CSISS monitored each herbicide spray contract, all sites passed inspection. Priority invasive plants treated include: blueweed, bohemian knotweed, bull thistle, burdock, Canada thistle, field scabious, Himalayan blackberry, leafy spurge, hoary alyssum, oxeye daisy, poison hemlock, policeman's helmet, rush skeletonweed, spotted knapweed, sulphur cinquefoil and yellow hawkweed species (Figure 34).



Figure 34. Successful leafy spurge treatment on CSRD Rail Trail(left) and bohemian knotweed treatment (right).



Figure 35: Watercraft Inspection billboard being installed east of Golden.

Permanent Clean Drain Dry signage is installed at 68 boat launches within the region (Figure 36).

CSISS' close partnership with the Adams Lake Band and increasing aquatic invasive species awareness among band members, lead to them installing a sign on band property at Pierre's Point in 2021.



Figure 36: CDD sign at Pierre's Point

GOAL 6: PROGRAM SUSTAINABILITY

In 2021, the CSISS gratefully received in kind and financial support for invasive species related programming in the region from over 18 sources and maintained a similar operating budget. The CSISS received funds from B.C. Community Gaming Grant, Parks Canada, Habitat Conservation Trust Foundation (Invasive Mussel Monitoring and Restoration grants), City of Salmon Arm, BC Hydro, Shuswap Watershed Council, the Nature Trust, Environment and Climate Change Canada (Eco Action grant), the Invasive Species Council of BC, and BC Parks (Capital funds and license plate funding for restoration project in Columbia region). In addition, the CSISS continued multi-year funding agreements from the Columbia Shuswap Regional District (CSRD, renewed in 2019 for 2019-2024 agreement), the Ministry of Forests, Lands and Natural Resource Operations and Rural Development (MFNLROD), the Ministry of Transportation and Infrastructure (MoTI), and the Columbia Basin Trust (CBT). CSISS received funding for two assistants (with two 8 week projects each) from the federal government through the 'Canada Summer Jobs' program. A wage subsidy was also received for an assistant early season/summer from CBT wage subsidy program. Small contributions were also received from: Revelstoke Grant In Aid, and the Shuswap Community Foundation. Small fee for service project included work for the Golden Ungulate Winter Range project. Cash donations were received from the Shuswap Waterfront Owners Association and the Revelstoke Accommodation Association. In kind support was received from a number of sources, and all in kind and financial support will be recognized in the CSISS 2021 Financial Report.

Additional funding sources are being pursued for the 2022 season.

The CSISS staff team in 2021 included five continuing staff members, Robyn Hooper (Executive Director), Laura Gaster (Field Operations Program Coordinator), Sue Davies (Aquatics Program Coordinator), Kim Kaiser (Education Program Coordinator) and returning staff Kathleen Meszaros (Invasive Species Program Assistant). Jess Booth was a welcome new staff and assisted with outreach activities throughout the year. Staff helped greatly enhance the level of service the CSISS was able to deliver in the region (Figure 36). Retaining a quality staff team is important for the CSISS which has thus far been exceptionally successful. Similarly, the CSISS has been fortunate to have received direction from a knowledgeable, diverse Board of Directors. Each individual brings a unique perspective to the organization and has been instrumental in helping the CSISS address many aspects of invasive species management in the region.

The CSISS Policy Manual was reviewed and updated in 2021; the manual helps to facilitate orientation of new staff and directors (Stafl, 2015, updated Hooper 2021). The manual is reviewed and signed by the Board Directors annually and updated as necessary. The Employee Handbook was reviewed and updated, which helps to further guide CSISS staff on organizational, human resources and administrative standards.

In 2021 CSISS staff created handbooks for each coordinator position (Outreach, Aquatics, and Field Operations) to assist with new staff training in each role. Coordinators have developed several “How To” documents for reference and training purposes. There are also various outreach planning documents that inform CSISS outreach targets, performance measures, staff work plans, calendars for specific outreach programming, and help to determine gaps in stakeholder groups and pathways of spread. Staff also work diligently from individual workplans and an organizational workplan that links to the CSISS Strategic Goals.



