



Columbia Shuswap Invasive Species Society

Annual Report 2018

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ACKNOWLEDGMENTS



Figure 1: CSISS 2018 Board of Directors and staff, left to right: Hamish Kassa, Sue Davies, John Braisher, Laura Gaster, Darren Komonoski, Diane Millar, Robyn Hooper, Kim Kaiser, Chris Cochran, Bruce Husband (not pictured Chris Gill, Laurel Corrigan, Adam Croxall, Natalie Stafil, Sam Legibokow, Heather Wilson)

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 2018-2019 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), Natalie Stafil (Parks Canada), 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) and Laurel Corrigan (Revelstoke resident) (Figure 1 and Appendix A). We would like to thank Sam Legebokow and Heather Wilson, CSISS summer students through Canada Summer Jobs, for their exceptional efforts engaging residents across the CSRD in invasive species outreach activities and invasive plant field work this summer.

We are extremely grateful to the Columbia Basin Trust (CBT), Ministry of Forests, Lands and Natural Resource Operations and Rural Development (MFLNRORD), Ministry of Transportation and Infrastructure (MoTI), the Columbia Shuswap Regional District (CSRD), Shuswap Watershed Council (SWC), BC Parks, City of Salmon Arm, Employment and Social Development Canada (Canada Summer Jobs Program), Parks Canada, BC Hydro Community Grant, Shuswap Trails Alliance (RBC Blue Water Grant), the Shuswap Watershed Council and the Habitat Conservation Trust Foundation (HCTF, Public Conservation Assistance Fund and Invasive Mussel Monitoring) for providing funding and partnership. 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 (White Lake Stewards), North Columbia Environmental Society, Friends of Gardom Lake, RBC Revelstoke, Okanagan Regional Library, Shuswap Trails Roundtable and Working Group, Invasive Species Council of BC and Wildsight Golden for their support in-kind and partnerships with the CSISS.

Thank you to all our funders and partners in 2018!



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EXECUTIVE SUMMARY

April 2018 marked the start of the sixth operational season of the Columbia Shuswap Invasive Species Society (CSISS). Thanks to dedicated staff, diligent directors, knowledgeable partners and inspired volunteers, the CSISS expanded its programming and made significant progress on each goal identified in the 2013-2018 CSISS Strategic Plan:



Goal 1: Implement a collaborative and coordinated program

- CSISS strengthened and expanded its network of partners;
- CSISS Partnered with all levels of government, ISCBC, other regional invasive species groups, local stakeholders, residents and NGO's;
- CSISS worked with over 303 partner organizations, 60 of whom were new in 2018.



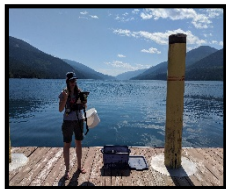
Goal 2: Educate, engage and inspire local residents

- CSISS completed targeted outreach to stakeholders, First Nations and landowners;
- CSISS hosted training workshops for government staff, contractors and the public;
- CSISS engaged with over 3,998 people in the region and attended 167 events;
- CSISS directed targeted outreach to boaters and marinas, trail users, and gardeners.



Goal 3: Prevent the introduction of new invasive species

- CSISS inventoried 16 garden centers and delivered the 'Plant Wise' message;
- CSISS visited boat launches, boat industry and marinas with 'Clean Drain Dry' message;
- CSISS worked with various trail associations, collaborated with 10 trail groups and race organizers
- CSISS completed 9 press releases and was featured in 42 news pieces;
- CSISS regularly created engaging posts on Facebook, Instagram and Twitter.



Goal 4: Maximize the probability of detection and eradication

- CSISS completed 712 targeted invasive plant surveys across the region;
- CSISS engaged with 198 properties regarding invasive plant management;
- CSISS completed 118 zebra and quagga veliger samples at 42 locations across 22 waterbodies
- CSISS monitored for adult zebra and quagga mussels and completed aquatic invasive plant surveys at all shore-based sampling locations;



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

- CSISS completed mechanical treatment at 44 priority locations;
- CSISS administered 3 herbicide spray contracts, treating 53 priority sites;
- CSISS installed 'Do Not Mow' signage and 'Do Not Compost' signage across the region;
- CSISS completed 12 weed pulls with 13 partner organizations.



Goal 6: Ensure program sustainability

- CSISS employed six staff members in 2018;
- CSISS added \$55,721 to its operating budget;
- New funding sources and increases from existing funding sources allow CSISS to continue and expand work in the Columbia Shuswap region;
- CSISS Funding Strategy implemented, and new 2019-2024 Strategic Plan developed.



Figure 2: The new 2019-2024 CSISS Strategic Plan goals, along with CSISS mission and vision statements.

CONTENTS

Acknowledgments.....	2
Executive Summary.....	4
Introduction	7
Project Area	7
Goal 1: Collaborative and Coordinated Programming	8
Aquatic Invasive Species Partnerships	8
Goal 2: Educate, Engage and Inspire	9
Media Coverage	11
Website and Social Media	12
Community Outreach.....	13
Workshops and Events.....	14
First Nations Engagement	15
Goal 3: Prevent the Introduction of New Species	19
PlantWise Program.....	19
Clean Drain Dry Program	20
Marina visits.....	20
Marina Event.....	21
Boat Launch Outreach.....	21
Don't Let It Loose Program.....	22
Play, Clean, Go Program.....	23
Goal 4: Maximize the Probability of Detection and Eradication of New Invasives	24
Public Reports	24
Targeted Invasive Plant Surveys	24
Field Operations Funder Updates	26
CSRD Overview.....	26
BC Parks Overview.....	26
City of Salmon Arm Overview.....	27
Ministry of Transportation and Infrastructure Report.....	28
Parks Canada Overview	29
Public Conservation Assistance Fund Overview	30
Aquatic Invasive Species Surveys.....	31
Zebra and Quagga Mussels	31
Aquatic Invasive Plants.....	33
American Bullfrogs.....	34
Goal 5: Slow and Reverse the Spread and Minimize the Impact of Existing Invasives	35
Mechanical Treatment	36
Chemical Treatment	36
Biological Agent Dispersal Monitoring	37
Signage and Education.....	37
Goal 6: Program Sustainability	38
References.....	40
Appendix A: CSISS Staff and Board Directors 2018.....	41
Appendix B: Events Attended by CSISS and partners 2018.....	42
Appendix C: Media coverage of CSISS activities in 2018.....	47
Appendix D: Collaboration, Workshops and Training Opportunities Attended or Hosted by CSISS in 2018	49
Appendix E: CSISS Invasive Mussel Sampling Locations 2018	50

INTRODUCTION

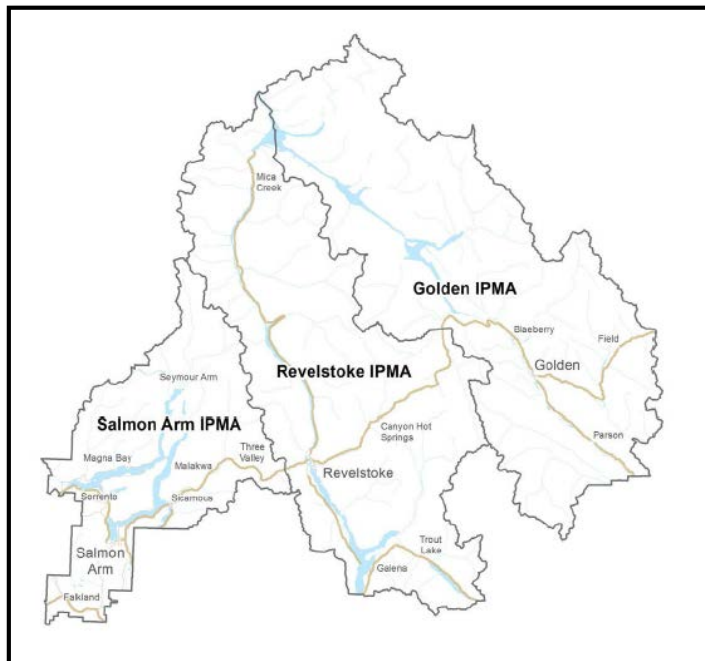
The CSISS was established in April of 2013 after a series of meetings and consultations with land managers, residents and other stakeholders with the aim to develop a collaborative and coordinated approach to invasive species management in the region. The CSISS joined a network of 13 regional invasive 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 2018 marked the Society's sixth season in operation. The six CSISS staff in 2018, including three returning staff, greatly increasing the organization's ability to engage community members and residents as well as invest a presence in smaller communities across the regional district. The CSISS built and expanded connections within local communities and filled knowledge gaps regarding invasives on the landscape. In 2018, the CSISS continued operations, providing fee for service contract work to treat and monitor invasive plants.

PROJECT AREA



The jurisdiction encompassed by the Society includes the boundaries of the Columbia Shuswap Regional District (electoral areas A, B, C, D, E and F). The CSISS operational area has been further 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 3: 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 3) to help partners coordinate programming and treatments. In addition to the plant lists, the CSISS continues to seek and engage partners to participate in collaborative planning and management. In doing so, the CSISS has become 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 collaborated 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. The CSISS currently partners with over 303 groups, including 411 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), Central Kootenay Invasive Species Society (CKISS) and Northwest Invasive Plant Council (NWIPC) to implement coordinated invasive species strategies within the Basin. This includes designing shared outreach materials to maintain consistent messaging throughout the region, collaborating on advertising and promotion, and attending regional meetings and training opportunities. For example, staff members from CSISS, EKISC, CKISS and the ISCBC attended the national Environmental Educators conference in St Eugene, British Columbia (October 2018), as a team, promoting education around invasive species behavior change initiatives.

To maintain and grow presence across the region, CSISS staff attended and/or hosted more than 30 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’s 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.

AQUATIC INVASIVE SPECIES PARTNERSHIPS

The 2018 season continued to see program growth and refinement of the Aquatic Invasive Species (AIS) program both for the CSISS and for the Columbia Basin as a whole. CSISS Executive Director and AIS Program Coordinator continue to participate in the Steering Committee Meetings for AIS in the Columbia Basin. Steering Committee members have a combined wealth of knowledge and increase communication and collaboration between regional, provincial and international governing bodies, stakeholders and First Nations. New in 2018, CSISS partnered with the Shuswap Watershed Council to undertake additional aquatic invasive monitoring and education in the Shuswap.

CSISS staff have continued to implement the AIS Framework within the Columbia Basin in collaboration with other regional Columbia Basin invasive species organizations (EKISC, CKISS, NWIPC) with support from the CBT and the MoE. This involved using AIS priority ranking matrices (which informed the new Provincial risk assessment matrices) and carrying out AIS surveys in priority water bodies, as well as collaborating on AIS outreach programs, including outreach materials for the Basin, delivering the Clean, Drain, Dry program, as well as conducting outreach at boat launches and marinas. Close communication was maintained with the MoE and BC Hydro to coordinate AIS survey efforts and identify gaps.

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 91 requests for information and presentations in the past year. In 2018, CSISS education and outreach activities continued to focus on target audiences and pathways of invasion. The Play Clean Go program focused on cyclists through setting up bike wash stations at local bike races and completing trail user surveys at busy trailheads (Figures 15 and 16). 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 2018, the CSISS was represented at over 167 community events and meetings (See Appendix B for a complete list of events attended), distributed 10 e-newsletters, completed 9 press releases, hosted 10 workshops and training events, attended 13 Farmer's markets, visited 16 garden centers, 40 boat launches, 22 marinas, 7 pet stores and supported 12 community weed pulls.

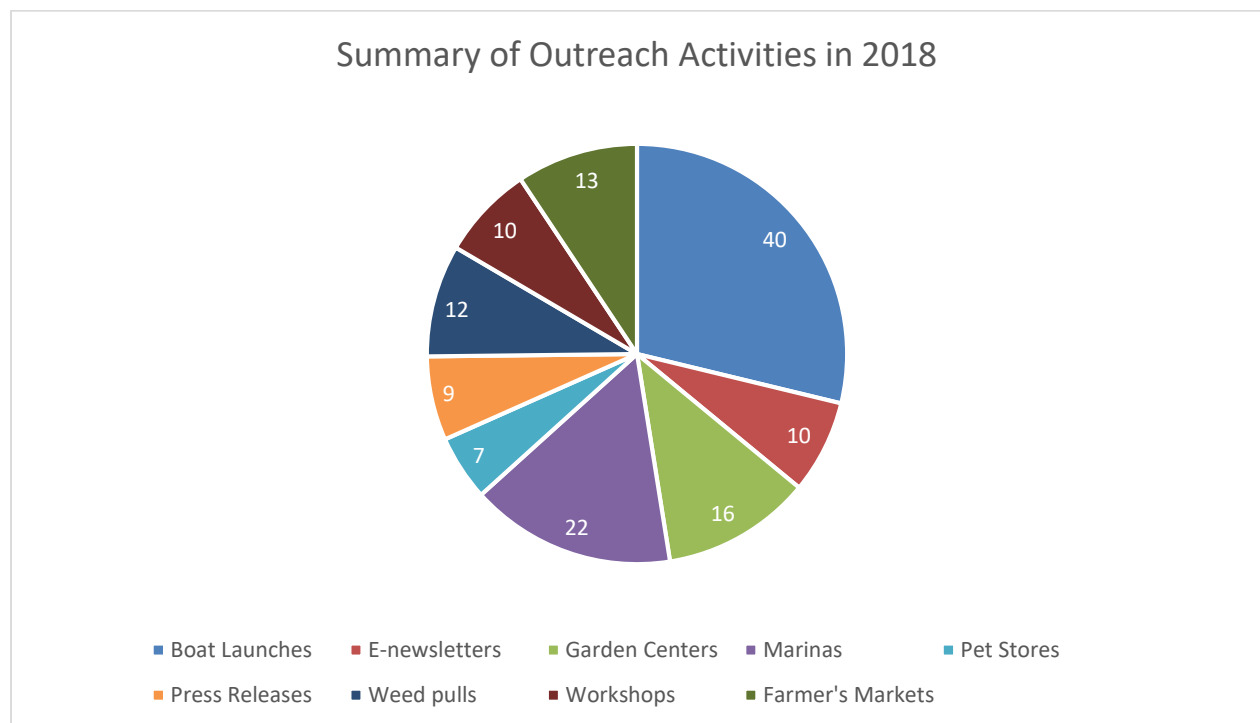


Figure 4. Chart showing a summary of outreach activities completed by CSISS in 2018.

