



Project Title: Salmo River Instream Enhancement Program (Phase 2)

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Prepared by: Gerry Nellestijn

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Effectiveness Monitoring and Maintenance Report (EMMR) for Salmo River Watershed Instream Restoration Project (SRWIRP) Phase 2



Site A / Site B



Project #16,731: Site A – Casey, Site B –Nelson Nordic Ski Club (NNSC): Columbia Basin Trust, Fish and Wildlife Compensation Program Project COL-F22-F-3348

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Executive Summary/Acknowledgements

The Effectiveness Monitoring and Maintenance Report (EMMR) for the Salmo River Watershed Instream Restoration Project (SRWIRP) Phase 2 outlines the monitoring to assess the effectiveness of bank stabilization construction and instream fish habitat enhancement structures at Site A Casey and Site B, Nelson Nordic Ski Club (NNSC) in the Salmo River watershed. Monitoring protocols will be carried out to provide data/visual confirmation of the stability/benefits of incorporating, where appropriate, fish habitat enhancement methods in concert with bank stabilization construction. When necessary maintenance activities will be outlined as completed.

The EMMP includes enhanced video drone flight monitoring (EVDFM) as a tool to clearly show Downstream changes to River morphology. SWSS has available downstream drone footage that spans the distance that the drone can reach safely within one battery charge. This footage is available upon request.

Objective 1 focuses on a three-year monitoring approach of bank stabilization and instream structures. This element of the program uses techniques such as cross bank photo monitoring, enhanced video drone flights and benchmark surveys.

Objective 2 involves annual day/night snorkel surveys to monitor changes in fish populations and to assess the benefits of the habitat enhancement methods. These surveys are conducted post freshet (see Site A 'Fish Population Monitoring' Pg. 22 and Site B Pg. 39) and during the midsummer low water period. Objective 2 contributes to the sustainable management of the aquatic ecosystem while building upon the data baseline established by the long-term fish population monitoring events and effectiveness of anthropomorphic fish habitat enhancement.

With a foundation of 17 years of fish population monitoring in the Salmo River Watershed, the plan leverages this consistent and long-term data to determine the site-specific effectiveness of fish habitat enhancement methods. Drawing from previous snorkel survey methods employed by Teck Resources Ltd for post-construction fish population assessment in the South Salmo River Structures and Fortis BC Structures in the Salmo River Mainstem, the EMMP employs day/night snorkel survey methods, which can reveal widespread differences in fish use patterns.

In 2023, the dates of the monitoring were performed as follows: On Site B (NNSC) the drone monitoring was completed on July 14th (comparing with September 20th, 2022), benchmark monitoring on May 18th, photo monitoring on March 24th 2023. On Site A (Casey) the drone monitoring was completed on July 14th (comparing with September 20th, 2022), benchmark monitoring on June 14th, photo monitoring on March 24th.

Maintenance on Site A took place from Tues. Oct. 10th to Friday Oct. 13th (see pg. 39) and on Site B from July 17 – July 19th inclusive (see pg. 14).

The SWSS derives pleasure in acknowledging Krista Watts and her team from The Columbia Basin Trust. Their Ecosystem Enhancement Program provided financial support, their team provided guidance, with comfort, for administrative activities. The same can be said for Jen Walker-Larsen from the Fish and Wildlife Compensation Program, how helpful and supportive these people/organizations are.

Our Contractors, Mountain Equipment Movers, Rob Roy Haulers, Custom Dozing, and Silverking Contracting provided services and materials as they said they would when they said they would! Ever helpful they were and always they brought smiles and professional behaviour!

Associated landowners, Al and Janice Waterstreet, the Hutton family, Casey Dalen and Lance and Renee Esovoloff were always gracious with all, even last minute requests, around Site A activities. Kevin Lewis at MoTHI was understanding and forthcoming with access consideration for Site B. Leo DeGroot, NNSC, was always timely and considerate!

Thank You All! You helped make these projects successful!



"Figure 1. (Right) Site A Casey looking downstream (left) looking upstream (right) May 24th, 2023.

Study Area

Site A

Site A is located approximately 800 m upstream of the confluence of Erie Creek and the Salmo River (UTM coordinates 4912'04.50"N, 11751'48.19"W; see Figure 1). Access was through First Street just outside of Salmo. Site A is 440 meters long.

Site B

Site B is located approximately 12 km southeast of the City of Nelson, in the headwaters of the Salmo River, and about 300 m downstream of the confluence of Apex Creek and Clearwater Creek (UTM coordinates 11U 484735 E 5470874 N; see Figures 2). The site skirts the Euphrates Trail and the old rail bed alignment that runs from Troupe near the City of Nelson to Salmo, B.C. (see Figure 4) The abandoned rail trail tenure status has reverted to the Ministry of Transportation and Highways and is presently managed by the Regional District of Central Kootenay (RDCK) as a recreational trail.