Figure 36. CSISS Staff members (from left to right): Robyn Hooper (Executive Director); Laura Gaster (Field Operations Coordinator); Sue Davies (Aquatic Coordinator); Kim Kaiser (Outreach Coordinator); Kathleen Meszaros (Program Assistant). Jess Booth (Program Assistant).



References

Craig, J.A. 2013. Columbia Shuswap Invasive Species Society Strategic Plan 2013-2017. Prepared for the Columbia Shuswap Invasive Species Society.

Craig, J.A. 2013. Operational Plan for Terrestrial Invasive Plants in the Columbia Shuswap 2014 to 2019. Prepared for Columbia Shuswap Invasive Species Society.

Craig, J. A. 2015. Canadian Columbia Basin Regional Framework for an Aquatic Invasive Species Program: 2015 to 2020.

Harkness, C. 2016. North Columbia Priority Aquatic Invasive Species Surveys. Prepared for the Columbia Shuswap Invasive Species Society.

Hooper, R, Stafl, N., Gaster, L., Spiler, E., Gibson, M. and Rooney, D. 2015. CSISS Outreach Framework 2015-2020. Prepared for the Columbia Shuswap Invasive Species Society. Updated in 2017 by Sue Davies to include pathways of spread.

Stafl, N. 2014. CSISS Invasive Species Reporting Protocol. Prepared for the Columbia Shuswap Invasive Species Society.

Stafl, N. 2015. CSISS Policy Manual Version 2.0. Prepared for the Columbia Shuswap Invasive Species Society. Updated in 2016 and 2017 by R. Hooper and CSISS Board.

Additional Resources:

CSISS Resources (Operational and Strategic Plans, Aquatic Survey Reports): <http://columbiashuswapinvasives.org/about-csiss/csis-resources/>

Information on high priority regional species: <http://columbiashuswapinvasives.org/invasive-species/high-priority-invasives/>

Appendix A: CSISS Staff and Board Directors 2021

Current CSISS Board Directors (2021- 2022)

Hamish Kassa	Chair, CSISS	Columbia Shuswap Regional District
Chris Cochran	Vice-Chair, CSISS	Town of Golden
John Braisher	Board Director, CSISS	Rancher and Golden resident
Adam Croxall	Board Director, CSISS	BC Hydro
Darren Komonoski	Board Director, CSISS	City of Revelstoke
Diane Millar	Board Director, CSISS	MFLNRORD
Chris Gill	Board Director, CSISS	Shuswap resident and environmental consultant
Laurel Corrigan	Board Director, CSISS	Revelstoke resident
Peter Tarleton	Board Director, CSISS	Parks Canada
Erin Vieira	Board Director, CSISS	Shuswap Watershed Council/Fraser Basin Council
Jeromy Schuetze	Board Director, CSISS	District of Sicamous

Previous CSISS Board Directors (2020- 2021)

Hamish Kassa	Chair, CSISS	Columbia Shuswap Regional District
Chris Cochran	Vice-Chair, CSISS	Town of Golden
John Braisher	Board Director, CSISS	Rancher and Golden resident
Adam Croxall	Board Director, CSISS	BC Hydro
Darren Komonoski	Board Director, CSISS	City of Revelstoke
Diane Millar	Board Director, CSISS	MFLNRORD
Chris Gill	Board Director, CSISS	Shuswap resident and environmental consultant
Laurel Corrigan	Board Director, CSISS	Revelstoke resident
Joe McCulloch	Board Director, CSISS	District of Sicamous
Peter Tarleton	Board Director, CSISS	Parks Canada
Warren Fortier	Board Director, CSISS	Little Shuswap Indian Band

CSISS Staff 2021

Robyn Hooper	Executive Director, CSISS
Laura Gaster	Field Operations Program Coordinator, CSISS
Sue Davies	Aquatic Invasive Species Program Coordinator, CSISS
Kim Kaiser	Outreach and Education Program Coordinator, CSISS
Kathleen Meszaros	Program Assistant (Summer Staff), CSISS
Jess Booth	Program Assistant (Summer Staff), CSISS