Number of Events Per Outreach Campaign in 2018

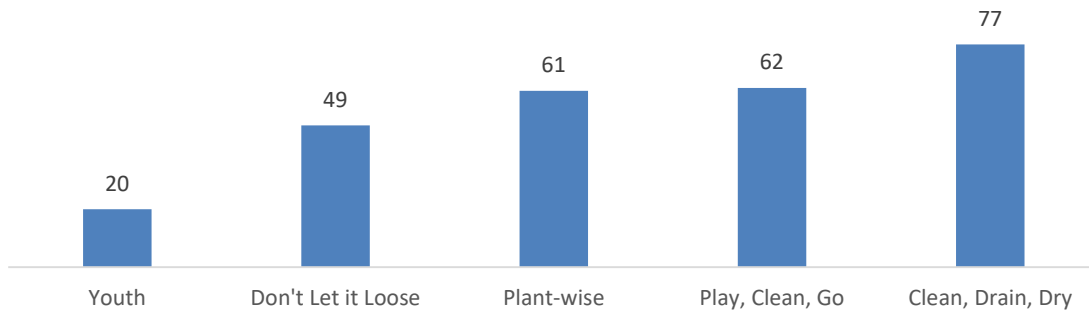


Figure 5: Chart showing the number of events where each outreach campaign was delivered.

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. Events catering to people engaged in trail sports and water sports were sought out and attended by CSISS staff in an effort to influence behaviours of these groups of people in ways that reduce the spread of invasives.

In total, the CSISS had direct interactions with 3,998 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 2019 season. CSISS staff will also be incorporating barrier and benefit research into the outreach program in 2019.

Table 1: Community Events and Meetings Attended by CSISS Jan- Dec 2018

Number of Events	# Attendees	Direct Interactions
20 Youth Events (11 within Columbia Basin)	1,949	1,046
12 Weed Pulls (5 within Columbia Basin)	158	158
77 Aquatic-related Outreach events (28 within Columbia Basin) (51 Boat launches visited, 14 within Columbia Basin)	109,570	3,091
62 Play Clean Go Outreach Events (32 within Columbia Basin)	40,333	1,939
61 PlantWise Outreach events (29 within Columbia Basin) (16 Garden Centers visited, 7 within Columbia Basin)	39,829	1,957
49 Don't Let it Loose Outreach Events (20 within Columbia Basin) (7 Pet stores visited, 2 within the Columbia Basin)	108,731	2,531
95 Events total in the Columbia Basin	4,451	1,348
167 Events total for CSISS 2018	111,648	3,998

MEDIA COVERAGE

Since January, the CSISS delivered 9 press releases, and has been mentioned in 43 news and radio pieces including: Revelstoke Times Review, Revelstoke Mountaineer, The Salmon Arm Observer, the Revelstoke Current, Columbia Shuswap/Salmon Arm EZ Rock, Stoke FM, and Reved Quarterly (See Appendix C for a full listing of media interactions). The CSISS partnered with the Shuswap Watershed Council (SWC) to provide Clean, Drain, Dry advertisements (Figure 6). Additionally, the Shuswap Watershed Council installed a billboard sign on the Trans-Canada Highway between Revelstoke and Sicamous, which CSISS helped design (Figure 7). Advertisement with strong 'Clean Drain Dry' messaging was placed in the popular Kootenay Mountain Culture magazine in collaboration with other Columbia Basin groups (Figure 8).



Figure 6: Clean, Drain, Dry ads developed with SWC included in various media sources in 2018.



Figure 7: Billboard Clean, Drain, Dry advertisement installed near Craigallechie on Highway 1



Figure 8. Clean, Drain, Dry advertisement placed in Kootenay Mountain Culture spring 2018

Play, Clean, Go advertising was included in pre-race packages for popular biking and running races in the Columbia Shuswap. This included the Salty Dog mountain bike race in the spring and the Lewiston Ultra Marathon, a new trail running event with over 400 participants. CSISS invasives messaging has also been added to many partner websites, Facebook pages and e-newsletters including Sexqéltkmc te Secwepemc First Nations website and Facebook page, Tourism Golden Website and several trail event and watersport event pages. These platforms have a strong following of outdoor users, from which CSISS can increase targeted awareness of invasive species.

WEBSITE AND SOCIAL MEDIA

The CSISS website is updated regularly (www.columbiashuswapinvasives.org), with a focus on being 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. In 2018, additional resource pages were added to the CSISS website including a page for restoration where users can find information about site rehabilitation after the removal of invasive plants.

The CSISS also hosts a Facebook page and posts updates of events, happenings, information and reminders of behavior change activities throughout the year. The CSISS Facebook page now has 276 'Likes'. The CSISS continues to deliver quarterly e-newsletters to more than 411 recipients, highlighting our local and regional events and activities. Instagram and twitter are also actively used as platforms to encourage best practices, promote events and share relevant news with followers.

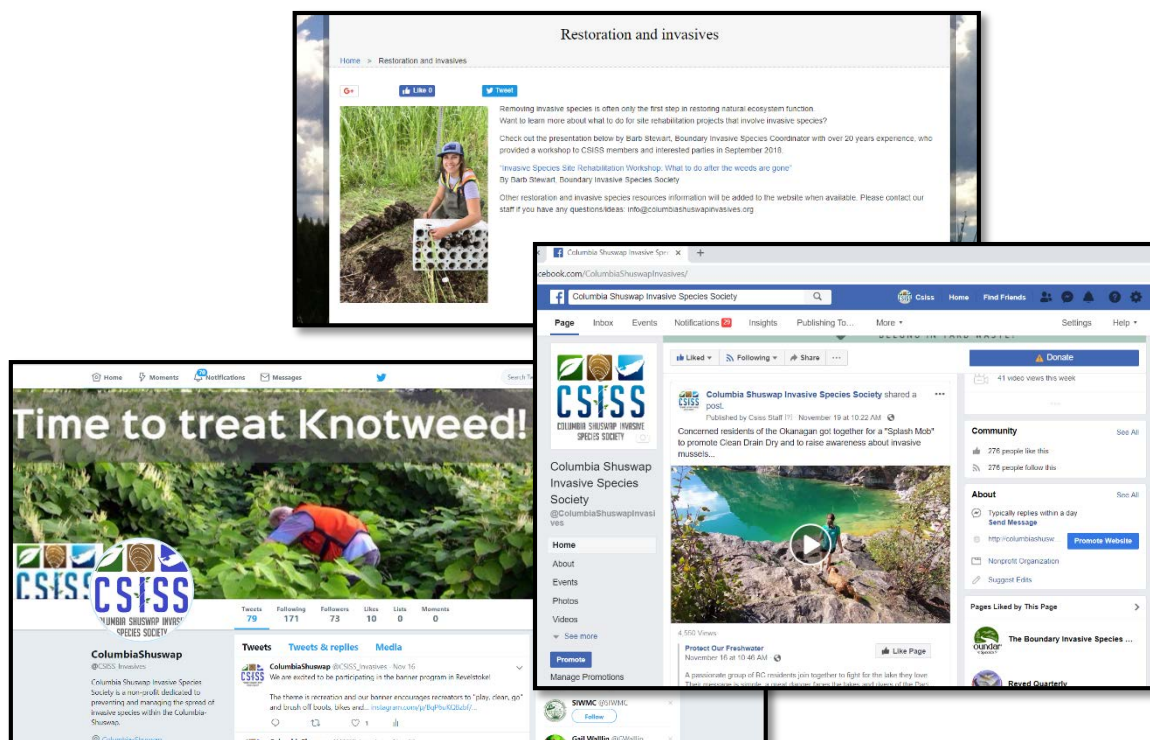


Figure 9: The CSISS website added a new resource page for restoration of invasive species sites (top) and the Facebook page, Twitter and Instagram pages (bottom) were regularly updated with engaging and informative posts.

COMMUNITY OUTREACH

The CSISS partnered with numerous non-profit groups to raise awareness of invasive species in the Columbia-Shuswap region. CSISS outreach brochures were provided to partner organizations to distribute at workshops and information booths throughout the region, as well as at accommodation and tourist locations, such as hotels and resorts, municipal offices, Service BC locations, the CSRD office and on the Shelter Bay/Galena ferry.

In addition to community weed pulls (Table 2), CSISS staff set up information booths at Farmers Markets and community events in Golden, Salmon Arm, Revelstoke, Blind Bay, Carlin, Sicamous, Scotch Creek, Celista, and Sorrento to raise awareness of invasive species issues and educate the public on how to prevent their spread. The CSISS presented to a variety of community groups, youth groups, clubs, stewardship and recreation groups, reaching some of the smaller rural locations in the CSRD (Appendix B).



Figure 10. Golden Wildsight and Motocross Dirtriders Club at a weed pull near Reflection Lake, Golden (left) and summer student Heather Wilson presenting at Carlin Elementary National Indigenous Peoples' Day event (right).

Table 2: The CSISS supported 12 weed pulls in collaboration with community groups.

Target Species	Location	In Collaboration with:
Yellow Flag Iris	White Lake	Invasive Species Council JCP team
Yellow Flag Iris	Little White Lake	White Lake Stewards
Yellow Flag Iris	Little White Lake	Invasive Species Council JCP team
Yellow Flag Iris	Little White Lake	White lake homeschool group
Himalayan Balsam	Selkirk Saddle Club	NCES and the Selkirk Saddle Club
Himalayan Balsam	Illecillewaet Walkway	Royal Bank of Canada, Revelstoke Branch
Himalayan Balsam	Blind Bay	Blind Bay Garden Club
Spotted Knapweed	Martha Creek Provincial Park	BC Parks
Bittersweet Nightshade	SABNES Foreshore Trail	Shuswap Naturalists Club, SABNES
Bittersweet Nightshade	SABNES Foreshore Trail	Shuswap Naturalists Club, Shuswap Trail Alliance
Burdock, Canada thistle	Reflection Lake	Wildsight Golden & Golden Motocross club
Burdock, Spotted Knapweed	Kicking Horse River banks	Wildsight Golden

WORKSHOPS AND EVENTS

To build capacity amongst partners, interested residents and stewardship groups, the CSISS hosted various workshops and training opportunities in 2018 (Figure 11).

These included:

- Invasive species plant identification workshops (x 5) in Salmon Arm, Revelstoke, Sicamous and Golden (May 2018);
- City of Salmon Arm tailgate training (May 2018);
- Columbia Shuswap Regional District tailgate training (May 2018);
- Invasive Species Site Rehabilitation course (September 2018);
- Edible Invasives workshop (September 2018); and
- Invasive Species Education workshop at national Environmental Educators conference (October 2018).



Figure 11: Edible Invasive workshop with the North Columbia Environmental Society in Revelstoke (left) and Plant Identification course with Parks Canada staff in Golden (right).

Workshops were well attended and provided useful skill development for various groups of land managers, educators, and the general public. Participants in these workshops included: Parks Canada, municipal and regional government staff, stewardship groups, recreation groups, landscapers, industry groups, teachers, and others. The CSISS also provided training to the Golden Wildsight Weed Coordinator.



Figure 12: Edible Invasives workshop display (left) and Invasive Species Site Rehabilitation workshop (right).

FIRST NATIONS ENGAGEMENT

In 2018, the CSISS continued to develop First Nations partnerships and collaborations. Staff participated in the Shuswap Salmon Symposium which was sponsored by and held within the Little Shuswap Lake Band's lands. Staff also continued to develop relationships with various indigenous groups through networking at conferences, trail meetings, providing data regarding invasive species in traditional food and medicine harvesting areas, providing educational booths at two indigenous day events, and presenting to school groups that have high proportion of indigenous students.

Engagement included:

- Participation in Shuswap Salmon Symposium which was sponsored by and held within the Little Shuswap Lake Band's lands;
- Indigenous day events at Pierre's Point (Adams Lake Indian Band) and Carlin Elementary School;
- Shuswap Trails Working Group Meetings and networking with First Nations participants who included Splatshin, Neskonlith, Little Shuswap, and Adams Lake Indian Bands;
- Presentation to Little Shuswap Lake Indian Band high school students at Tsútswechw Provincial Park;
- Tsútswechw Park renaming ceremony;
- Contacted Aboriginal education assistant at Revelstoke Secondary School to arrange for invasive species to feature in new AbEd workshops planned for 2019; and
- Meeting with ASETS Aboriginal Employment group to discuss indigenous employment opportunities.

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

Outreach Program Evaluations

The CSISS continues to use feedback forms as a first step to evaluate the effectiveness of our workshops and programs. People reported that they are more likely to take action to prevent the spread and reduce impacts of invasives (Figure 13). The results from our surveys help to guide our future outreach programming (Figure 14).