Site B lies within the NNSC tenure. The NNSC uses the Euphrates Trail adjacent to Site B for its winter program (Figure 4). Site B has been accessed by machinery – truck and excavator - from Highway 6, down the rail trail, and then along the Euphrates Trail.

The SWSS is very familiar with the site. Site B is approximately 155 m long, of which 115 m required intensive construction, and 40 m required simple grooming. There are two deep pools, one upstream and one downstream of the site that are known to provide safe haven locations (refugia) for adult blue-listed Bull Trout. One pool is approximately 90 m upstream of Site B, while the other approximately 100 m downstream of the site.

Methods

Drone Monitoring

Enhanced Video Drone Flight Monitoring (EVDFM) is the result of one drone flight for each enhancement site post freshet per year for 3 years post construction. These flights contribute to a thorough and site-specific evaluation of structure stability. Site and downstream video is available to show the site area and downstream areas that can safely be covered using the power available within one battery charge. Additionally 'still photos' are reviewed from year to year (Figure , Figure) and meticulously assessed, focusing on the positions of the boulder clusters and instream structures and their associated ballast rocks or recognizable rip rap.

Benchmark Monitoring Surveys

Benchmark surveys are established to monitor any movement of the Large Woody Debris (LWD) used in the structures. The SWSS has established 1 or more benchmarks per site. Benchmarks are bank mounted either in a tree or a rock that is judged as permanent, benchmarks are flagged. Flagged benchmarks fix the 'zero' point to provide the starting point to measure to fixed 'measure to' points in the structures. Rebar is used as a benchmark when there is no suitable permanent tree or rock structure nearby. An eslon tape is used to measure from the benchmark to an eight inch galvanised nail – the 'measure to' point' - elevated approximately an inch, in each structure. These measurements accommodate repeatable survey distances to monitor any movement of structures from year to year over the 3-year time span (see Table 1 Site A, Table 1 Site B). Benchmark monitoring will take place post freshet to ensure any changes in the positioning of the structures are documented.



Figure 2. Measuring distance from benchmark to instream rootwad structure at the NNSC site. June 13th, 2023.

Photo Monitoring

Photo monitoring is to be repeated annually for 3 years post freshet. Complete site coverage is accomplished by mimicking the previous years photos. This enables the illustration of any changes to the construction works and the riparian area changes. Photo monitoring is completed by walking up the opposite side of the stream from the structures. Photos are taken from the same location and distance from the structure each year to compare the changes accurately and precisely over time. When the site isn't too large panorama photos are also captured, from downstream to upstream, to further enhance the accuracy and efficiency of the photo monitoring for structures. In this case only Site B offers a 'panarama'.

Fish Population Monitoring

Snorkel Surveys are conducted to monitor fish populations. Surveys are carried out by an experienced team of two or three surveyors, typically surveying in the downstream direction. Day and night survey's are used. Daytime surveys are carried out within the 9:00 am to 4:00 pm daylight window on sunny days, while nighttime surveys occur no sooner than an hour past sunset. Safety protocols during nighttime surveys call for surveyors to be attended by a shore-based safety person equipped with appropriate safety/rescue gear and appropriate emergency contacts for the area being surveyed. The surveyors, using drysuits cover an area from approximately 20 meters upstream to about 20 meters downstream of the site under investigation. Surveys are not undertaken when underwater visibility drops below 6 meters as determined by the survey team carrying out a sechi disc evaluation underwater. This survey approach ensures a well-rounded assessment of fish population changes, capturing potential differences in usage patterns during different times of the day and higher and lower water level conditions. These surveys are scheduled to be conducted during the post-freshet period from mid to late June. Low water day/night surveys are completed in late July to late August.

Results

No noticeable or measurable structural movement took place after the first benchmark and photo monitoring year in 2023. Monitoring profiles will continue in 2024 and again to conclusion in 2025.

Recommendations and Conclusions

The multifaceted monitoring approaches outlined in the EMMR play a pivotal role in assessing the long-term benefits of restoration sites within the Salmo River watershed. The intricacies of these structures, designed to create fish habitat and reduce bank erosion, require detailed evaluation to describe their benefits through time. Based on the evaluation process they may require periodic maintenance to sustain their success.

The EMMR's orderly approach, incorporating photo and benchmark structure monitoring as outlined in objective 1 and snorkel surveys for fish population assessments as outlined in objective 2, creates a complete framework to collect annual data and to monitor changes over time. The structures serve as important elements in the creation of sustainable fish habitats and act as a buffer against the high flows of the Salmo River.