Appendix B: Events Attended by CSISS and partners 2021

Events highlighted in grey pertain to the Columbia Basin Region of the CSISS Area

Date	Event	# of attendees	# of Direct Interactions
7-Jan-21	Partner Meeting with BC Parks-Shuswap region: BC Parks Conservation Coordinator	2	2
7-Jan-21	Partner Meeting with Nature Trust of British Columbia	2	2
12-Jan-21	Partner Meeting with City of Salmon Arm	2	2
12-Jan-21	Partner Meeting with Columbia Shuswap Regional District	2	2
14-Jan-21	Shuswap Watershed Council Meeting	1	1
19-Jan-21	Partner Meeting with Ministry of Transportation and Infrastructure	2	2
20-Jan-21	Partner Meeting with BC Parks	2	2
22-Jan-21	Columbia Basin Field Operation Team Meeting	5	5
25-Jan-21	Invasive Clam Partner Meeting	73	73
27-Jan-21	Shuswap Trails Roundtable Working Group Meeting	20	20
28-Jan-21	Pollinator Committee Meeting	3	3
29-Jan-21	Aquatic Invasive Species Provincial Call	12	12
1-Feb-21	Invasive Species Council of BC Affiliate Meeting	15	15
2-Feb-21	Art of Participatory Leadership Course	20	20
5-Feb-21	Partner Meeting with Parks Canada	2	2
8-Feb-21	Sunnybrae Community Association	1	1
8-Feb-21	Partner Meeting with Ministry of Forests, Lands and Natural Resource Operations and Rural Development	2	2
9-Feb-21	CSISS Annual Land Managers Meeting	32	32
9-Feb-21	Invasive Species Council of BC Annual Forum and AGM	250	20
19-Feb-21	Okanagan and Similkameen Invasive Species Society and Friends of Rail Trail Meeting	3	3
22-Feb-21	Partner Meeting with Fisheries	1	1
23-Feb-21	Thompson Nicola Invasive Plant Management Committee Land Manager Meeting	25	25
23-Feb-21	North Shuswap Chamber of Commerce Presentation	8	8
23-Feb-21	Sunnybrae Community Association	1	1
25-Feb-21	CSISS Meeting MP Rob Morrison	2	2
2-Mar-21	Shuswap Water Monitoring Group Meeting	10	10
3-Mar-21	Invasive Clam Partner Meeting	2	2
4-Mar-21	CKISS Land Manager Meeting	25	25
8-Mar-21	Little Shuswap Indian Band and CSISS Meeting	1	1
9-Mar-21	CSISS Land Manager Meeting	32	32
10-Mar-21	Wildlife Habitat Canada Funder Meeting	1	1
11-Mar-21	Provincial Inter-Ministry Group Meeting	15	15
18-Mar-21	Columbia Basin Field Operations Team Meeting	5	5
25-Mar-21	Wildsight Revelstoke Toad Watch	12	12
29-Mar-21	BC Parks Meeting	2	2
30-Mar-21	Wildsight Revelstoke Annual Meeting	20	
31-Mar-21	Provincial Fisheries and Shuswap Lake Indian Band Partner Meeting	4	4
1-Apr-21	Shuswap Okanagan Rotary Club Presentation	15	15