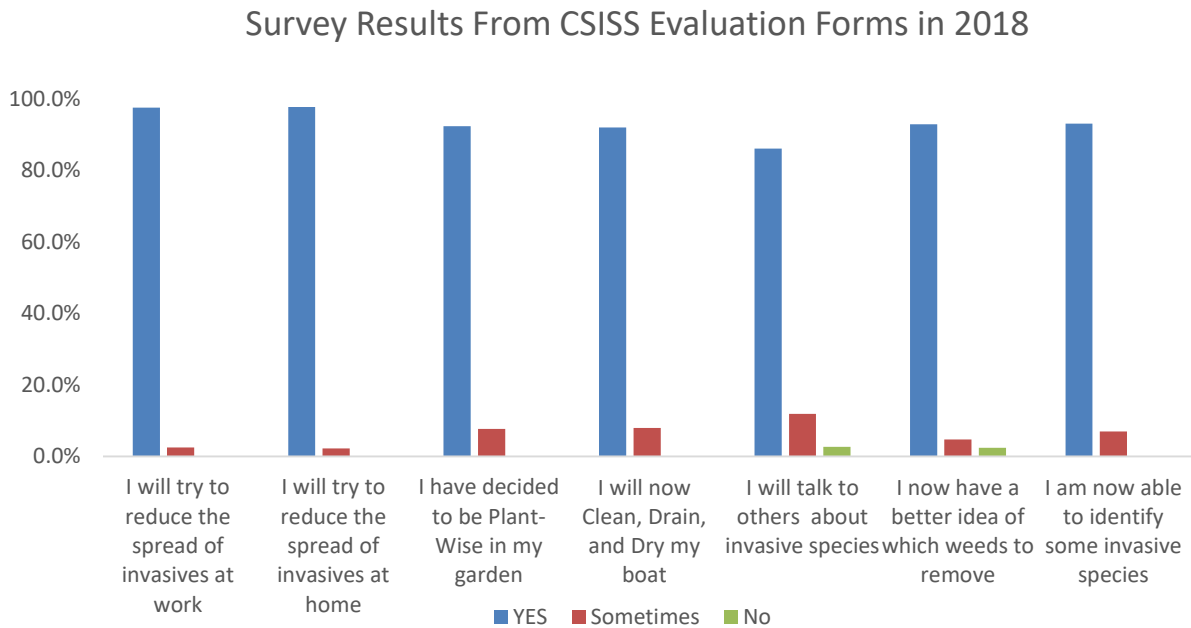


Figure 13. Survey Results from CSISS evaluation forms in 2018

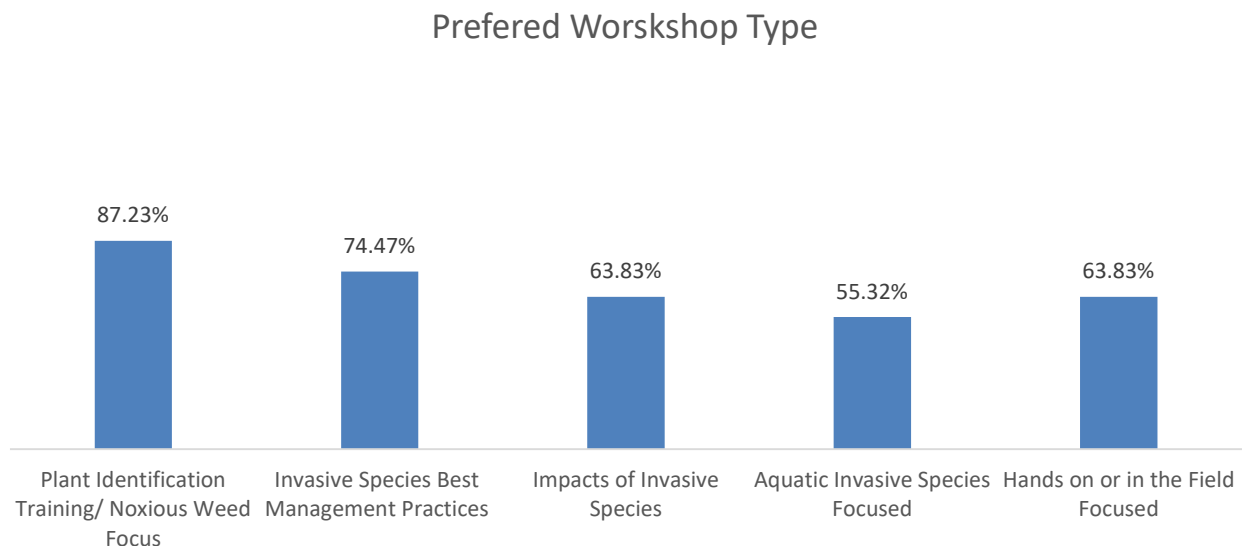


Figure 14: Survey results from 2018 workshop participants regarding future CSISS event types.

CSISS staff conducted specific surveys with both boaters and trail users. These surveys are a useful tool for three reasons:

- 1) to collect information on waterbody/trail use, origin of users, likelihood of spreading invasives with particular activities, etc.;
- 2) as a platform for engagement with people and an opportunity to transfer information to engaged individuals; and
- 3) to collect information on the perceived benefits of Clean Drain Dry (CDD) and Play Clean Go (PCG), and the most significant barriers to these behaviour changes. Understanding the barriers and benefits will allow CSISS to better target promotion of these behavior change campaigns.

For both boaters and trail users, maintenance of gear was the most significant perceived benefit of CDD and PCG (Figure 15). Moving forward, CSISS will focus on gear maintenance as a tactic to increase public uptake of the desired behaviour change.

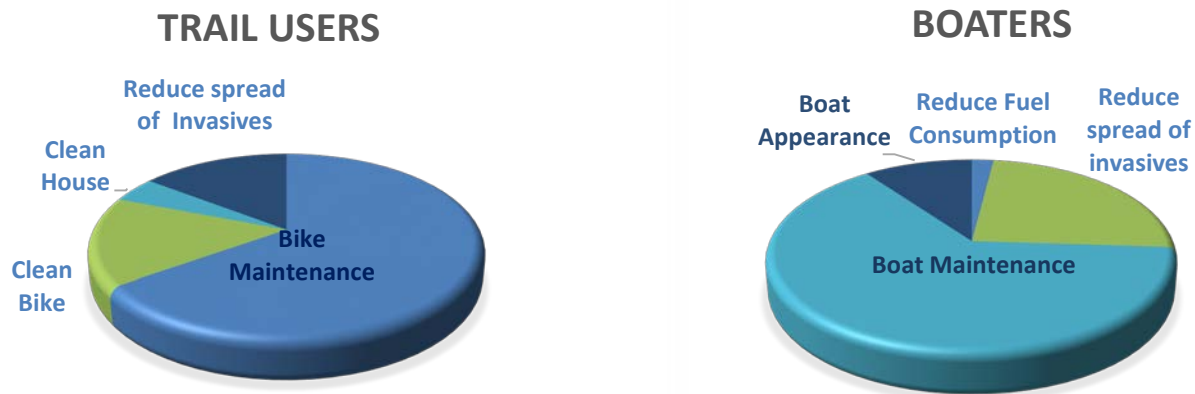


Figure 15. Results of surveying 113 boaters and 102 trail users about the benefits of cleaning trail gear (mostly bikes) and watercraft.

When promoting behavior change, it is important to address real or perceived barriers to the desired behaviour. Figure 16 shows both trail users and boaters feel that lack of wash stations, lack of time and lack of knowledge are barriers to cleaning their bike, gear or watercraft. Practicing proper Clean Drain Dry techniques on hard to reach sections of watercraft can be challenging for owners, which may be addressed with training for what is required. As well, cleaning watercraft may get easier in the future with new developments among manufacturers (for example, <https://www.marinadockage.com/boat-manufacturers-focus-des.../>).

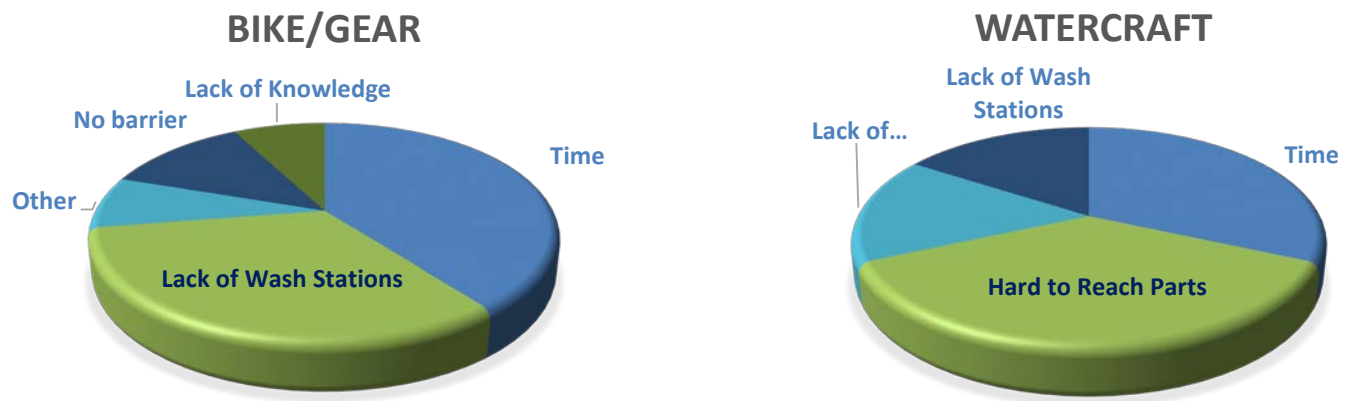


Figure 16. Perceived barriers to cleaning trail gear (mostly bikes) and watercraft. Results derived from surveys of trail users at trail heads (102 surveys) and boaters at boat launches (113 surveys).

To measure observable behaviour change for Play Clean Go message, the CSISS looked for brush use at trailheads. No trail users were seen using boot brushes, although boot brushes did appear to have been used. The most likely reason for this is that most people surveyed said they clean their bikes/gear at home (Figure 18). Other potential reasons for a lack of boot brush use include: a small sample size, signs too small (signs are 6" x 8" to fit on existing signposts and are limited in size by jurisdictional owners), gear not needing to be cleaned or simply that public are not interested in using the brushes.



Figure 17. CSISS summer student Sam Legebokow uses a boot brush installed alongside a Play Clean Go trail sign

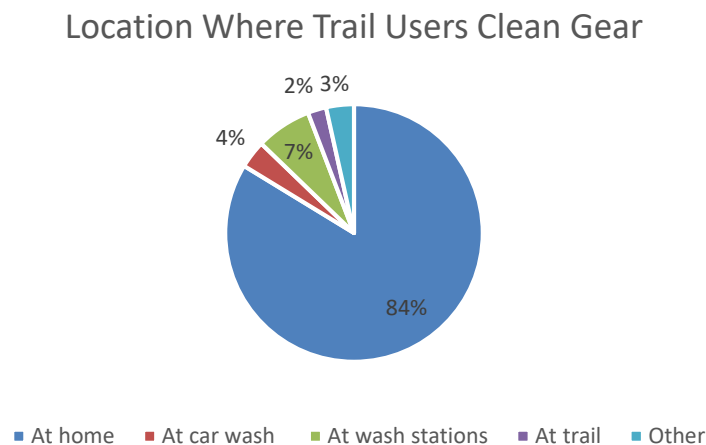


Figure 18. Location where trail users clean their gear from trail users surveyed in 2018 season.

Trail users travelling from outside the region pose the highest risk for carrying non-native, potentially invasive species. Since most people surveyed wash bikes at their place of residence, having wash stations in convenient locations would assist travelling trail users to clean their gear before heading home. Thus, reducing the potential transport of invasive species on unclean gear.

The 2019 season will see refined surveys to investigate these issues and help design systems better at creating behaviour change. CSISS will investigate options for bike/gear wash stations in convenient locations, and speak to recreation/tourism groups about their interest in collaborating and best options for wash locations.

GOAL 3: PREVENT THE INTRODUCTION OF NEW SPECIES

The CSISS has been focusing 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 at 61 community-based events, workshops and meetings, speaking to youth, home gardeners, land managers, and stewardship groups, directly reaching 1,957 individuals. CSISS hosted workshops for land managers which included city gardeners.

Additionally, the CSISS approached garden centers and nurseries with the PlantWise messaging. CSISS phoned garden centers in early February before they ordered their inventory. CSISS completed follow up visits early spring to assess inventory and provide further materials, including PlantWise wallets cards for garden center shoppers. One garden center was found to be selling periwinkle and yellow archangel, another was selling Virginia creeper.

In general, most garden centers in the region are interested in following PlantWise practices. Calling before ordering in February was very effective at preventing invasives from being ordered into shop inventory. Seed packs are most often sent to garden centers with little option to choose species composition, however, several garden center managers said they would be happy to provide feedback to their suppliers to remove common invasive seed packs from the selection.



Figure 19: CSISS staff Heather providing “plant-wise” outreach to a garden center in Salmon Arm

CLEAN DRAIN DRY PROGRAM

In 2018, the CSISS delivered its Aquatic Invasive Species (AIS) programs, bringing the Clean, Drain, Dry message to marinas, boaters, the paddle-sport community, fishing derbies, water stewardship groups, youth, and local residents to help prevent the spread of aquatic invasive species within BC waters.

The CSISS directly reached over 3,091 individuals at 77 community-based aquatic related events encouraging boaters to 'Clean, Drain, and Dry' all watercraft and equipment to help reduce the spread of aquatic invaders such as zebra/quagga mussels (ZQM).

MARINA VISITS

Marinas are a focus point for boaters, both within BC and out of Province. CSISS visited 22 marinas across the region with information about ZQM and other aquatic invasive species (Figure 20). Informal presentations were completed with marina staff and an information package was provided.

The information package for marinas included:

- The potential impacts of invasive species (including invertebrates, plants, fish, animals, and diseases) on BC and the Columbia Shuswap region;
- Invasive mussel specific information (identification, map of known infested States and Provinces, function of watercraft inspection stations, reporting);
- Questions to ask clients about their watercraft before launch;
- Information brochures to provide to clients; and
- Posters advertising the Invasive-Wise Marina program.