Based on the evaluation experience of these specific structures it appears that maintenance requirements diminish through time. Based on the observation of anthropomorphic fish habitat enhancement, some of which was built here up to two decades ago, these structures 'naturalize' and perform their 'as built' goals admirably.



Figure 3. The images above depict an aerial view captured by a drone, showcasing the Casey site at Site A along the Salmo River. A comparison between the drone shots taken on October 20th 2022 and July 14th 2023 no noticeable structure shifting.

Table 1. Site A/Casey: Structures Benchmark Monitoring – June 14th, 2023. D/S=Downstream, B/M= Benchmark

Structure & 'Measure to' Nail Location	'Measure to' Nail Coordinates	Distance from Benchmark In Meters				Benchmark Location	Benchmark Coordinates	Notes
		PC	2023	2024	2025			
Debris Catcher Downstream Top Log	49.19637 N 117.26691 W	12.66	12.66			Nail in cottonwood tree with red flagger.	49.19434 N 117.26858 W	
Debris Catcher U/S Root Wad	49.19634 N 117.26693 W	11.49	11.49			Nail in cottonwood tree with red flagger.	49.19434 N 117.26858 W	
First Lateral Log	49.19626 N 117.26720 W	16.43	16.43			Nail in cottonwood tree with red flagger.	49.19434 N 117.26858 W	Immediately D/S from D catcher
First Triangle U/S Key Log	49.19622 N 117.26738 W	10.25	10.25			Rebar in ground with red flagger.	49.19614 N 117.26736 W	Immediately D/S from lateral log
First Triangle D/S Key Log	49.19616 N 117.26726 W	8.93	8.93			Rebar in ground with red flagger.	49.19614 N 117.26736 W	
Second Triangle U/S Key Log	49.19610 N 117.26735 W	11.07	11.07			Rebar in ground with red flagger.	49.19614 N 117.26736 W	
Second Triangle D/S Key Log	49.19608 N 117.26730 W	10.92	10.92			Rebar in ground with red flagger.	49.19445 N 117.26768 W	Shares B/M with First Lateral Log
Second Lateral Log	49.19592 N 117.26746 W	9.39	9.39			Rebar in ground with red flagger.	49.19445 N 117.26768 W	Shares B/M 2 nd Triangle D/S arm
Third Lateral Log	49.19584 N 117.26752 W	22.61	22.61			Nail in Cottonwood downstream	49.19598 N 117.26762 W	
Fourth Lateral Log	49.19592 N 117.26752 W	14.28	14.28			Nail in cottonwood tree downstream	49.19598 N 117.26762 W	
Third Triangle Downstream Key Log	49.19572 N 117.26759 W	9.10	9.10			Nail in cottonwood tree upstream	49.19598 N 117.26762 W	After set of 3 lateral logs
First W Upstream Key Log	49.19566 N 117.26766 W	10.79	10.79			Nail in cottonwood tree upstream	49.19598 N 117.26762 W	
First W D/S Key Log	49.19330 N 117.26930 W	14.54	14.54			Nail in cottonwood tree upstream	49.19598 N 117.26762 W	
Second W Upstream Key Log	49.19538 N 117.26743 W	9.78	9.78			Nail in cedar tree with red flagger	49.19553 N 117.26783 W	
Second W Downstream Key Log	49.19551 N 117.26777 W	8.35	8.35			Nail in cedar tree with red flagger	49.19553 N 117.26783 W	
Third W Upstream Key Log	49.19680 N 117.27210 W	11.92	11.92			Nail in cedar tree with red flagger	49.19553 N 117.26783 W	

Third W Downstream Key Log	49.19532 N 117.26766 W	16.08	16.08			Nail in cedar tree with red flagger	49.19553 N 117.26783 W	
Fourth W Upstream Key Log	49.19539 N 117.27207 W	7.22	7.22			Nail in cedar tree with red flagger	49.19553 N 117.26783 W	
Fourth W Downstream Key Log	49.19524 N 117.26769 W	7.18	7.18			Rebar in ground with yellow and red flagger	49.19521 N 117.26772 W	D/S key log/ last triangle share bm
Fourth Triangle. D/S Key Log (Last Structure)	49.19519 N 117.26724 W	16.10	16.10			Rebar in ground with yellow and red flagger	49.19521 N 117.26772 W	

Notes: Benchmark distances measured using eslon tape. Measured from the center of the benchmark nail point to the center of the nail head in each structure. Benchmarks are nails in trees or rebar in soil. All marked with flagger. Structures are listed in

Table 1. Site A/Casey: Structures Benchmark Monitoring – June 14th, 2023. order from the first upstream structure to the last downstream structure.