7-Apr-21	Columbia Mountains Institute of Applied Ecology -Amphibian Identification course	36	36
13-Apr-21	East Kootenay Invasive Species Council Land Manager Meeting	33	
14-Apr-21	Invasive Species Council of BC and CSISS Indigenous Outreach-Splatsin Workshop Planning	1	1
16-Apr-21	Shuswap Trails Roundtable Working Group Meeting	20	20
20-Apr-21	Emcon Contractor best management practices Meeting	2	2
22-Apr-21	AMI Contractor best management practices Meeting	6	6
27-Apr-21	Clam shoreline survey protocol training	7	7
29-Apr-21	North Shuswap Chamber of Commerce Presentation	5	5
29-Apr-21	CSISS, BC Parks, Ministry Of Transport and Infrastructure Blanket Creek Meeting	4	4
3-May-21	First Nations clam training	5	5
4-May-21	City of Salmon Arm Tailgate session	10	10
5-May-21	CSISS Invasive Plant and Management Workshop: Trails and Recreation Areas Focus	79	79
6-May-21	Parks Canada and CSISS pre-season Meeting	1	1
6-May-21	Herbicide Training Corteva Agriscience	1	1
6-May-21	Columbia Basin Field Operations handbook meeting	5	5
10-May-21	BC Timber Sales Presentation, CSISS and Okanagan and Similkameen Invasive Species Society	38	38
11-May-21	Aquatic Invasive Species online training- Invasive Species Council- Stronger BC team	8	8
13-May-21	Revelstoke Rotary Invasive Species Presentation	9	9
14-May-21	Columbia Basin steering committee	10	10
18-May-21	Wildsight Golden Invasive Species Training	1	1
19-May-21	CSISS - PlantWise and Pollination Networking for your Garden- Online Workshop	25	25
27-May-21	CSISS- Invasive plant ID workshop: Yellow Flowers- Online Workshop	33	33
27-May-21	Herbicide contractor Meeting with Ministry of Transport and Infrastructure	1	1
28-May-21	Herb Contractor Meeting with Bare Ground Vegetation Services	1	1
28-May-21	Parks Canada staff training session	6	6
1-Jun-21	Revelstoke Paddlesport- Aquatic Invasive Species presentation	12	15
3-Jun-21	Revelstoke Paddlesport- Aquatic Invasive Species presentation	6	10
4-Jun-21	CSISS and Shearing Consulting Meeting at Blanket Creek	6	6
10-Jun-21	Campground Outreach Golden	3	3
16-Jun-21	Golden Farmer's Market	60	15
17-Jun-21	Splatsin Invasive Plant Training with ISCBC	7	7
18-Jun-21	Shuswap Roundtable Working Group Meeting	20	20
22-Jun-21	Campground Outreach Revelstoke	6	6
22-Jun-21	Garden center outreach	16	16
22-Jun-21	Marina Outreach	22	22
22-Jun-21	Pet store outreach	5	5
26-Jun-21	Golden Weed Pull	10	10
29-Jun-21	BC Institute of Agrologists Kootenay Boundary Branch Presentation	18	18
7-Jul-21	Meeting with Golden Cycling Club /Wildsight Golden	2	2
9-Jul-21	Salmon Arm Community Market	30	19