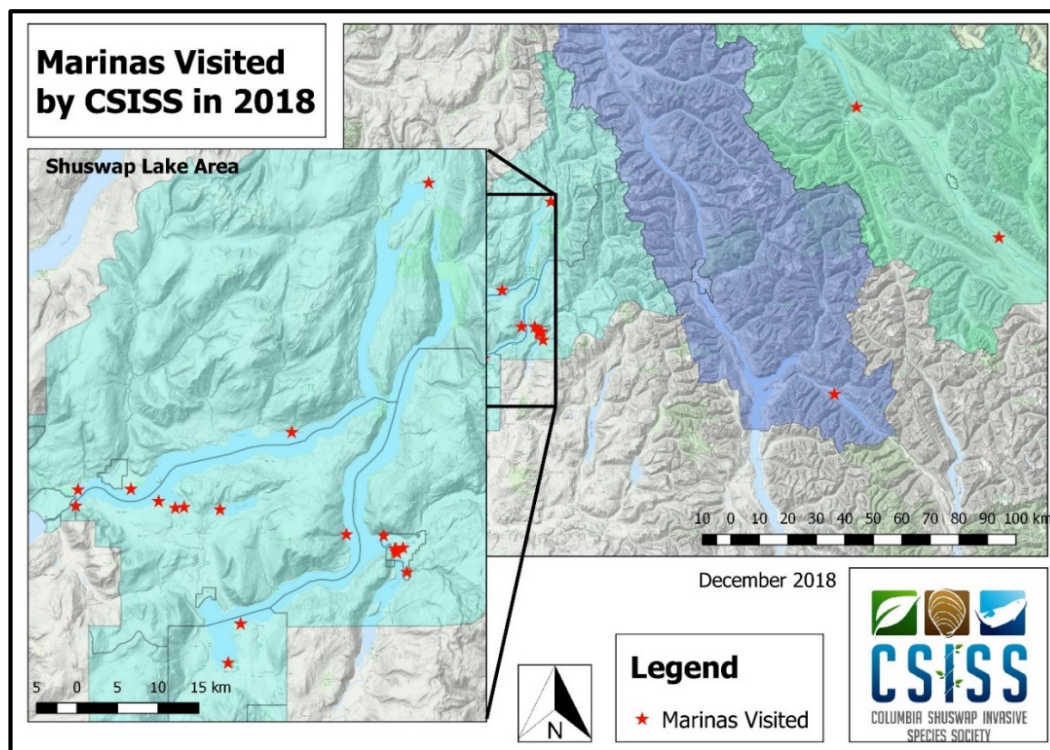


Figure 20. Marinas visited by CSISS staff in 2018

MARINA EVENT

In June, CSISS ran a dedicated event aimed at increasing awareness around zebra and quagga mussels. Attendees included marina owners and staff, local accommodation providers, the press, politicians and the general public. Presentation highlights included the Provincial Mussel Defense Program demonstrating mobile watercraft decontamination of a boat provided by the Royal Marine Search and Rescue Sicamous (Figure 21).

Politicians including MLA Greg Kylo, MP Mel Arnold, and local District councilors attended the event. Mr. Arnold spoke about the importance of preventative action and the need for more federal funding.

The ISCBC also attended the event to launch their new InvasiveWise Marina program. The District of Sicamous supported the event, allowing use of the waterfront location and a sound system.



Figure 21. Maddy Laslett of the Provincial Mussel Defense Program demonstrating watercraft decontamination (left) and MLA Greg Kylo, CSISS ED Robyn Hooper, and MP Mel Arnold (right).

BOAT LAUNCH OUTREACH

In 2018, the CSISS focused on boater outreach at busy boat launches across the region. All watercraft including motorized/ non-motorized vessels and recreation/ anglers were targeted. CSISS staff visited 40 boat launches and spoke with a total of 284 boaters completing a total of 113 boater surveys (Figure 22). Clear messaging on ZQM, CDD practices and watercraft inspection stations were provided at boat launches.

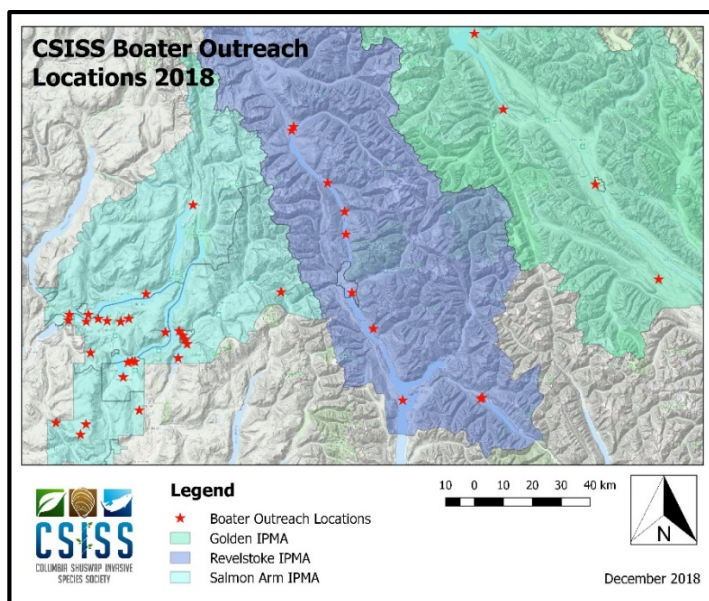


Figure 22. Locations of targeted boater outreach by CSISS staff in 2018 (left), Clean Drain Dry sticker for trailer hitch(right).

The CSISS contacted all water related events, such as, fishing derbies, white water kayak races, and paddle board events throughout the Columbia Shuswap region. Information booths were set up at events and information was provided to event organizers to add to their website/social media and race package materials.

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.

In 2018, the CSISS inventoried aquarium/pet stores and hunting and fishing stores. Information was provided to owners and staff to encourage them to refrain from selling invasive species. Brochures were provided for reference material and to give to customers. An invasive Apple snail was found for sale in Salmon Arm. The shop owner intends to not include this species of snail in future orders.

American Bullfrogs were a focus of the Don't Let It Loose program in 2018. The new Columbia Shuswap American Bullfrog Risk Assessment helped determine that human assisted transport of bullfrogs is the most likely way for bullfrogs to arrive in the CSRD within the next 15 years. Fifteen posters promoting American Bullfrog awareness were installed at potential bullfrog habitats and pet shops around the Columbia Shuswap region (Figure 23).

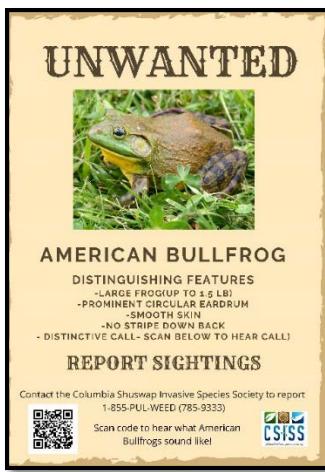


Figure 23. Bullfrog Awareness poster (left) and the CSISS outreach booth at the Salute to The Sockeye festival (right).

The CSISS promoted the Don't Let It Loose message at school presentations and youth focused events, including the Kokanee Fish Festival in Revelstoke where 160 youth participated in DLIL activities. The CSISS also attended fishing competitions throughout the region and spent several days at the Salute to the Sockeye festival at Tsútswecw Provincial Park promoting DLIL to 564 visitors (Figure 23).

PLAY, CLEAN, GO PROGRAM

In 2018, 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 strong community partnerships with trail user groups, race organizers, First Nations, and youth outdoor education programs the CSISS successfully delivered 62 Play Clean Go community events directly reaching 1,939 individuals (Figure 24).

The CSISS and partner groups have now installed a large number of Play Clean Go signs with attached boot brushes at high-traffic trail heads throughout the region.



Figure 24. Finish line of the Single-track bike race in Revelstoke (left), and Kara Leinweber, Lewiston Ultra race organizer with Sue Davies of CSISS (right).

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: requests for information, invasive plant reports, noxious weed complaints, and landowner outreach. Depending on the nature and priority of the report, it was confirmed by a site visit and/or responded to with landowner extension, an outreach letter, or by enacting the provincial Early Detection Rapid Response (EDRR) protocol.

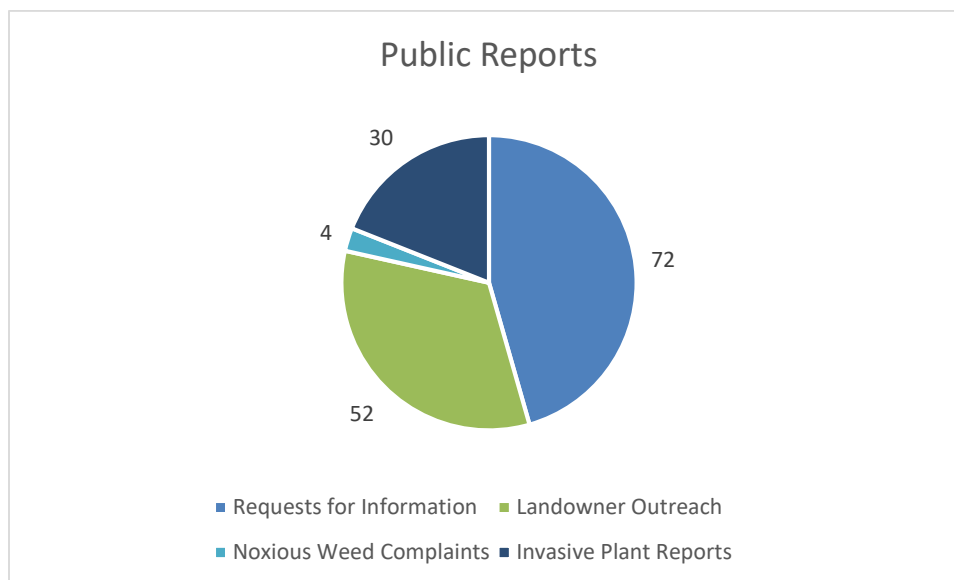


Figure 25. Public Reports Received in 2018

As knotweed continues to be a priority plant for the Columbia Shuswap region, the CSISS mailed an outreach package to all private landowners with known knotweed infestations. The information focused on identification, impacts, and best management practices for treatments. In total, 64 letters were delivered to private property owners with knotweed infestations.

TARGETED INVASIVE PLANT SURVEYS

In 2018, the CSISS inventoried 330 sites (54 new sites) and completed 712 invasive plant surveys. Priority invasive plants were found in all 3 of CSISS's Invasive Plant Management Areas (IPMA's). Priority invasive plants include: baby's breath, big head knapweed, blueweed, bohemian knotweed, common bugloss, cypress spurge, field scabious, giant hogweed, Himalayan balsam, Himalayan blackberry, leafy spurge, rush skeletonweed, teasel, wild parsnip, yellow archangel and yellow flag iris (Figure 26).

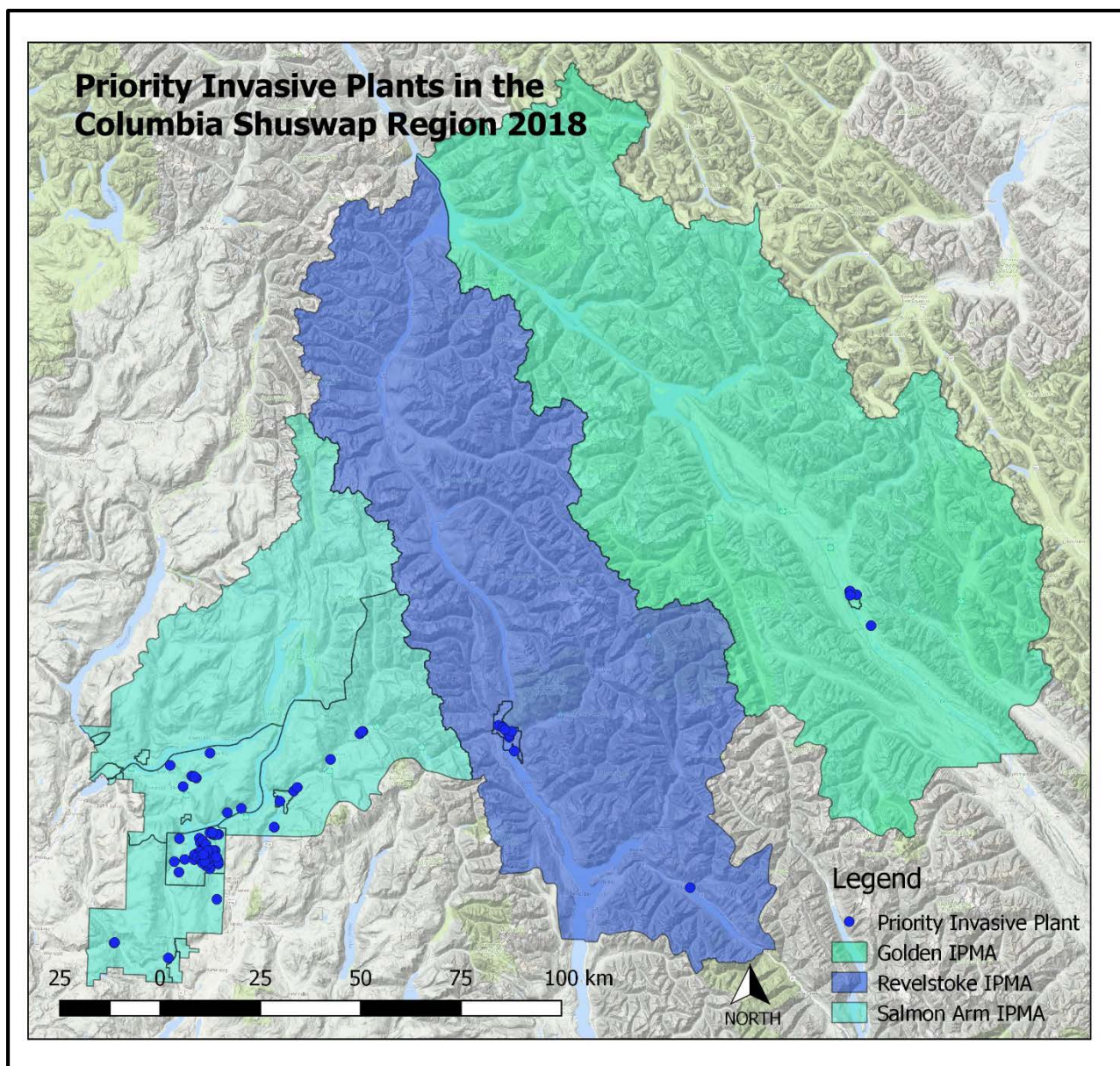


Figure 26. Priority Invasive Plants in the Columbia Shuswap Region 2018

FIELD OPERATIONS FUNDER UPDATES

CSRD OVERVIEW

In 2018, the CSISS completed invasive plant inventories of Columbia Shuswap Regional District properties including landfills, transfer stations, parks, fire halls and parcels. 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.