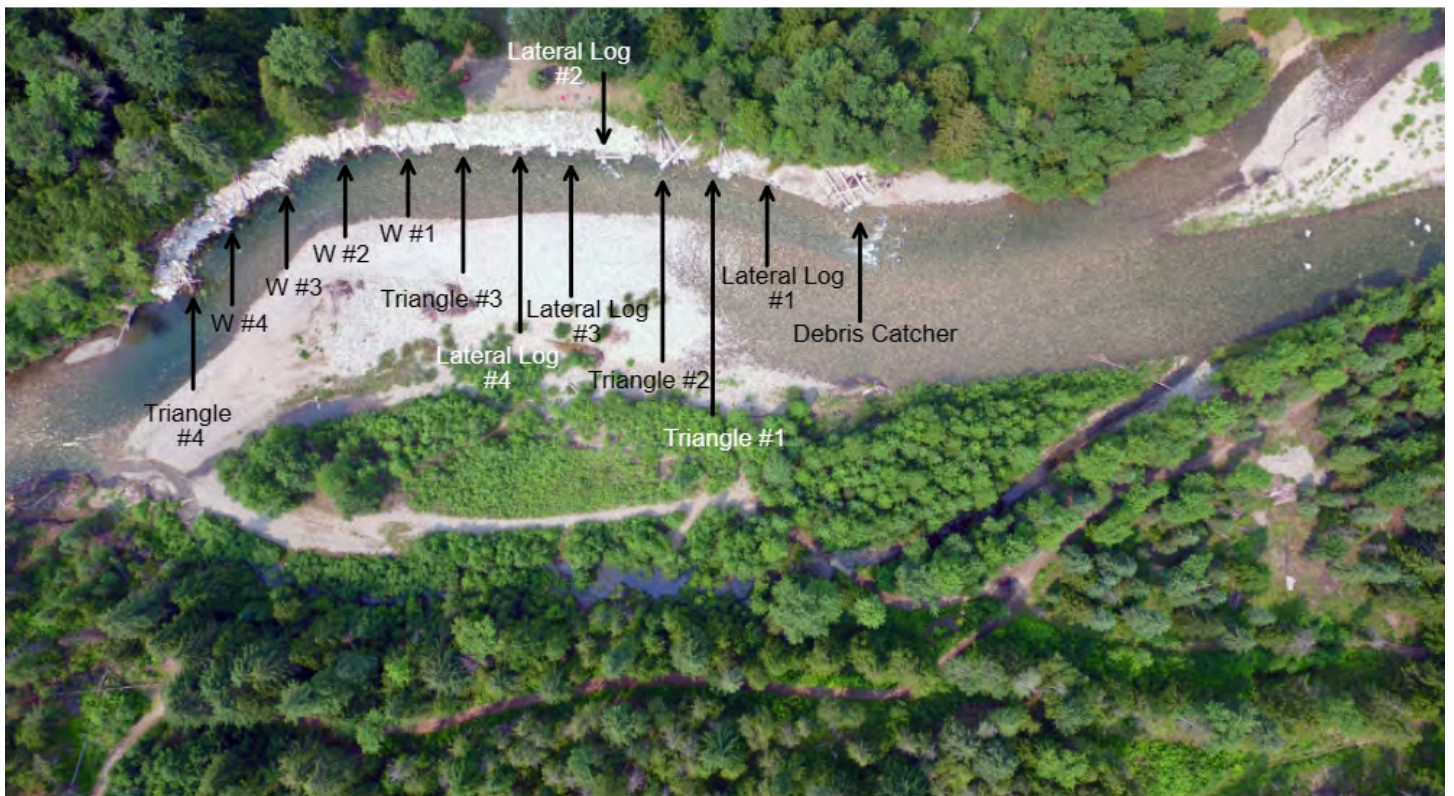


Figure 4. Site A Drone shot with structure labelling for benchmarking.

Site A/Casey: Benchmark 'Nail to Locations'



Figure 5. Debris Catcher. Downstream top log.



Figure 5. Debris Catcher. Down stream root wad.



Figure 6. Benchmark for debris catcher and lateral log on an angle. Located in riparian just upstream of the structures.



Figure 7. First lateral log. (Lateral Log on an angle)



Figure 8. First Triangle. Upstream key log.



Figure 9. First Triangle. Downstream key log.





Figure 10. Second triangle. Upstream key log.



Figure 11. Second Triangle. Downstream key log.