10-Jul-21	Local Food Invasive Market Revelstoke	250	26
12-Jul-21	BC Student rangers- Blanket Creek	5	5
13-Jul-21	BC Student rangers- Blanket Creek	4	4
15-Jul-21	Glacier Adventure Stewardship Program- Wildsight Revelstoke - weed pull	3	3
15-Jul-21	Plant ID walk with Wildsight Revelstoke and Revelstoke Local Food Initiative	8	8
16-Jul-21	Partner Meeting Cirque Environmental Consulting	1	1
21-Jul-21	Golden Farmer's Market	100	18
24-Jul-21	Revelstoke Farmer and Craft Market	150	22
29-Jul-21	Cress Creek Himalayan balsam weed pull	6	6
29-Jul-21	Meeting with Splatsin First Nation	1	1
31-Jul-21	Revelstoke Mountain Resort	150	12
3-Aug-21	Cress Creek Himalayan balsam weed pull	4	4
4-Aug-21	Plant ID and Plant Pressing Workshop	15	15
6-Aug-21	Booth Parks Canada Giant Cedar Boardwalk	25	25
12-Aug-21	Wildsight Revelstoke Insight Summer Camp	12	12
13-Aug-21	Weed Pull Martha Creek	0	12
19-Aug-21	Partner Meeting Shearing Consulting- Blanket Creek	1	1
19-Aug-21	Meeting with BC Parks Shuswap	4	4
20-Aug-21	Partner Meeting with Fish and Wildlife Conservation Program	1	1
24-Aug-21	Wildsight Revelstoke Insight Summer Camp	13	17
25-Aug-21	Blanket Creek Weed Pull	1	5
9-Sep-21	Invasive Species Council BC Affiliate Meeting	15	15
10-Sep-21	Salmon Arm Downtown Market	100	21
11-Sep-21	Golden Weed Pull- Golden Cycling Club	5	10
14-Sep-21	Columbia Basin Trust Ecosystem Grant Meeting	1	1
23-Sep-21	Golden Wildsight Meeting	1	1
23-Sep-21	Meeting with Thompson Nicola Regional District	2	2
26-Sep-21	Wildsight Kokanee Fish Festival	200	40
29-Sep-21	Salmon Arm Bay Nature Enhancement Society Weed Pull	16	16
2-Oct-21	Blanket Creek Site Restoration Event	40	40
4-Oct-21	Partner Meeting with Fisheries	2	2
6-Oct-21	Invasive Species Council BC- Conference Blanket Creek Presentation	120	20
10-Oct-21	Tsútswe'cw Provincial Park Thanksgiving Market	350	45
14-Oct-21	Arrow Heights Elementary	20	25
15-Oct-21	Shuswap Roundtable Working Group	20	20
19-Oct-21	Begbie View Elementary	20	20
20-Oct-21	Meeting with Laurie CKISS	1	1
21-Oct-21	Adam's River Salmon Society Education Day	40	45
21-Oct-21	Invasive Species Council of BC Advisor meeting	7	7
22-Oct-21	Heartwood Community Salmon Arm Session	52	52
26-Oct-21	CSISS AGM	21	21
27-Oct-21	Begbie View Elementary	22	22
28-Oct-21	South Canoe School	21	21
10-Nov-21	Kootenay Boundary BCIA	30	30
18-Nov-21	Shuswap Water Monitoring Group Meeting	14	14
23-Nov-21	Regional Invasive Species Organization (RISO) Professional Development Program Evaluation	18	18
24-Nov-21	Shuswap Trails Alliance Round Table	78	42

24-Nov-21	Regional Invasive Species Organization (RISO) Professional Development - Zoom	15	15
24-Nov-21	RISO Professional Development- Managing Eco-Grief and Building Resilience for Environmental Professionals	29	29
25-Nov-21	Fisheries Fall Aquatic Invasive Species call	20	20
Bi-monthly	Columbia Basin Executive Director Team Meeting	2	2
Monthly	Monthly Regional Invasive Species Organization (RISO) Meetings	20	20
Monthly (Feb - Aug)	ISCBC Stronger BC Team Strategic Meeting - Planning	8	8
Weekly (May- Aug)	Weekly meeting with ISCBC Stronger BC Team. 14 meetings over the course of the summer (each Wednesday)	6	6

Appendix C: Media coverage of CSISS activities in 2021

Date	Publisher	Headline
1-Jan-21	Salmon Arm Observer	Shuswap Market Year In Review 2020: January
6-Jan-21	Mel Arnold Newsletter	Clams in the Shuswap
28-Jan-21	Vernon Morning Star	Public Told to Look Out For Invasive Mussels and Clams in Shuswap Lake
28-Jan-21	Castanet	Invasive Clam Lookout
28-Jan-21	Penticton Western News	Public Told to Look Out For Invasive Mussels and Clams in Shuswap Lake
28-Jan-21	Revelstoke Mountaineer	Invasive Freshwater Clam Discovery
28-Jan-21	Salmon Arm Observer	Public Told to Look Out For Invasive Mussels and Clams in Shuswap Lake
28-Jan-21	Kelowna Capital News	Public Told to Look Out For Invasive Mussels and Clams in Shuswap Lake
28-Jan-21	CSISS Press Release	Meeting to Discuss Invasive Freshwater Clams in Shuswap Lake
2-Feb-21	EZ Rock Radio Interview	Public Told to Look Out For Invasive Mussels and Clams in Shuswap Lake
10-Feb-21	Salmon Arm Observer	2020 Test Shows BC remains Invasive Mussel Free
25-Feb-21	Wildsight website	Invasive Plant Coordinator Position
23-Mar-21	Revelstoke Review	CBT Funds to Address Technology Gaps for Revelstoke Non-profits
29-Mar-21	Penticton Western News	Scotch Thistle Taking Over Grassland
24-Apr-21	Revelstoke Mountaineer	CSISS to Host Invasive Plant Identification and Management Workshops
26-Apr-21	BC Institute of Agrologists	Invasive Plant ID and Management Workshop: Trails and ... - British Columbia Institute of Agrologists
28-Apr-21	ISCBC	Invasive Plant ID and Management Workshop
29-Apr-21	Line	Invasive plant with purple bell flower
1-May-21	Castanet	Ridding park of nasty weed
5-May-21	ISCBC	Blanket Creek Restoration Project
10-May-21	Salmon Arm Observer	Clean – Drain – Dry: Prevent invasive aquatic species spread with these 3 steps