For landfills and transfer stations, 5 priority sites were identified and 44m² were treated chemically by a certified herbicide applicator. Mechanical treatments occurred at 3 landfills removing a total of 4 m² of priority invasive plants. Some sites treated in 2017 were found to be reduced in size and 6 locations had 'No Weed Found' in 2018.

For parks, fire halls and parcels, 30 properties were inventoried: 25 parks, 4 fire halls and 1 parcel. In total, 5 priority sites were identified, 11 m² were mechanically treated by CSISS staff and 1 site was chemically treated by a certified herbicide spray contractor. Sites treated in 2017 were found to be reduced in size.



Figure 27. Bull thistle at Cedar Lake (left), new 2018 Malakwa Community Park (centre), re-emerging knotweed infestation pre-treatment Canterbury Park (right).

BC PARKS OVERVIEW

In 2018, the CSISS surveyed Martha Creek, Blanket Creek and Shelter Bay Provincial Parks focusing on expansion project areas. In addition to the surveys, CSISS completed multiple mechanical treatments at each of the Parks and conducted biological agent dispersal monitoring inventories. Herbicide treatment was completed at Martha Creek and Shelter Bay Provincial Parks within the new construction areas by a certified herbicide applicator and herbicide monitoring was completed by CSISS staff. In addition, collaboration between BC Parks staff and CSISS staff resulted in high priority invasive plant inventory and removal of purple loosestrife within Burges James Gadsden Provincial Park. Further partnership between BC Parks and CSISS allowed for bullfrog monitoring and egg mass surveys to be completed within Burges James Gadsden Provincial Park early spring 2018. No bull frog presence was detected.



Figure 28. New 2018 washroom and shower facilities (left), understory mixed with native and invasive plants (centre), bedstraw outcompeting native understory species at new campgrounds (right).

CITY OF SALMON ARM OVERVIEW

In 2018, the CSISS completed invasive plant inventories of municipal properties, administered and monitored the City's herbicide spray contract, completed mechanical removal of priority invasive plants and installed Do Not Mow signage for knotweed infestations along City right-of-ways.

In 2018, CSISS staff inventoried 51 priority sites on municipal properties completing 110 invasive plant surveys. A herbicide spray contract was administered by the CSISS, coordination with the herbicide contractor was established to ensure effective treatment timing for priority species. In total, 29 municipal priority sites and 2,996 m² were treated over two passes from May to September 2018. Herbicide monitoring was completed at 23 of the treated sites by CSISS staff. The mechanical treatment was completed by CSISS staff at 17 municipal priority sites with a total of 216 m² of invasive plant material removed. In addition, 13 Do Not Mow signs were installed along City right-of-ways where the potential of mowing knotweed infestations existed.

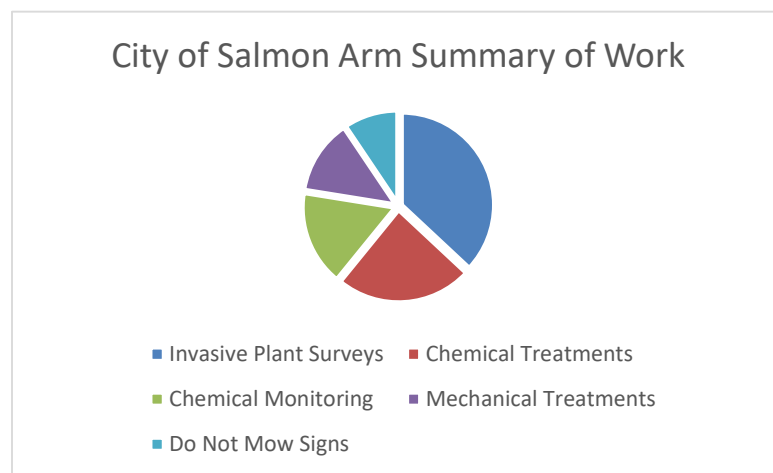


Figure 29. City of Salmon Arm Summary of Work Completed in 2018

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE REPORT

SCOPE

The Columbia Shuswap Invasive Species Society (CISIS), acting as a qualified contractor on behalf of the Ministry of Transportation and Infrastructure (MoTI), completed Do Not Mow signage installation prior to roadside mowing and removal and storage of Do Not Mow signage after mowing ceased for the 2018 season. CISIS staff coordinated stakeholders in on-going planning processes in regards to MOTI invasive plant sites in the region. Additionally, tailgate and information sessions were offered to all MoTI contractors throughout the season. CISIS staff tracked all deliverables in the work plan, and coordinated with relevant stakeholders in the region.

SUMMARY OF WORK COMPLETED

As part of the Columbia Shuswap Invasive Species Society's contract with the MoTI, CISIS staff installed 19 Do Not Mow signs for knotweed infestations along MoTI right-of-ways prior to mowing (Figure 30). During signage installation, CISIS staff directly spoke with adjoining private landowners delivering information about knotweed. Throughout the season, CISIS staff re-visited Do Not Mow signage sites and re-installed or fixed vandalized signs. CISIS staff removed, cleaned and stored the signage in a secure CISIS lock-up after the mowing season ended.

During the mowing season, continued communication was maintained with mowing contractors and MoTI staff. Additionally, information and tailgate sessions were offered throughout the season for MoTI contractors.

CISIS staff continued to monitor for Early Detection and Rapid Response (EDRR) species and reported them on the provincial Report-A-Weed App. CISIS staff coordinated stakeholders in on-going planning processes in regards to MOTI invasive plant sites in the region.



Figure 30. Do Not Mow Signage installed for the MoTI 2018

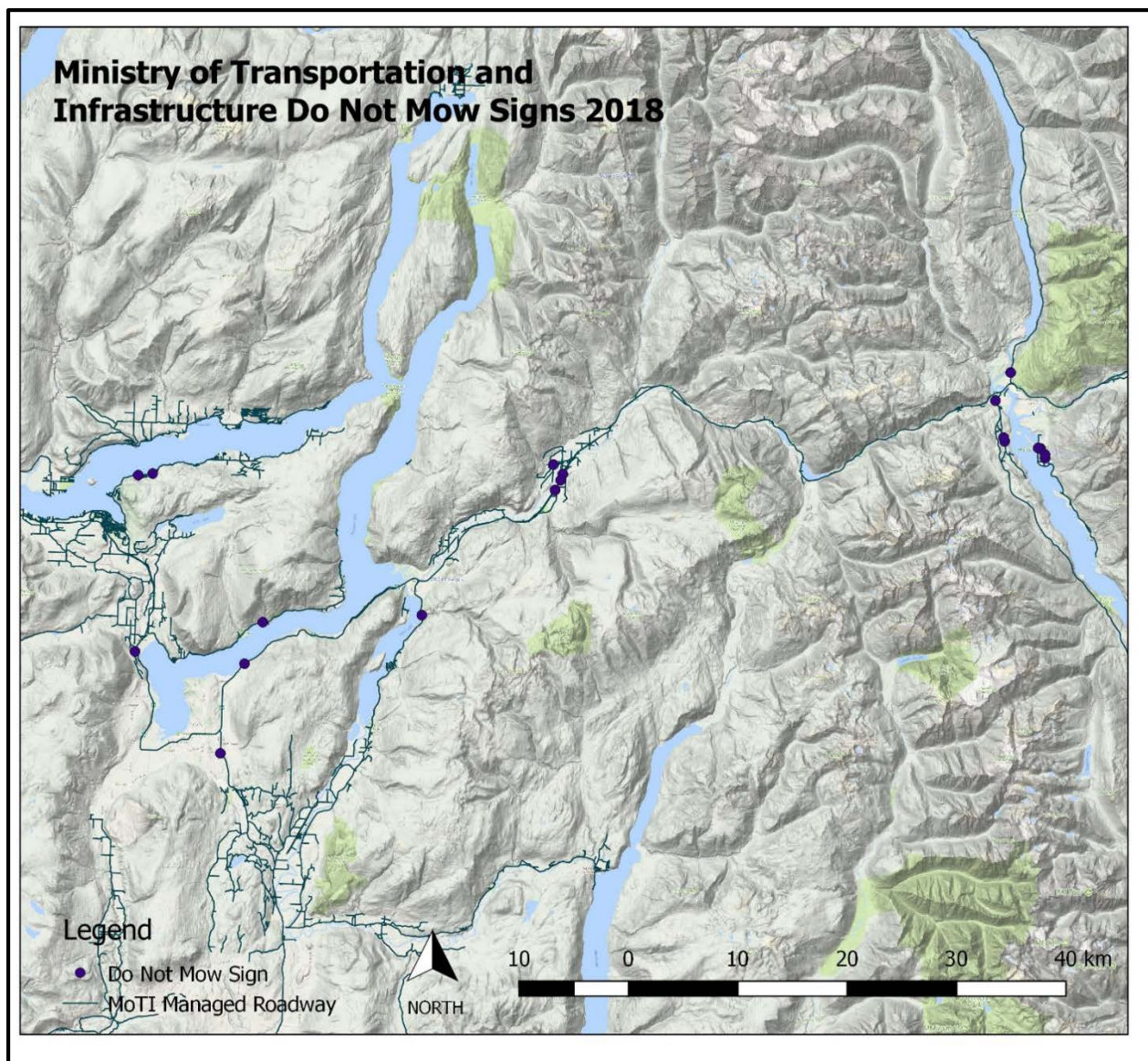


Figure 31. Ministry of Transportation and Infrastructure Do Not Mow Signage 2018

PARKS CANADA OVERVIEW

In 2018, the CSISS acting as a qualified contractor on behalf of Parks Canada, completed Invasive Alien Plant (IAP) Assessment and IAP Herbicide Monitoring in Mount Revelstoke and Glacier National Parks at pre-determined sites.

In total, 20 sites were monitored for herbicide effectiveness spanning two rounds of treatment from a certified herbicide spray contractor and thirteen sites were assessed for IAPs at pre-determined sites in both Mount Revelstoke and Glacier National Parks.



Figure 32. Deposition sites assessed for invasive alien plants. Loop Brook Gun Position (left), Goddard Gun Position (centre), and Stonearch Gun Position (right).

PUBLIC CONSERVATION ASSISTANCE FUND OVERVIEW

In 2018, the CSISS completed detailed site inventory for invasive yellow flag iris (YFI) on both White Lake and Little White Lake in the Shuswap watershed located in central British Columbia. Using iPads and a GIS mapping program, a combined infestation size of 376 m² was determined. Mechanical treatment from CSISS staff, Invasive Species Council- Jobs Creation Program (JCP) and volunteers over four days were able to treat all sites on both lakes by a combination of digging, benthic barriers and deadheading before seed set. In addition, a community weed pull with 10 volunteers was able to assist with treatment on Little White Lake and a school presentation led by CSISS staff taught local students the importance of native biodiversity, the impacts of invasive YFI and proper removal techniques.

In total, mechanical treatment removed 376 m² of material, approximately 2,440 kg. Native cattail planting occurred in areas free of YFI from previous years of treatment, and approximately 160 cattails were planted in total. 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 33. Invasive yellow flag iris infestation on White Lake (left), yellow flag iris rhizome root mass (centre) and benthic barrier installation (right)

AQUATIC INVASIVE SPECIES SURVEYS

ZEBRA AND QUAGGA MUSSELS

In 2018, the CSISS monitored waterbodies in the region for zebra and quagga mussels (ZQM) adhering to the 2018 Provincial Invasive Mussel Field Protocol. All waterbodies in the Province are ranked for ZQM invasion using the new provincial waterbody risk matrix. This matrix takes into account probability of invasion, probability of mussel survival, and vulnerability of waterbody (environmental, social, and economic). Using the matrix, Provincial AIS sampling structure called for the majority of ZQM samples to be taken at critical or high risk waterbodies. The Ministry of Environment provides funds to monitor waterbodies with critical ranking and some waterbodies with high ranking. Separate funding from the Shuswap Watershed Council and Columbia Basin Trust enabled CSISS to expand the ZQM sampling program to include all high ranking waterbodies, some medium ranking waterbodies and to increase the frequency of sampling at many priority locations.

In 2018, the CSISS more than doubled the amount of ZQM samples collected from waterbodies in the Columbia Shuswap. In total, 118 samples were collected from 42 locations (13 new locations in 2018) spread over 22 waterbodies within the Columbia Shuswap Regional District (Figure 34).

Sampling frequency was determined from a Provincial waterbody risk rating matrix. The highest risk waterbodies received the highest frequency sampling efforts (Appendix E). Twenty-eight sampling locations (14 waterbodies) were within the Shuswap region, and 14 locations (8 waterbodies) were in the Columbia region. ZQM veliger samples were collected using a plankton tow net and monitoring for adult mussels was completed either by inspecting local substrates (such as a dock) or on specially constructed substrate monitors.