Figure 12. Benchmark for 2 upper triangles. (Not including downstream key log of second triangle. Second triangle downstream key log shares benchmark with First lateral log).



Figure 13. Second Lateral log.



Figure 14. Third Lateral log.



Figure 15. Fourth Lateral log.





Figure 16. Third triangle. Downstream key log. (Immediately downstream of lateral logs)



Figure 17. First W structure. Upstream key log.



Figure 18. First W structure. Downstream key log.



Figure 19. Second W structure. Upstream key log.





Figure 20. Second W structure. Downstream key log.



Figure 21. Third W structure. Upstream key log.





Figure 22. Third W structure. Downstream key log.

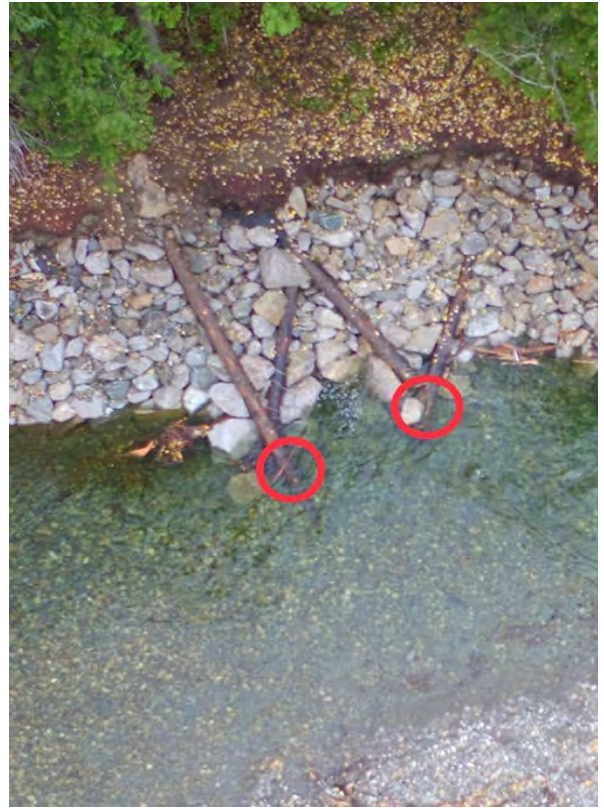


Figure 23. Fourth W structure. Upstream key log.





Figure 24. Fourth W structure. Downstream key log.



Figure 25. (Left) Benchmark for 2nd, 3rd, 4th W Structures.



Figure 26. Last structure. Triangle downstream key log.



Figure 27. Benchmark for downstream arm of fourth W and fourth triangle (last structure).

Site A/Casey: Fish Population Monitoring

Table 2. **SITE A/CASEY** Daytime and nighttime snorkel counts of fish by species Rainbow Trout (RBT), Eastern Brook Trout (EBT), Bull Trout (BT), and Long Nosed Dace (LND)) and size class at Site A Casey in the Salmo River Watershed. Survey dates as shown

SITE / SURVEY DETAILS				RBT					EBT			BT			LND
Date	SITE	Time/ weather	Visibility (M)	<20 cm	20-30 cm	30-40 cm	40-50 cm	>50 cm	<20 cm	20+ cm	<20 cm	20- 30 cm	30- 40 cm	40- 50 cm	>50 cm
28-Jul 2022 *BC	A/ CASEY	Day/ Sunny 14.10	6.5	3	3	2									
04-Aug 2022 *BC	A/ CASEY	Night/ Clear 22.00	7.3	5	7	2									
TOTAL				8	10	4									
28-Jul 2023	A/ CASEY	Day/ Sunny 13.40	6.5	38	15	1	1						2		
04-Aug 2023	A/ CASEY	Night/ Clear 22.35	7.2	139	35	4				1		2	1	2	37
TOTAL				177	50	5	1			1		2	1	2	37
LFM 28-Aug 2023	A/ CASEY	Day/ Sunny 13.10	9.3	26	12	3				1		1	1	1	
LFM 29-Aug	A/ CASEY	Night/ Clear 22:05	9.4	130	37	3			3	4		2			30
TOTAL				156	49	6			3	5		3	1	1	

*BC=Before Construction. Low Flow Monitoring = LFM

Site A/Casey: Cross Bank Photo Monitoring Site A From River Left Boulder Bar

Upper Photo, Post Construction 2022. Lower Photo March 24, 2024



Figure 28

Downstream end of Site A: shows Triangular Structure C/W 2 Ramp logs and a 'W' structure



Figure 29

Downstream end of Site A: shows Triangular Structure C/W 2 Ramp logs and a 'W' structure March 24, 2024

The 2024 photos show strong sun activated log bleaching and the addition of post construction additional rock stabilization.