10-May-21	Castanet	\$250 K Boost for Trail
21-May-21	Castanet	Invasive Species Awareness
25-May-21	Wildsight Blog	Wildsight Golden Community Weed Program 2021
28-May-21	Golden Star	Wildsight Golden Target's Invasive Plants
18-Jun-21	Golden Star	Golden Annual Weedpull back for 14th Year
26-Jun-21	Saanich News	1 way to deal with invasive snails in B.C. is... to eat them?
28-Jun-21	Salmon Arm Observer	Shuswap Lake being monitored for algal blooms
29-Jun-21	Nanaimo News Bulletin	1 way to deal with invasive snails in B.C. is... to eat them?
6-Jul-21	Vernon Morning Star	Public in Columbia Shuswap warned of dangers of invasive mussels
6-Jul-21	Penticton Western News	Shuswap-area lakes being monitored for invasive mussels
7-Jul-21	Castanet	Keeping Mussels at Bay
7-Jul-21	Linkedin News	Columbia Shuswap Invasive Species Society hiring Natural And Applied Sciences Program Officer ...
19-Jul-21	CSISS Press Release	Summer Newsletter
30-Jul-21	AlEvents	Plant ID Walk and Plant Pressing Workshop
31-Jul-21	Stay Happening	Plant ID Walk and Plant Pressing Workshop
1-Aug-21	Mountaineer	Invasive Species advertisement
4-Aug-21	Wildsight blog	Education: First Step in Managing Invasive Plants
21-Aug-21	Salmon Arm Observer	Shuswap Trail Alliance talks summer successes and projects delayed by wildfires
23-Aug-21	Wildsight Blog	Wildsight Golden Community Weed Project Final Report
1-Sep-21	Castanet	Columbia Shuswap Invasive Species Society wants help documenting what kinds of shells are out there
1-Sep-21	Revelstoke Review	Tourism Revelstoke launches Thanksgiving Back campaign
6-Sep-21	ISCBC Agenda	Kathleen Meszaros- E poster presentations
15-Oct-21	Wildsight Revelstoke-Newsletter	A fish, foraging and forest- filled fall
20-Oct-21	CSISS Press Release	Fall Newsletter
3-Nov-21	Eagle Valley News	Eagle Valley News Year in Review 2020: September
23-Nov-21	Revelstoke Review	Restoration project continues at Blanket Creek Provincial Park

Appendix D: Marinas contacted by CSISS staff in 2021.

Businesses highlighted in grey are within the Columbia Basin Region of the CSISS Area

Marina Name	Location
Anglemont Marina	Anglemont
Bayside Marina and Grill	Blind Bay
Bluewater Houseboats	Sicamous

Marina Name	Location
Little River Boat World	Sorrento
Papa's Marina	Sicamous
Red's Rentals and Marina	Sicamous

Captains Cove Marina	Canoe
Captain's Village	Scotch Creek
Cottonwood Cove RV	Scotch Creek
FINZ Marina	Blind Bay
Get Wet Rentals	Sicamous
Indian point resort	Adams Lake
J.B. Marine	Sicamous
Sicamous Houseboats	Sicamous
Sandy Point	Tappen
Pierre's Point	Tappen

Sea Dog Rentals	Salmon Arm
Seadogs	Sicamous
Shuswap Marina	Blind Bay
Sunnybrae Camp	Sunnybrae
Shuswap Waterfront Marina	Sicamous
Sunny Shore Fishing Resort	White Lake
The Marina	Sicamous
Three Buoy's Marina	Sicamous
Twin Anchors Resort	Sicamous
Kinbasket resort	Kinbasket

Appendix E: Campgrounds contacted by CSISS staff in 2021.

