

Upper Columbia River Aquatic Species at Risk Assessment and Recovery Strategy – Canada
Nature Fund for Aquatic Species at Risk (CNFASAR)
Now referred to as CHARS Funding 2019-2023

**Columbia Headwaters Aquatic Restoration
Secwépemc Strategy (CHARS)**

**Logo by Trinda Coté a High school student
of the Shuswap Band**





Columbia Headwaters Aquatic Restoration Secwépemc Strategy (CHARS) 2019-2023



Weytk (Hello)

This presentation will introduce (and update) you to projects led by the Kenpesq't (Shuswap Band), Columbia Wetlands Stewardship Partners (CWSP) with our partners (listed at the end of this document) in the Upper Columbia River and tributaries

Key Concepts

- Initial focus on Species at Risk (principally Westslope Cutthroat Trout, Bull Trout, Burbot);
- Over-riding umbrella for multiple projects over multiple years

Key Tasks

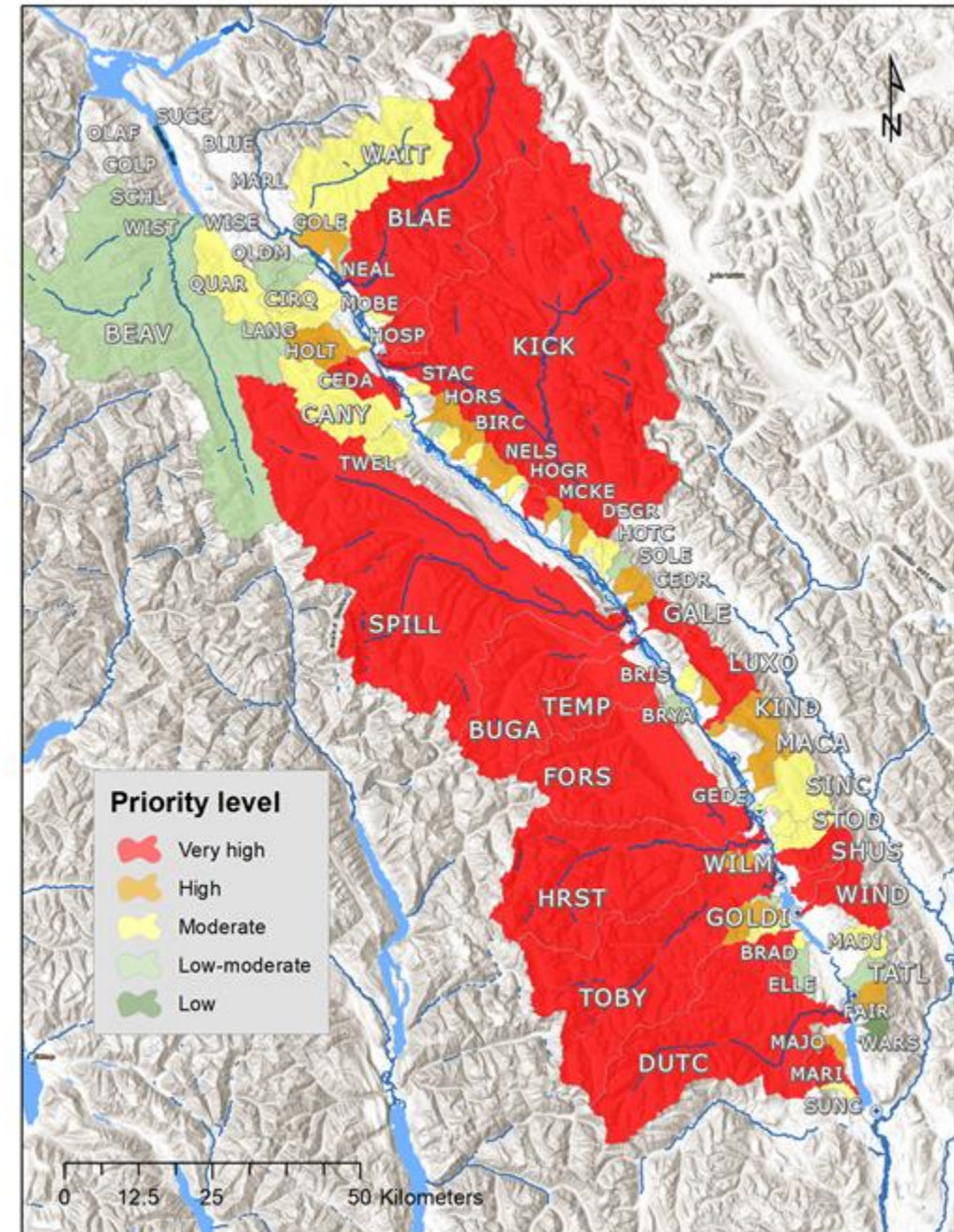
- Watershed assessments and prioritization for restoration
- Focus on collecting baseline, science and traditional knowledge-based data and preliminary evaluation of fisheries status and potential (focused on tributaries) between Canal Flats and Golden; Long term
- Develop pilot restoration projects
- Build connections and capacity in the valley
- 7 generations