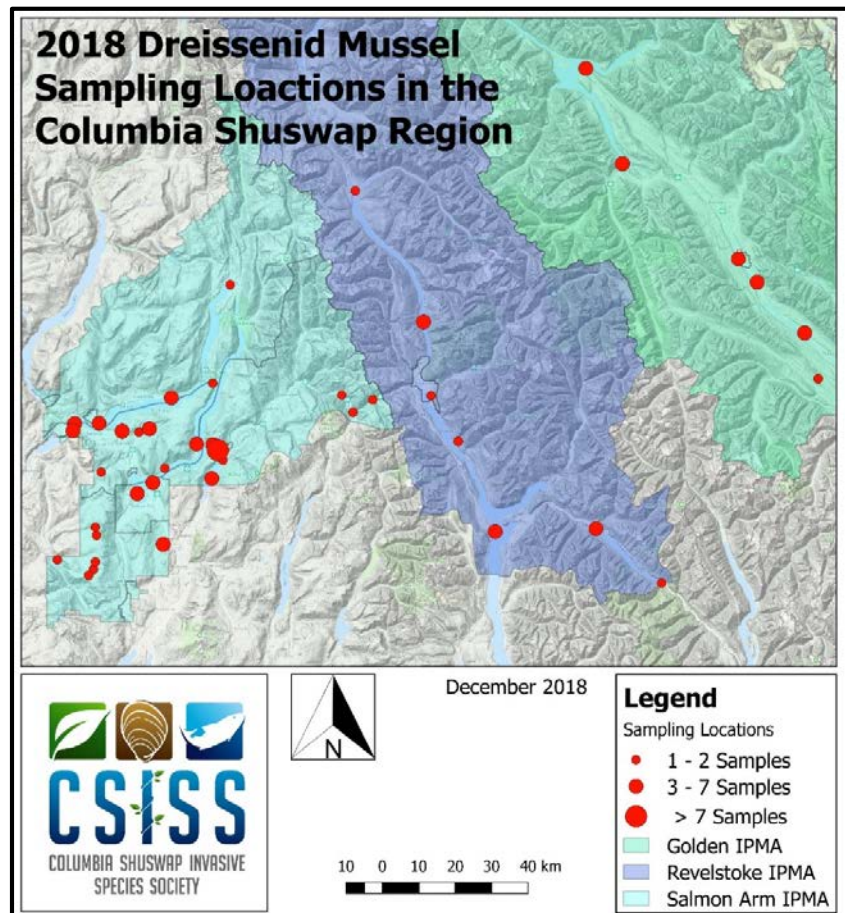


Figure 34. CSISS ZQM mussel sampling locations within the Columbia Shuswap Region, 2018.

Based on Provincial protocol, sampling can take place when water temperatures reach 9°C, this allows sampling in the Columbia Shuswap region to begin in May and end in October, varying for individual waterbodies. Sampling frequency depends on boat traffic, for example, on Shuswap Lake, Sicamous Narrows along the Trans-Canada Highway was sampled 10 times as it is a high-traffic site, whereas the more remote public boat launch at Seymour Arm was only sampled once.

Four Shuswap Lake sites, (Sandy Point, Herald Provincial Park, The Narrows and Totem Pole) and two Trout Lake sites, were accessed and sampled by boat thanks to the Columbia Shuswap Regional District. Boat sample locations are important as they allow deeper ZQM veliger sampling (15m) compared to sampling off docks (typically around 6m). Several smaller lakes without any dock structures were sampled from a boat by contractor Chris Harkness.



Figure 35. Summer student Sam Legebokow samples Bolean Lake in the Fly Hills (left), contractor Chris Harkness sets off into Kernaghan Lake to sample from a kayak (centre), and Robyn Hooper (ED) samples Shuswap Lake near Sandy Point from the CSRD boat (right).

Samples were analyzed as part of the Provincial Mussel Defense Program. All waterbodies tested negative for ZQM veligers at all locations sampled by CSISS. There are currently no known cases of ZQM in the Province of BC.

Some water quality parameters can impact invasive mussel survival. The parameters that have the strongest correlation with mussel survival are acidity (pH), Calcium content (Ca mg/L), and lake productivity (inferred from Secchi depth measurement). Mussels are sensitive to excessive acidity (pH below 6.8), require enough calcium in the water to build their shells, and are more likely to thrive in higher productivity water, (typically a lower Secchi depth reading). Water temperature can have an impact on spawning dates and also on survival, although temperatures must be quite extreme to preclude mussel survival. These parameters were recorded at each site on each sampling date. This data will determine survivability factors for invasive mussels in each waterbody and help refine the provincial risk matrix.

All water bodies, except Williamson Lake, were found to have survivable rates of pH, calcium, productivity and temperature. Williamson Lake, a small oxbow lake south of Revelstoke, was found to have a very low calcium level (7 mg/L). Mussels may be less inclined to prosper in this lake than others tested. However, it must be noted that a single sample was taken from this lake, and further testing will give more certainty to this result.



Figure 36. Laura Gaster testing water pH at Mara Lake (left) and Secchi depth (center) and volunteer Christian Lackey testing lake water samples for calcium content back in the lab (right).

CSISS staff constructed substrate monitors to be deployed at various locations. The substrate monitors are a collection of different surfaces, that can be lowered to depths between 2 and 8 meters and hauled up regularly for inspection. No sign of adult ZQM was found at any sampling site.

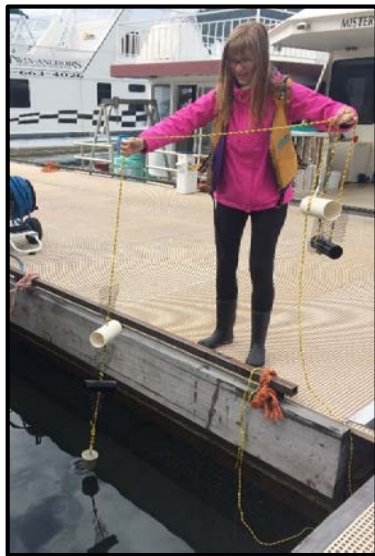


Figure 37. Summer student Heather Wilson lowers a substrate monitor into Shuswap Lake off a dock at Twin Anchors Marina (left), a substrate monitor before use (centre), a substrate monitor after several months' immersion with benign aquatic life present (right).

The CSISS worked closely with other organizations (BC Hydro, CKISS, MoE) sampling for ZQM in and around the Columbia Shuswap Region. CSISS sampling sites and dates complimented those other organizations to ensure sampling did not overlap, and maximized sampling efforts across regional waterbodies.

AQUATIC INVASIVE PLANTS

All CSISS shore-based ZQM sampling sites (35 sites) were also surveyed for invasive aquatic plants. A number of invasive plants are present in the Columbia Shuswap region including: Eurasian watermilfoil, yellow flag iris, curly-leaf pondweed, watercress, and fragrant waterlily. There were no significant changes in aquatic invasive plants from previous years.

AMERICAN BULLFROGS

American bullfrogs are not known to exist in the Columbia Shuswap Region. The closest populations are in the lower mainland, Creston Valley, and an eradicated (but possibly re-emerging) population in the southern Okanagan.

The CSISS collaborated with the Central Kootenay Invasives Species Society, the Boundary Invasive Species Society and provincial experts to create a Risk Assessment for American Bullfrogs in the Columbia Shuswap region. The risk assessment focused on possible avenues of invasion. Additionally, CSISS worked with a GIS student to produce a suitability model for potential bullfrog invasion routes into the Columbia Shuswap, and to determine the timeframe that bullfrogs may reach the Columbia Shuswap from the nearest populations in Creston Valley given natural dispersal rates.

Unfortunately, a suitability model for bullfrogs depends on data for which there are significant gaps. Gaps identified included parameters such as tolerance to water velocity when traveling upstream, travel along large hydro-controlled waterbodies (with little or no breeding habitat), elevation limits, etc. Without extending data in these areas, a suitability model with useful definition was not possible to construct.

A literature review shows significant variability in bullfrog natural dispersal rates. Allowing for this variability, an upper value of approximately 11.5 km per year was used to create a map showing the estimated minimum time that bullfrogs would require to reach the Columbia Shuswap region through natural dispersal from the closest known location in Creston Valley (Figure 38). It is estimated from this map that bullfrogs would take at least 15 years to reach the Columbia Shuswap through natural dispersal.

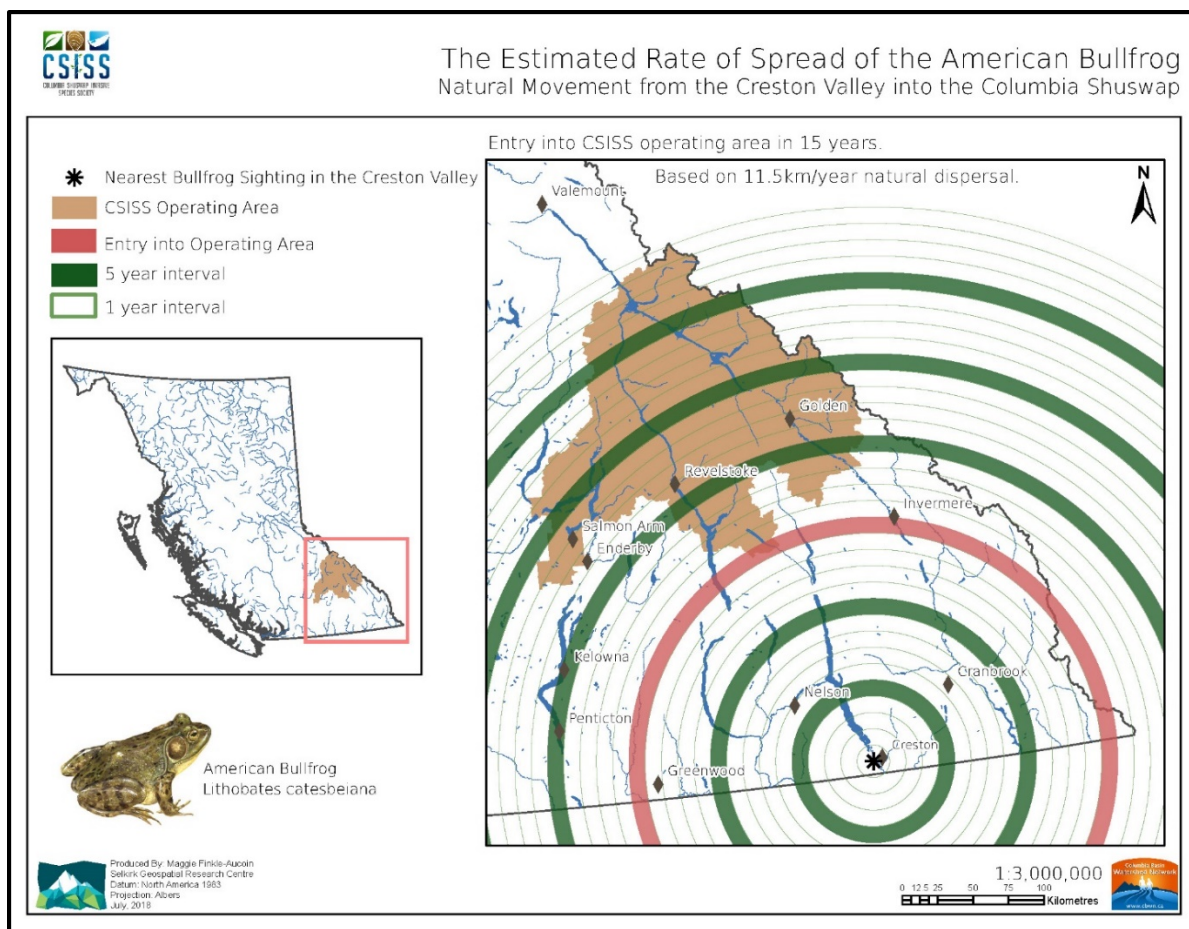


Figure 38. Bullfrog natural dispersal from nearest known population (Creston Valley). The natural dispersal rate of 11.5 km/year shows that bullfrogs are unlikely to arrive in the Columbia Shuswap within the next 15 years.

With the unlikelihood of bullfrogs arriving through natural dispersal to the Columbia Shuswap in the next 15 years, CSISS outreach and prevention efforts focused on the potential human assisted routes of invasion. Bullfrogs may be transported by humans for a variety of reasons; as pets, as garden ornaments, as educational dissection animals, or as food. Targeted outreach was designed to reach people who may unwittingly release these animals to the Columbia Shuswap (see more information on Don't Let It Loose message, page 22).

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 2018, the CSISS mechanically treated 44 priority invasive plant sites, removing a total of 1308 m² of material. The priority invasive plants treated consist of: big head knapweed, blueweed, common bugloss, Himalayan blackberry, Himalayan balsam, teasel, wild parsnip, and yellow flag iris. As part of mechanical treatment, the CSISS supported 12 weed pulls throughout the Columbia Shuswap region.



Figure 39. Blueweed (left), teasel (center) and Himalayan balsam (right) are mechanically treated at sites throughout the Columbia Shuswap region.

CHEMICAL TREATMENT

In 2018, the CSISS administered three herbicide spray contracts treating 53 priority sites and 8358 m² of land. All treatments were carried out by a certified herbicide applicator. The CSISS monitored four herbicide spray contracts totaling 53 sites. Priority invasive plants treated consist of: blueweed, bohemian knotweed, giant hogweed, Himalayan blackberry, leafy spurge and rush skeletonweed.



Figure 40. Leafy spurge pre-treatment (left), giant hogweed pre-treatment (centre) and knotweed pre-treatment (right) at various locations throughout the Columbia Shuswap region.

BIOLOGICAL AGENT DISPERSAL MONITORING

In 2018, the CSISS completed biological agent dispersal monitoring at five locations across the Columbia Shuswap region. Spotted knapweed was assessed and found to contain *Larinus spp* and St. John's wort was assessed and found to contain *Chrysolina spp*.