Businesses highlighted in grey are within the Columbia Basin Region of the CSISS Area

Campground Name	Location
Blind Bay Resort	Blind Bay
Cottonwood Cove	North Shuswap
FINZ Resort	Blind Bay
Glen Echo Resorts	Tappen
Hidden Valley Campground	Canoe
Magna Bay Resort	North Shuswap
Pierre's Point Campground	Tappen
Sandy Point Campground	Tappen
Silver Sands Resort	Sicamous
Sicamous Vacation Rentals	Sicamous
Shuswap Beach Vacation Rentals	Shuswap

Campground Name	Location
Sunny Shore Fishing Resort	White Lake
Viewpoint Cottages	Tappen
Sunny Shore Fishing Resort	White Lake
Smoky Bear Campground	Revelstoke
Boulder Mountain Resort	Revelstoke
Lamplighter Campground	Revelstoke
Revelstoke Campground	Revelstoke
Williamson Lake Campground	Revelstoke
Campers Haven RV	Golden
Golden Municipal Campground	Golden

Appendix F: CSISS Invasive Mussel Sampling Locations in 2021

Locations highlighted in grey are within the Columbia Basin Region of the CSISS Area

Region	Waterbody	Sample site	Sampling frequency	Plankton samples
Shuswap	Shuswap Lake	Blind Bay	Bi-weekly	11
Shuswap	Shuswap Lake	Captain's Village	Bi-weekly	11
Shuswap	Shuswap Lake	Little River Boat World	Bi-weekly	11
Shuswap	Shuswap Lake	Sandy Point/Pierre's Point	Bi-weekly	11
Shuswap	Shuswap Lake	Old Town Bay	Monthly	6
Shuswap	Shuswap Lake	Cinnemousun Narrows	Monthly	4
Shuswap	Mara Lake	Sicamous Narrows	Bi-weekly	11
Shuswap	Mara Lake	Swansea Point	Monthly	6
Shuswap	Mabel Lake	Kingfisher	Bi-Weekly	11
Shuswap	Mabel Lake	Mabel Provincial Park	Monthly	5
Shuswap	Adams Lake	Indian Point Resort	Monthly	6
Shuswap	Little Shuswap Lake	Chase	Monthly	6
Shuswap	White Lake	White Lake Provincial Park	Monthly	6
Shuswap	Gardom Lake	Gardom Community Park	Monthly	6
Shuswap	Sugar Lake	2-Mile Rec Site	Monthly	5
Shuswap	Mara Lake	Sicamous Houseboats	Monthly	Adults only
Shuswap	Shuswap Lake	Shuswap Marina	Monthly	Adults only
Shuswap	Shuswap Lake	Cottonwood Cove	Monthly	Adults only
Shuswap	Shuswap Lake	Anglemont Marina	Monthly	Adults only
Shuswap	Shuswap Lake	Sunnybrae	Monthly	Adults only
Shuswap	Shuswap Lake	Canoe Wharf	Monthly	Adults only
Shuswap	Shuswap Lake	Salmon Arm Wharf	Monthly	Adults only
Shuswap	White Lake	Sunny Shores Resort	Monthly	Adults only
Shuswap Total Plankton Samples				116
Columbia	Kinbasket Lake	Kinbasket Resort	Bi-weekly	6
Columbia	Kinbasket Lake	Bush Harbour	Bi-weekly	6
Columbia	Revelstoke Lake	Martha Creek	Bi-Weekly	7
Columbia	Revelstoke Lake	Downie RV	Bi-Weekly	7
Columbia	Revelstoke Lake	Mica Creek	Bi-Weekly	6
Columbia	Columbia River	Donald Bridge	Monthly	3
Columbia	Upper Arrow Lake	Shelter Bay	Bi-weekly	10
Columbia	Trout Lake	Denver Street	Monthly	5
Columbia Total Plankton Samples				50
Total Plankton Samples				166