Map of knowledge gap assessment and potential restoration prioritization results

- All watersheds are important
- Highest potential of restoration success while hitting project targets

Metrics used:

- Fish
- Anthropogenic pressures
- Stakeholder presence



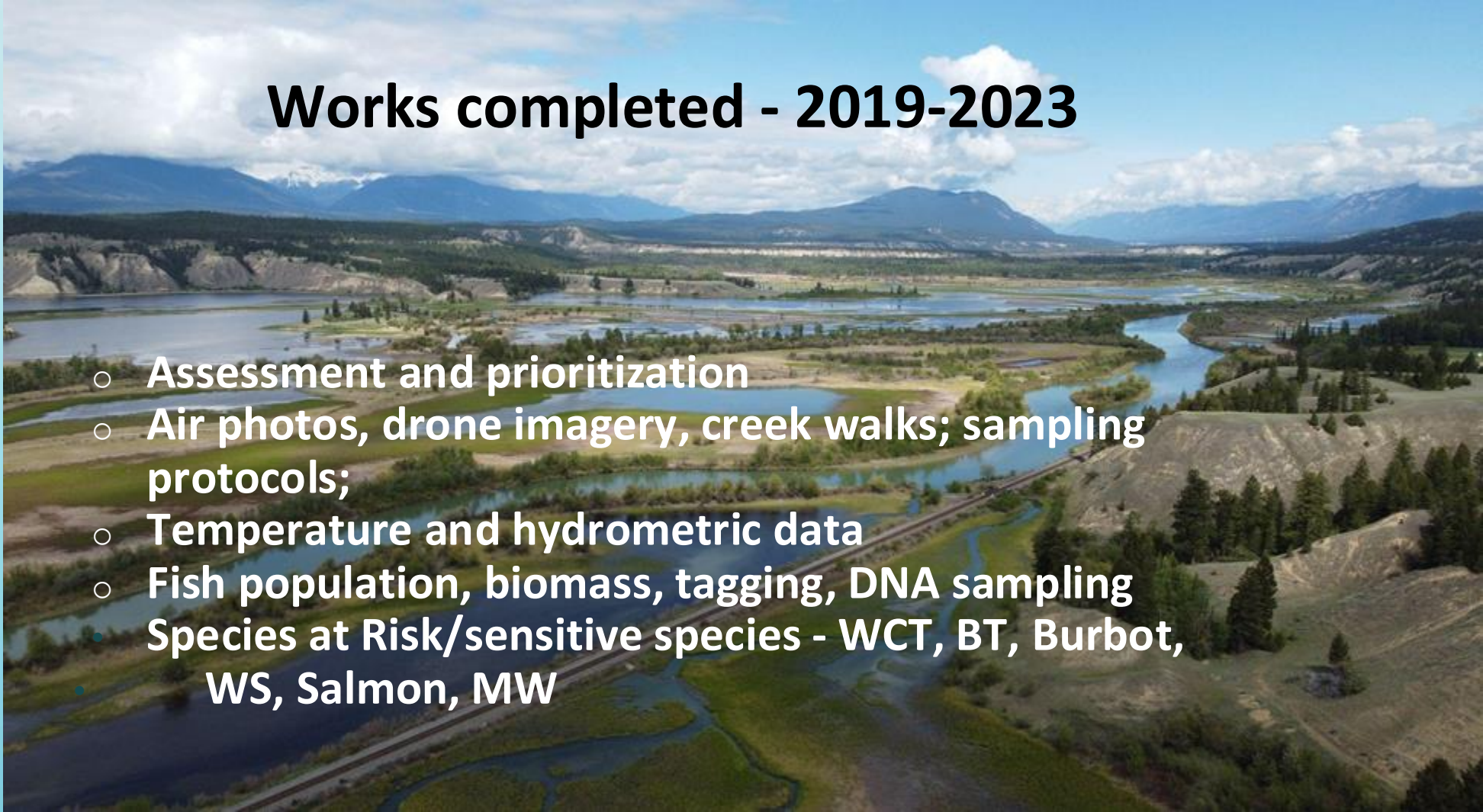


Drone imagery of Mouth of Shuswap Creek



Works completed - 2019-2023

- Assessment and prioritization
- Air photos, drone imagery, creek walks; sampling protocols;
- Temperature and hydrometric data
- Fish population, biomass, tagging, DNA sampling
- Species at Risk/sensitive species - WCT, BT, Burbot, WS, Salmon, MW





Habitat, Connectivity assessments



- Biology (long-lived, synchronous spawning) makes susceptible to over-harvest.
- In addition to over-harvest many large-scale ecological changes have occurred that negatively affect burbot including;
 - Habitat alteration and loss (lakeshore development and tributary channelization).
 - Loss of Chinook Salmon and a shift to introduced and invasive species.
 - Hydro-electric Dams.