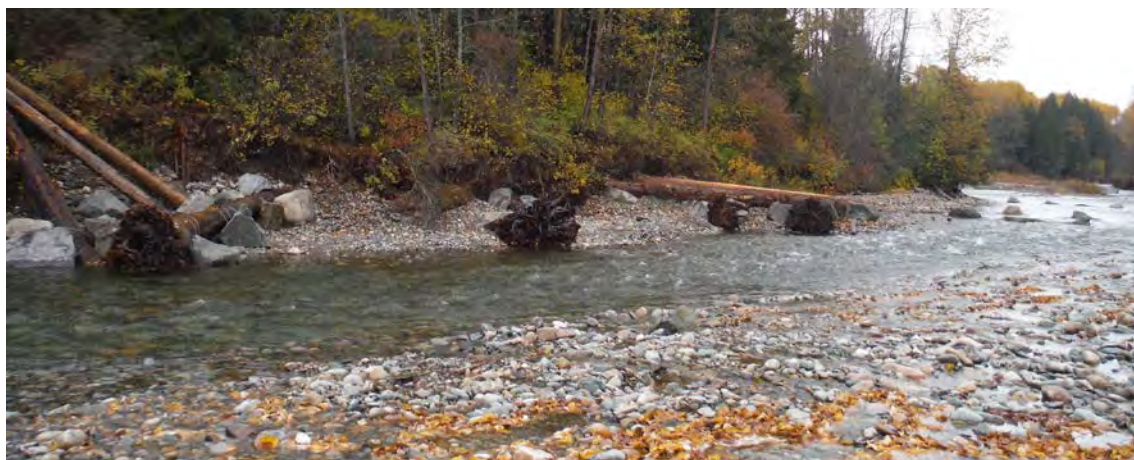


Figure 30

Shows upper Triangle above left, a Lateral Log structure and end view of the Debris Catcher.



Figure 31

Shows upper Triangle above left, a Lateral Log structure and end view of the Debris Catcher. March 24 2024.

Site A/Casey: Cross Bank Photo Monitoring Site A From River Left Boulder Bar March 24, 2024

Photos taken predating 2024 freshet.



Figure 32

Photo 1 Downstream to Upstream. Shows the downstream Triangle and a 'W' structure.



Figure 33

Photo 2 Downstream to Upstream. Shows 2 'W' structures and a Triangle structure.



Figure 34

Photo 3 Downstream to Upstream. Shows downstream and upstream Triangle structures and 3 Lateral Log Structures.



Figure 35

Photo 4 Downstream to Upstream. Shows 2 Triangle Structures a Lateral Log Structure and the Debris Catcher.



Figure 36

Photo 5 Downstream to Upstream. Shows 2 the Debris Catcher looking upstream. Notice the Boulder Clusters instream.



Figure 37

Photo 6 Downstream to Upstream shows the Debris Catcher Looking Downstream. Includes placement of the first upstream Lateral Log and the first upstream Triangular structure. Notice the first downstream Boulder Cluster.

Site A/Casey: Drone Photo Library: pg 1 of 2

Photos are sequential from the 1st downstream triangle structure to the last upstream boulder cluster. The distance covered is approximately 440 meters. The left of page photo was taken post construction Nov. 2nd 2022. For comparison the right of page photo was taken March 25th 2024 pre-freshet, notice the bleaching of the logs in the structures.

Photo #1 Downstream end of Site A: Captures Lower Triangle with 2 Ramp Logs and 2 'W' Structures.



Figure 38

Photo #2, Moving Upstream: Captures 4 'W' Structures and downstream end of 2nd Triangle with 1 Ramp Log.



Figure 39

Photo #3, Shows repeat of upstream 'W', 2nd Triangle, c/w 1 Ramp Log, 3 Lateral Log Structures and 3rd Triangle c/w 2 Ramp Logs.



Figure 40

Site A/Casey: Drone Photo Library: pg 2 of 2

Photo #4, Shows repeat of upper Lateral Log, 2 Triangles c/w 2 ramp Logs, a Lateral Log 'on angle' and the Debris Catcher.



Figure 41

Photo #5 shows repeat of Debris Catcher and the beginning of the upstream of site 'Boulder Clusters'. (3 Clusters)



Figure 41

Photo #6, shows 3 additional Boulder Clusters and end of site.



Figure 42

Review of photos confirm the structures remain stable over 3 high water events, freshet 2023 and 2 additional rain activated high water events. The only readily observable change in structure 'layout' is on the Photo #5, Debris Catcher. It has begun to serve its purpose capturing debris in the upper quadrant and close in on the upstream boulder bar as well as on the structure itself. Just to upstream end of the first downstream W the River has contributed an additional piece of large woody debris. What is apparent is the obvious log bleaching that has occurred since construction.