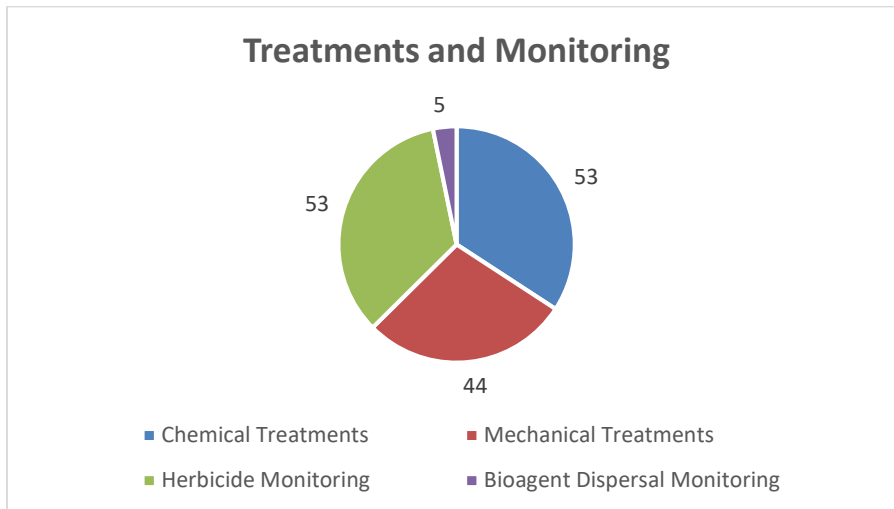


Figure 41. Treatment and Monitoring Completed in 2018

SIGNAGE AND EDUCATION

To reduce the spread of knotweed on roadside right-of-ways, the CSISS installed 32 'Do Not Mow' signs to alert mowers of the infestation ahead. Signs were installed prior to mowing, repaired throughout the growing season and removed post mowing to be stored in a secure area.

To encourage proper disposal of knotweed at landfills and transfer stations, the CSISS ensured each refuse station had a 'Do Not Compost Knotweed' sign visible to members of the public.

In addition to signage, CSISS staff completed tailgate sessions with municipal and regional staff members highlighting priority invasive plants, reporting methods and best management practices. Specific knotweed education was provided to landfill and transfer station operators throughout the season. For invasive plant practitioners, members of the public and other interested individuals, CSISS hosted five "Invasive Plant Identification and Management Training" workshops early spring to increase education and awareness about invasive plants, best management practices and reporting methods.



Figure 42. Do Not Mow sign (left) and Do Not Compost sign (right)

GOAL 6: PROGRAM SUSTAINABILITY

In 2018, the CSISS gratefully received increased support for invasive species related programming in the region. The CSISS received funds from B.C. Community Gaming Grant, Parks Canada, Habitat Conservation Trust Foundation (Invasive Mussel Monitoring and Public Conservation Assistance Fund), City of Salmon Arm, BC Hydro, Shuswap Watershed Council, and BC Parks (Parks Enhancement Funds and special capital project in Columbia region). In addition, the CSISS continued multi-year funding agreements from the Columbia Shuswap Regional District (CSRD), the Ministry of Forests, Lands and Natural Resource Operations and Rural Development (MFNRORD), the Ministry of Transportation and Infrastructure (MOTI), and the Columbia Basin Trust (CBT). CSISS received funding for a summer student from the federal government through the 'Canada Summer Jobs' program. Small contributions were also received from: North Columbia Environmental Society, Invasive Species Council (boat industry workshop and facilitator training workshop), Shuswap Trail Alliance (RBC Water Grant partnership with RBC Revelstoke), Salmon Arm Bay Nature Enhancement Society (SABNES) and Okanagan Regional Library. We also received small donations at workshops and events from various members and stakeholders.

Additional funding sources are being pursued for the 2019 season, following a CSISS two-year funding strategy for 2018-2019.

The CSISS staff team in 2018 included three returning staff members, Robyn Hooper (Executive Director), Laura Gaster (Field Operations Program Coordinator) and Sue Davies (Outreach and Aquatics Program Coordinator). Three additional staff members were hired, Kim Kaiser (Education Officer), Heather Wilson (Summer Student) and Sam Legebokow (Summer Student). Staff helped greatly enhance the level of service the CSISS was able to deliver in the region (Figure 43). 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 2018; the manual helps to facilitate orientation of new staff and directors (Stafl, 2015, updated Hooper 2017). The manual is reviewed and signed by the Board Directors annually and updated as necessary. A new Employee Handbook was developed from the Central Kootenay Invasive Species Society's template, to further guide CSISS staff on organizational, human resources and administrative standards. CSISS staff have created and maintained an Outreach Framework 2015-2020. This framework informs CSISS outreach targets, performance measures, staff work plans, calendars for specific outreach programming, and helps to determine gaps in stakeholder groups and pathways of spread (Hooper et al. 2015 updated by Sue Davies 2017).



Figure 43: CSISS Staff members (from left to right): Heather Wilson (Summer Student); Kim Kaiser (Education Officer); Laura Gaster (Fields Operations Coordinator); Robyn Hooper (Executive Director); Sue Davies (Aquatic and Outreach Coordinator); Sam Legebokow (Summer Student).

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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 2018

Current CSISS Board Directors (2018- 2019)

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
Bruce Husband	Board Director, CSISS	Shuswap Agricultural Strategy Group
Adam Croxall	Board Director, CSISS	BC Hydro
Darren Komonski	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
Natalie Stafl	Board Director, CSISS	Parks Canada

CSISS Board Directors (2017- 2018)

Hamish Kassa	Chair, CSISS	Columbia Shuswap Regional District
Chris Cochran	Vice-Chair, CSISS	Town of Golden
John Braisher	Board Directors, CSISS	Rancher and Golden resident
Bruce Husband	Board Directors, CSISS	Shuswap Agricultural Strategy Group
Bryan Chruszcz	Board Directors, CSISS	Parks Canada
Adam Croxall	Board Directors, CSISS	BC Hydro
Darren Komonski	Board Directors, CSISS	City of Revelstoke
Diane Millar	Board Directors, CSISS	Ministry of Forests, Lands and Natural Resource Operations
Chris Gill	Board Directors, CSISS	Shuswap resident and environmental consultant
Laurel Corrigan	Board Directors, CSISS	Revelstoke resident

CSISS Staff 2018

Robyn Hooper	Executive Director, CSISS
Laura Gaster	Field Operations Program Coordinator, CSISS
Sue Davies	Aquatic Invasive Species and Outreach Program Coordinator, CSISS
Kim Kaiser	Education Program Officer, CSISS
Sam Legebokow	Terrestrial Field Program Assistant (Summer Student), CSISS
Heather Wilson	Aquatic and Outreach Program Assistant (Summer Student), CSISS

APPENDIX B: EVENTS ATTENDED BY CSISS AND PARTNERS 2018

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

Date	Event	# of Attendees	# of Direct Interactions
10-Jan-18	Regional Invasive Species Organization Monthly Meeting	12	12
10-Jan-18	Meeting with City of Revelstoke	3	3
12-Jan-18	Community Based Social Marketing Meeting	2	1
15-Jan-18	Meet with Kim re volunteering for 2018, possible employment	1	1
15-Jan-18	Meet with Revelstoke Planning Department, Nigel and Daniel	2	2
17-Jan-18	Columbia Basin Team Meeting on Community Based Social Marketing Project	4	7
18-Jan-18	Phone call Shuswap Watershed Council	1	1
18-Jan-18	Community Based Social Marketing CBEEN Project Check	7	7
19-Jan-18	Shuswap Trails Working Group Meeting	26	26
02-Feb-18	Emails to race organizers	6	6
05-Feb-18	Invasive Species Council of BC Strategic Planning Meeting	20	20
06-Feb-18	Invasive Species Council of BC Forum and EDRR workshop	150	50
07-Feb-18	Community Based Social Marketing survey meeting	3	3
08-Feb-18	Land Use and Real Estate Education meeting	12	12
15-Feb-18	Community Based Social Marketing Advanced Training	15	15
20-Feb-18	Marina outreach Invasive Species Council of BC call	1	1
21-Feb-18	Invasive Species Action Month team meeting	10	10
26-Feb-18	100 in 1 day planning meeting	8	8
27-Feb-18	Columbia Basin Team Meeting phone call	3	3
28-Feb-18	Columbia Basin Team Meeting with Consultant on Fundraising	4	4
28-Feb-18	Shuswap Water Quality Monitoring Group	13	13
01-Mar-18	Bullfrog Song-meters Meeting	1	1
06-Mar-18	Canadian Network for environmental Education and Communication proposal meeting	3	3
07-Mar-18	Regional Invasive Species Organization Monthly call	15	15
10-Mar-18	Golden Seed Swap	90	67
12-Mar-18	Garden Centre Visits Revelstoke	5	5
15-Mar-18	Annual Land Manager Meeting	17	17
16-Mar-18	Bullfrog risk assessment meeting	2	2
19-Mar-18	Wetlands signage call with Annette Luttermann	1	1
20-Mar-18	American Bullfrog Action Team Meeting	20	20
21-Mar-18	Garden Centre visits Salmon Arm	8	6
21-Mar-18	Blind Bay Garden Club	10	10
22-Mar-18	Local Food Initiative seed swap and winter market	250	74

Date	Event	# of Attendees	# of Direct Interactions
03-Apr-18	Shuswap Watershed Council meeting	3	1
04-Apr-18	Meeting Revelstoke Cycling Association (Keith McNab)	2	2
09-Apr-18	Community Based Social Marketing Meeting	5	5
12-Apr-18	Meeting ISCBC on Invasive Wise marina program	3	3
13-Apr-18	Secwepemc Job Fair	250	185
16-Apr-18	Electro fishing Training	13	13
17-Apr-18	Meeting with BC Parks (Amanda Weber-Roy)	3	1
19-Apr-18	Sicamous Career fair	60	34
20-Apr-18	SPCA meeting	1	2
20-Apr-18	Shuswap Trail Working Group meeting	15	15
27-Apr-18	Invasive Species Council of BC Train the Trainer course	8	8
28-Apr-18	North Columbia Environmental Society Bike Swap	200	2
01-May-18	Community Based Social Marketing check in call	6	6
02-May-18	Marina outreach	6	6
02-May-18	Regional Invasive Species Monthly Call	12	14
03-May-18	Marina outreach	12	12
03-May-18	QGIS Course	1	1
04-May-18	South Shuswap Chamber of Commerce Meeting	42	42
04-May-18	Marina outreach	9	9
04-May-18	South Shuswap Chamber meeting	42	42
06-May-18	Shuswap Fishing Darby	170	21
07-May-18	Fish identification course presentation	15	15
07-May-18	Screen Smart event	15	15
08-May-18	City of Salmon Arm tailgate training	21	21
08-May-18	Columbia Shuswap Regional District tailgate training	5	5
09-May-18	Revelstoke ATV club	13	13
12-May-18	Salty Dog Street Fest	500	82
13-May-18	Track St Growers Mother's day plant sale	150	0
15-May-18	Sicamous Invasive Plant ID Workshop	13	13
16-May-18	Revelstoke Invasive Plant ID Workshop- MORNING	6	6
16-May-18	Revelstoke Invasive Plant ID Workshop- AFTERNOON	5	5
17-May-18	Salmon Arm Invasive Plant ID Workshop	6	6
23-May-18	Golden Invasive Plant ID Workshop	9	9
24-May-18	Wildsight Invasive Plant Coordinator Training	1	1
26-May-18	Carlin Country Market	979	46
30-May-18	Know Your Watershed Weed Pull	28	28

Date	Event	# of Attendees	# of Direct Interactions
02-Jun-18	100 in 1 Day Nature Walk	10	10
04-Jun-18	Yellow Flag Iris white lake weed pull	9	9
05-Jun-18	Yellow Flag Iris Little white lake weed pull	9	9
06-Jun-18	Yellow Flag Iris Little white lake weed pull with volunteers (evening)	10	10
06-Jun-18	Regional Invasive Species Monthly Call	12	12
11-Jun-18	Meeting with Keith McNab Revelstoke Cycling Association-Revelstoke trail signs	1	1
11-Jun-18	Meeting with Parks Canada staff- iPad feature classes tutorial	6	6
11-Jun-18	Kamloops Invasive Species Council Job Creation partnership Meeting	15	15
12-Jun-18	Parks Canada Trail Crew training	6	6
14-Jun-18	Eco Stewards presentation	19	19
15-Jun-18	Paddle Film Fest	45	45
16-Jun-18	Paddle Fest	65	22
17-Jun-18	Fathers Day Williamson Lake (Fishing Derby)	175	28
19-Jun-18	Blind Bay Weed Pull	12	12
21-Jun-18	Revelstoke Greenbelt Weed Pull	7	7
21-Jun-18	Indigenous Day Piers Point	300	53
21-Jun-18	Indigenous Day Carlin Elementary	200	200
23-Jun-18	Local Food Initiative market	200	52
24-Jun-18	Wildsight weed pull	7	7
26-Jun-18	Invasive Mussel Marina Event	25	25
27-Jun-18	Trail Outreach FlowDown Trailhead	7	7
28-Jun-18	Trail Outreach FlowDown Trailhead	2	2
30-Jun-18	Martha Creek Provincial Park Weed Pull	10	7
01-Jul-18	Blind Bay Canada Day Event	550	150
01-Jul-18	Revelstoke Canada Day Event	300	30
04-Jul-18	Golden Farmer's Market with Wildsight	200	25
06-Jul-18	Boater outreach While AIS Sample Trout Lake and Shelter Bay	20	14
08-Jul-18	Gardom Lake 4-H club talk	25	25
11-Jul-18	Celista Farmer's Market	300	53
12-Jul-18	Marina Outreach Columbia Wetland Adventures	1	1
14-Jul-18	Sorrento Farmer's Market	250	60
15-Jul-18	Scotch Creek Farmer's Market	150	43
16-Jul-18	Salmon Arm Musical Ride	1500	53
17-Jul-18	Junior Naturalists Revelstoke	12	12
17-Jul-18	South Shuswap Library presentation	30	30