 - The explosive growth of the introduced planktivorous Kokanee population that may be causing recruitment failure through predation, competition and trophic cascading.



Bedload removal and tributary channelization, Horse Creek, June 2007. Photo courtesy Westslope Fisheries Ltd.



Species At Risk (SAR) Westslope Cutthroat Trout (WCT), species of interest (Bull Trout, Burbot, salmon)



Indians Salmon Fishing, Kettle Falls.
Paul Kane 1846.
The Thomson Collection, Art Gallery of Ontario.





Fish Population, Habitat Assessment 2020 - 2022



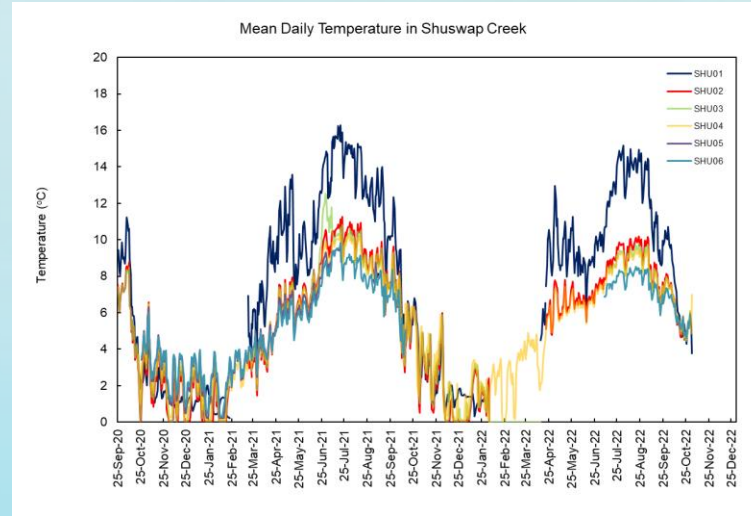
- High proportion of genetically pure native species exceeds expectations and is a very positive result.
- Shuswap Creek was notable in the high numbers of both Bull Trout and Westslope Cutthroat Trout. This stream had moderate species diversity (n= 5).
- Fraling (Galena) Creek was notable for high species diversity (n=8) and supports spawning and juvenile rearing below the highway culvert.
- Luxor Creek was notable for high species diversity (n=8) and supports spawning and juvenile rearing for these species within the lower reaches.