Site A/Casey: Maintenance



Figure 43

A four day detailed maintenance program was undertaken by SWSS personnel from Tues. Oct. 10th to Friday Oct. 13th 2023 inclusive. Working in collaboration with Rob Roy Trucking, Silverking Contracting, Mountain Movers Equipment and Custom Dozing Ltd. two SWSS persons carefully directed access and placement of rock.

Three high water events – Freshet 2023 and two rain activated high water events resulted in some ballast and between structures stabilization rock movement. No wood structure movement was detected. Stabilization rock ‘roll down’ and settling was relieved with replacement rock being gently replaced/located using a 280 Cat Excavator from Mountain Movers Equipment. Mountain Movers Equipment operators were involved in the original Site A construction work. Rock, predominantly from 15 – 40+ cm’s - often placed as singles was used to tighten and reinforce slope stability. Placement was followed by curling the bucket and gentle tamping to ‘set’ the placement.

Equipment/materials access was hidden as best we could by re covering.

Site B/Nelson Nordic Ski Club (NNSC)



Figure 44. The images above are an aerial view captured by a drone, showcasing the NNSC site along the upper Salmo River. A comparison between the drone shots taken on September 20th 2022 and July 14th 2023 reveals no changes in the positioning of the structures.

Site B/ Nelson Nordic Ski Club (NNSC): Benchmark Monitoring ‘Nail to Locations’

Structure	Nail ‘Measure to’ Coordinates	Distance from Benchmark In Meters				Benchmark Location	Notes
		*PC	2023	2024	2025		
Root Wad 1	49.39070 N 117.21076 W	27.83	27.83			49.39055 N 117.21085 W.	No Visible movement
Root Wad 2	49.39066 N 117.21088 W	21.51	21.51			49.39055 N 117.21085 W	
Root Wad 3	49.39062 N 117.21098 W	15.45	15.45			49.39055 N 117.21085 W	
Root Wad 4	49.39041 N 117.21105 W	7.66	7.66			49.39055 N 117.21085 W	
Root Wad 5	49.39039 N 117.21107 W	14.70	14.70			49.39055 N 117.21085 W	
Root Wad 6	49.39032 N 117.21107 W	20.45	20.45			49.39055 N 117.21085 W	

Table 3. Site B/NNSC: Structures Benchmark Monitoring –May 18th, 2023. *PC=Post Construction

Note: Benchmark - the hole in the large stable rock River right. Measured from the center of the benchmark hole to the center of the nail head. Structures are listed in Table in order from the first upstream structure to the last downstream structure. Benchmark distances measured using eslon tape.



Figure 45. Benchmark. Used same benchmark feature for all structures at NNSC. (Hole in rock)