Date	Event	# of Attendees	# of Direct Interactions
17-Jul-18	Adaptive Paddleboard event	10	10
17-Jul-18	Boater outreach, Canoe Beach	2	2
20-Jul-18	Deliver brochures to accommodation providers	16	16
20-Jul-18	Trail Outreach Flowdown Trailhead	19	19
25-Jul-18	Wildsight weed pull Reflection Lake	15	15
25-Jul-18	Trail Outreach CBT Mainline, Moonraker, Cedar Lake	15	6
26-Jul-18	Trail Outreach Cedar Lake, Moonraker, CBT Mainline	25	16
26-Jul-18	Canadian Network for Environmental Education and Communication Call	3	3
27-Jul-18	Trail Outreach Griffith Creek	20	18
27-Jul-18	Shuswap Farm and craft market	50	20
30-Jul-18	Salmon Arm Day Rotary	20	20
31-Jul-18	Single track bike race	150	20
31-Jul-18	Boater Outreach Shelter Bay and Blanket Creek	20	17
31-Jul-18	Trail outreach Blanket Creek	19	19
01-Aug-18	Boater Outreach Canoe Beach	15	9
02-Aug-18	Boater outreach Sicamous	40	17
03-Aug-18	Jordan River festival	30	8
03-Aug-18	Boater outreach Sicamous	45	21
04-Aug-18	Golden info Centre outreach	40	10
08-Aug-18	Boater outreach Sicamous	6	6
10-Aug-18	Don't let it loose outreach to pet stores and Bullfrog posters	5	5
10-Aug-18	Boater Outreach Salmon Arm	33	13
11-Aug-18	Sicamous Farmer's Market	75	50
16-Aug-18	Boater Outreach Sicamous	50	10
17-Aug-18	Boater Outreach Sicamous	30	28
17-Aug-18	Salmon Arm Roots & Blues Music Festival	27000	98
22-Aug-18	Boater Outreach Sicamous	10	6
22-Aug-18	Provincial Aquatic Invasives Meeting	15	15
23-Aug-18	Trail Outreach McPherson	20	12
24-Aug-18	Boater Outreach Sicamous	30	12
26-Aug-18	Transelkirks Race Revelstoke Mountain Resort	150	25
29-Aug-18	Askew's market	150	15
07-Sep-18	Salmon Arm Fall Fair	5000	183
10-Sep-18	Canadian Network for Environmental Education and Communication Call	3	3
11-Sep-18	Edible Invasives workshop with North Columbia Environmental Society	13	13

Date	Event	# of Attendees	# of Direct Interactions
11-Sep-18	Regional Invasive Species Organization Field Tour	15	15
12-Sep-18	Multi agency road stop	35	16
16-Sep-18	Revelstoke Garlic festival	1642	66
19-Sep-18	Invasive Species Council of BC affiliate phone meeting	10	10
20-Sep-18	Chase Secondary School at Tsutswecw	71	71
21-Sep-18	Kokanee Fish Festival	160	160
25-Sep-18	Salmon Arm Evening Rotary	23	23
25-Sep-18	CSISS Annual General Meeting and restoration workshop	27	27
27-Sep-18	Little white lake homeschool group presentation and weed pull	32	32
27-Sep-18	Provincial Aquatics call	15	15
28-Sep-18	Salute to the Sockeye	69000	564
28-Sep-18	Lewiston Ultra Race Meet	380	28
30-Sep-18	Shuswap Salmon Symposium	118	118
02-Oct-18	Science 9 RSS (morning)	24	24
02-Oct-18	Science 9 RSS (afternoon)	23	23
04-Oct-18	Regional Invasive Species Organization monthly call	15	15
10-Oct-18	Canadian Network for Environmental Education and Communication call	3	3
15-Oct-18	Meeting ISCBC (Sue Staniforth) about CDD program	1	1
19-Oct-18	Shuswap Trails Working Group Meeting	18	18
19-Oct-18	Canadian Network for Environmental Education and Communication Conference workshop	4	4
19-Oct-18	Canadian Network for Environmental Education and Communication Conference	300	
27-Oct-18	Salmon Arm Bay Nature Enhancement Society Foreshore Community weed pull	18	18
29-Oct-18	Shuswap Trail alliance nightshade weed pull	4	4
17-Nov-18	Bullfrog presentation to Columbia Basin Watershed Network	45	45
20-Nov-18	Columbia Mountains Institute meeting	2	1
27-Nov-18	Revelstoke Volunteer Fair	50	50
27-Nov-18	Columbia Basin Regional AIS steering Committee	10	10
28-Nov-18	Meeting with Laurie Carr Central Kootenay Invasive Species Society	2	1
05-Dec-18	Regional Invasive Species Organization monthly call	15	15
12-Dec-18	Shuswap Watershed Council Presentation	10	10

APPENDIX C: MEDIA COVERAGE OF CSISS ACTIVITIES IN 2018

Date	Publisher	Headline
03-Jan-18	CSISS e-Newsletter, Web Blog	Happy Mussel-free New Year from CSISS!
23-Jan-18	CSISS ED News, Web Blog	You're Invited: Columbia Shuswap Annual Land Manager Meeting 2018
31-Jan-18	Salmon Arm Observer	No zebra or quagga mussels found in Columbia Shuswap
01-Feb-18	Revelstoke Mountaineer	Celebrating staying invasive mussel-free in the Columbia Shuswap
27-Feb-18	Revelstoke Mountaineer	North Columbia Environmental Society to bring international event to Revelstoke
02-Mar-18	Columbia Valley Pioneer	Province issues funds to combat invasive plants
02-Mar-18	Kootenay Business	B.C. gets boost in fight against invasive mussels
03-Mar-18	Vernon Morning Star	Regional District North Okanagan, Columbia Shuswap Regional District receive invasive plant management funds
05-Mar-18	CSISS ED News	Last Chance to Register: Columbia Shuswap Annual Land Manager's Meeting
09-Mar-18	Revelstoke Review	Take action against invasive species in the Revelstoke area this month
14-Mar-18	CSISS ED News, Web Blog	CSISS is Hiring: 2018 Job Postings
16-Mar-18	Revelstoke Review	Revelstoke invasive species organization reminds boaters to check for Zebra Mussels
17-Mar-18	EZ Rock radio interview	Zebra and Quagga Mussels
25-Mar-18	Revelstoke Review	Revelstoke Invasive Species Spotlight: Knotweeds
26-Mar-18	Revelstoke Review	Revelstoke Invasive Species Spotlight: Himalayan balsam
30-Mar-18	Salmon Arm Observer	Sports Shorts: Yellow Flag Iris Removal
13-Apr-18	CSISS e-Newsletter, Web Blog	CSISS Newsletter Spring 2018
04-Jun-18	SunCruiser Media	Keeping Shuswap Lake Free of Invasive mussels
11-Jun-18	CSISS Web Blog	Shuswap Invasive Mussel Prevention Event
15-Jun-18	Reved Quarterly	Musclin' Out Mussels
18-Jun-18	Mountain Culture Mag	Clean, Drain, Dry your watercraft
19-Jun-18	Golden star	Wildsight Golden Hosts Annual Weed Pull
21-Jun-18	Golden Star	Shuswap Watershed Council Clean, Drain, Dry advertisement
27-Jun-18	Salmon Arm Observer	Preventing Invasive Mussels in the Shuswap
27-Jun-18	Revelstoke Review	Preventing Invasive Mussels in the Shuswap
01-Jul-18	Revelstoke Review	Revelstoke area environmental societies host quagga and zebra mussels information event
05-Jul-18	CSISS Web Blog	Public is warned not to invite an invasion into Columbia Shuswap Gardens

Date	Publisher	Headline
06-Jul-18	Salmon Arm Observer	Help stop the spread of invasive plants in the Okanagan-Shuswap
20-Jul-18	EZ Rock radio	CSISS plucks Yellow Flag Iris at McGuire Lake
23-Jul-18	Wildsight website	Golden's Community Weed Pull Event at Motocross Track
23-Jul-18	Salmon Arm Observer	Invasive iris gets the chop from McGuire Lake
26-Jul-18	CSISS e-Newsletter, Web Blog	CSISS Midsummer Newsletter
13-Aug-18	Keremos Review	Fight against toxic weeds continues in the Shuswap
13-Aug-18	CSISS ED News	CSISS AGM and workshop Invite
22-Aug-18	Fraser Basin Shuswap Watershed Council Blog	Monitoring Shuswap Lake for invasive mussels – Parts 1 & 2
10-Sep-18	Revelstoke Mountaineer	Get more weeds in your diet with this edible invasives workshop
10-Sep-18	CSISS ED News	Registration still open! CSISS AGM and Workshop 2018
12-Sep-18	Vernon Morning Star	What to do when the invasive plants are gone?
12-Sep-18	Revelstoke Review	Fight invasive species with the Columbia Shuswap Invasive Species Society
05-Oct-18	CSISS Web Blog	Check out the CSISS Strategic Plan for 2019-2024 and elected Board of Directors
13-Nov-18	CSISS e-Newsletter, Web Blog	CSISS Fall Newsletter
Dec-18	CSISS e-Newsletter, Web Blog	CSISS Mussel Free 2018

APPENDIX D: COLLABORATION, WORKSHOPS AND TRAINING OPPORTUNITIES ATTENDED OR HOSTED BY CSISS IN 2018

- Monthly conference calls and meetings with Columbia Basin invasive species groups
- Monthly conference calls with BC Regional invasive species groups
- Provincial Aquatic Invasive Species conference calls
- Meetings with Parks Canada
- Community Based Social Marketing strategy development meetings
- Invasive Species Council of BC Strategic Planning meeting
- Invasive Species Council of BC Annual Forum
- Shuswap Watershed Council meetings
- Land use and real estate education meeting
- Annual Land Manager's meeting
- Electro-fishing training
- Participation in Invasive Species Action Month planning
- Invasive Species Webinars for training purposes, e.g. ISCBC webinars, Aquatic Invasives webinars
- Coordination calls with ISCBC for PlantWise, Play Clean Go, Clean Drain Dry, Don't Let It Loose and Invasive-Wise Marina Programs, and coordination with Job Creation Partnership crews
- ISCBC Train the Trainer course
- QGIS training course
- CSISS Invasive species identification workshops in Salmon Arm, Revelstoke, Sicamous and Golden
- Best Management Practices presentation to Parks Canada Staff
- Mussel prevention marina networking event in Sicamous with the BC Mussel Defense program
- Edible invasive workshop
- Canadian Network for Environmental Education and Communication conference in October
- Canadian Network for Environmental Education and Communication meetings and workshop in collaboration with EKISC CKISS and ISCBC
- Bullfrog Risk Assessment meetings and presentation to Columbia Basin Watershed Network
- Regional Invasive Species Organizations field tour and annual meeting in Kimberley
- Invasive Species Council of BC affiliate meeting
- Shuswap Trails Working Group meetings
- CSISS Annual General Meeting and Invasive Species Site Rehabilitation workshop
- Columbia Basin Aquatic Invasive Species Steering Committee Meeting

APPENDIX E: CSISS INVASIVE MUSSEL SAMPLING LOCATIONS 2018

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

Priority Ranking	Waterbody	Location	Number Samples Collected
Critical	Kinbasket Reservoir	Kinbasket Resort	1
Critical	Kinbasket Reservoir	Bush Harbour	1
Critical	Lake Revelstoke	Downie Loop	3
Critical	Lake Revelstoke	Martha Creek PP	3
Critical	Mara Lake	Swansea Pt	3
Critical	Mara Lake	Waterway Marina	1
Critical	Shuswap Lake	Anglemont	5
Critical	Shuswap Lake	Blind Bay	1
Critical	Shuswap Lake	Canoe	1
Critical	Shuswap Lake	Captains Village Marina	1
Critical	Shuswap Lake	Cottonwood Cove	4
Critical	Shuswap Lake	Herald Provincial Park	3
Critical	Shuswap Lake	Old Town Bay	1
Critical	Shuswap Lake	Sandy Point	3
Critical	Shuswap Lake	Seymour Arm	5
Critical	Shuswap Lake	Sorrento	1
Critical	Shuswap Lake	Sicamous Narrows	7
Critical	Shuswap Lake	The Narrows	5
Critical	Shuswap Lake	Totem Pole Marina	6
Critical	Upper Arrow Lake	Shelter Bay	3
High	Columbia Wetlands	Columbia Wetland Adventures	3
High	Columbia Wetlands	Golden Airport	1
High	Columbia Wetlands	Nicholson Bridge	6
High	Trout Lake	Gerrard	4
High	Trout Lake	Trout Lake Village	1
High	White Lake	White Lake Provincial Park	6
High	White Lake	Sunny Shores Fishing Resort	10
Medium	Arthur Lake	Rec site	1
Medium	Bolean Lake	Rec site	4
Medium	Echo lake	Rec site	1
Medium	Gardom Lake	Community park	1

Priority Ranking	Waterbody	Location	Number Samples Collected
Medium	Griffin lake	Griffin lake lodge	1
Medium	Joyce Lake	Rec site	1
Medium	Kernaghan Lake	Rec site	3
Medium	Skimikin Lake	Rec site	5
Medium	Spa Lake	Rec site	1
Medium	Three Valley Lake	Highway Pullout	1
Medium	Victor Lake	Highway Pullout	2
Medium	Wallenstein Lake	Boat Sample	6
Medium	Wilbur Lake	Rec site	1
Medium	Williamson Lake	Rec site	1