Fraling Creek Reach 1 illustrating the high diversity and high-density electrofishing site. Note the Canadian Pacific Railway Crossing and unstable creek channel associated with substrate removal to protect this infrastructure.

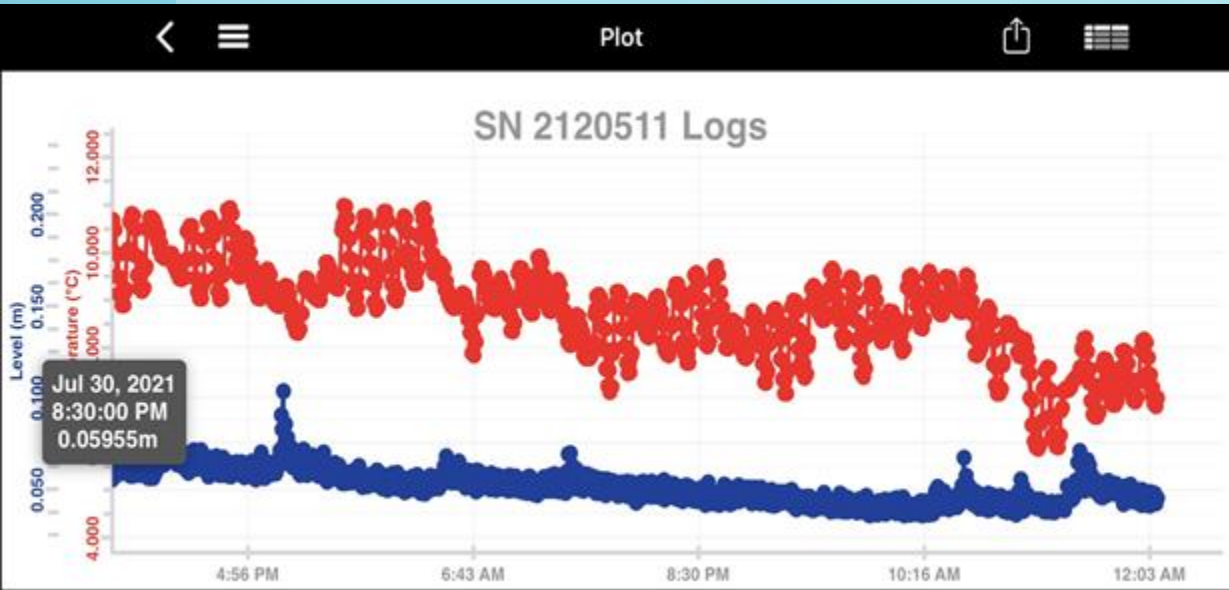


Temperature, Flow Monitoring



Water Temperature Monitoring
Shuswap Creek

Hydrometric Station &
Tidbit





Population Estimates All Species Combined



- Provides a view that incorporates biodiversity.
- Lower reaches of Shuswap, Luxor and Fraling Creeks accessible to the Columbia River should be considered critical habitat for Bull Trout, Westslope Cutthroat Trout, Rocky Mountain Whitefish, Burbot, Sculpins, Shiners and Dace.
- The availability of salmonid incubation and rearing habitat, including large bodied Bull Trout, combined with their ideal thermal regimes means they should also be considered critical habitat for the re-introduction of Chinook Salmon.