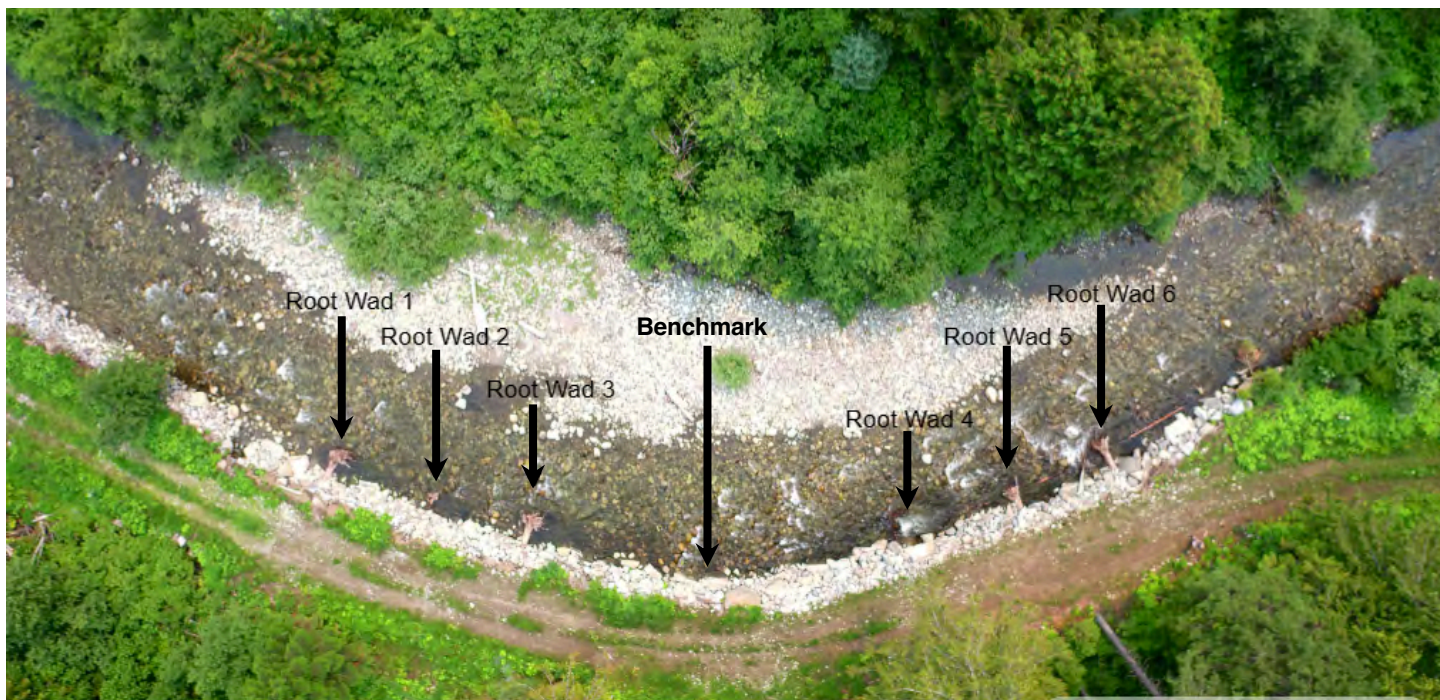


Figure 46. Site B Drone shot with structure labelling for benchmarking.



Figure 47. June 14th 2023 Panorama of river right NNSC

Site B/ Nelson Nordic Ski Club (NNSC): Cross Bank Photo Monitoring From River Left
Boulder Bar



Figure 48. June 14th 2023 Succession of photos from downstream to upstream



Figure 49. June 14th 2023 Succession of photos from downstream to upstream

Site B/Nelson Nordic Ski Club (NNSC): Benchmark Photos 'Nail To Locations'



Figure 50. Root Wad 1



Figure 51. Root Wad 2





Figure 52. Root Wad 3 (Root Wad 4 was fully submerged at this time)



Figure 53. Root Wad 5



Figure 54. Root Wad 6

Site B/Nelson Nordic Ski Club (NNSC): Maintenance

Site B maintenance took place starting July 17th and ending July 19th. Two caches of bank stabilization rock were established on the site which a crew of 2 SWSS personnel accessed for reinforcing stabilization between the embedded root wad structures.

Essentially 10cm - 30cm angular stone was fit into areas of light cover exposure to reinforce the stabilization sections. Rock was handpicked and wheel barrow hauled to the placement locations to be tight fit by hand. This 'finish placement' work was accomplished with great care using impact rated gloves and shin/knee pads. Rocks were nudged aside and others hand placed into areas created to accommodate tight fit to resist movement. This type of fitting often takes place at the end a stabilization/restoration activity. Crow bars and 3LB Hammers are often used to ease rock movement/fit and a secure fit.

Site B/Nelson Nordic Ski Club (NNSC): Fish Population Monitoring:

Table 4. **SITE B NELSON NORDIC SKI CLUB (NNSC)** Daytime and nighttime snorkel counts of fish by species Rainbow Trout (RBT), Eastern Brook Trout (EBT), Bull Trout (BT), and Long Nosed Dace (LND)) and size class at Site B NNSC in the Salmo River Watershed. Dates as shown *BC=Before Construction. Low Flow Monitoring = LFM

SITE / SURVEY DETAILS				RBT					EBT		BT			LND	
DATE	SITE	Time/ weather	Visibility (M)	<20 cm	20-30 cm	30-40 cm	40-50 cm	>50 cm	<20 cm	20+ cm	<20 cm	20- 30 cm	30- 40 cm	40- 50 cm	>50 cm
03-Aug 2022 *BC	B/ NNSC	Day/ Clear 10:20	8.6	2											
03-Aug 2022 *BC	B/ NNSC	Night/ Clear 10:05	9.1	2											
TOTAL				4											
16-Jul 2023	B/ NNSC	Day/ Clear 10:30	9.3	6	2							1	1		
16-Jul 2023	B/ NNSC	Night/ Clear 10:10	9	7	7							3	1		
TOTAL				13	9							4	2		
LFM 30-Aug. 2023	B/ NNSC	Day/ Clear 11:30	9.5	9	4							3	5		
LFM 30-Aug. 2023	B/ NNSC	Night/ Clear 10:20	9.3	19	7							7	6		
TOTAL				26	11							10	11		