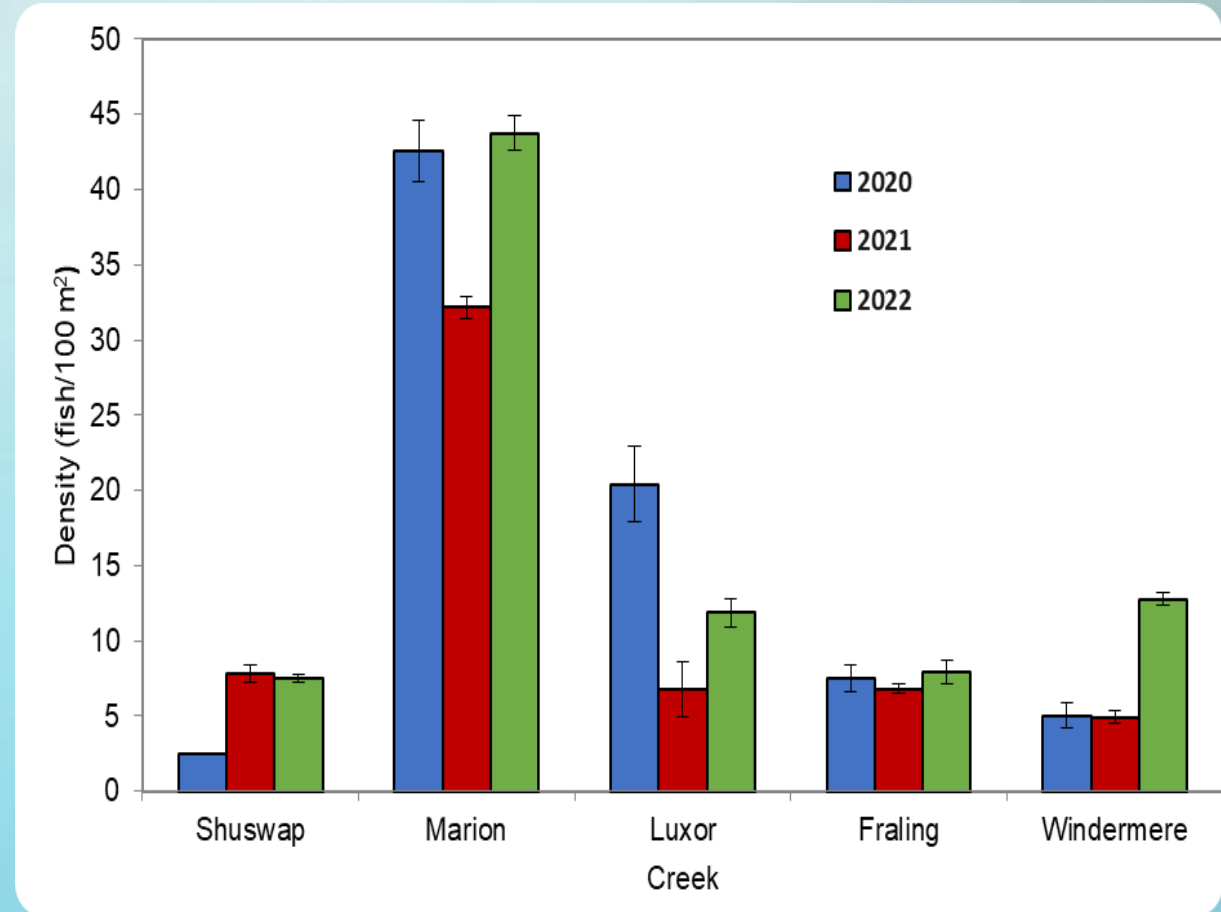


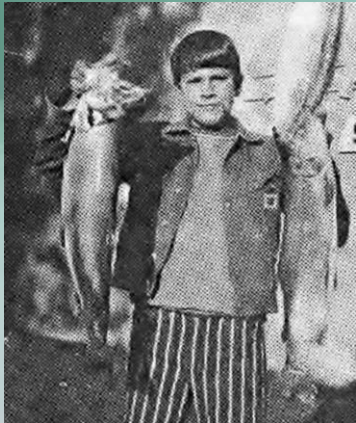
Figure xx. All species combined density estimates for each Creek (all locations combined) by year.



Next Steps

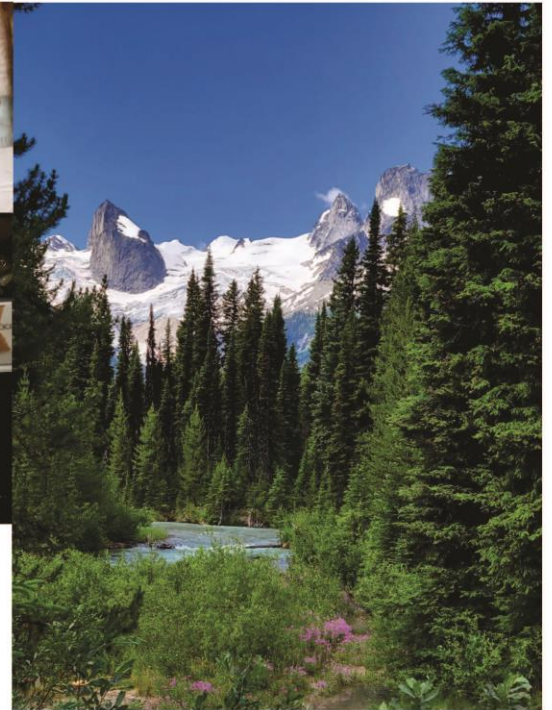


1. Data Report
2. Scott's presentation



COLUMBIA HEADWATERS AQUATIC RESTORATION SECWÉPEMC STRATEGY (CHARS) FISH AND FISH HABITAT SUMMARY REPORT

STUDY PERIOD 2020 - 2022



Jon Bisset and Associates
1052 Regan Road
Kimberley, BC

March 2023



Thank You - Partners



- Shuswap Band
- Columbia Wetlands Stewardship Partners
- Lake Windermere Rod and Gun Club
- Living Lakes Canada
- Trout Unlimited Canada
- Golden Rod and Gun Club
- Investment Agriculture Foundation/Farmland Advantage
- Province of BC
- Fisheries and Oceans Canada
- Environment and Climate Change Canada
- Local Landowners and Managers – Feldmann, Galbraith, Halverson, Ruault, Tegart, Fehr, Luces, etc.
- Others to be added as we go



Thank you – project team 2019-23

- Shuswap Band - Sierra Stump, Mark Thomas, Braydi Rice, SB staff and council; Trinda Cote – SB youth, student; technicians – Zack McKluskie, Basil Stephens, Dave Pascal, Lance Thomas, Jesse Thomas, Jamie Thomas
- Dr. Suzanne Bayley, CWSP
- Rick Hoar, Ben Mitchell-Banks, LWRGC
- David Zehnder, Farmland Advantage
- Kat Hartwig and staff, Living Lakes Canada
- Carol Luttmer (C Waters), Richard Klafki (NCC)
- Ryan Macdonald, Mac Hydro staff; Lotic Environmental Staff;
- Chris Hopkins, U of Lethbridge and students; Rena Vandenbos, David Greaves, Selkirk College and Students; University of Montana – Steven Amish
- Scott, Wyatt and Angela Cope, Westslope Fisheries
- Mindi Sheer, Camille Des Rosiers – Ste. Marie, Alex Dufort, Ashley Pederson, Ian Rasmussen, Oliver Smaje, Elizabeth Whitehouse, Spencer Cairns, Ann Swansberg - Jon Bisset and Associates
- Numerous volunteers and partners