

SALMONID HABITAT RESTORATION

INVERNESS SOUTH ANGLERS ASSOCIATION

Progress Report

Monday, June 12th, 2017

Submitted by: Brittany Polley, Kailey Mortensen

Submitted to: Geoff Nishi, Dave Cameron

Table of Contents

PROJECT BRIEF	4
Project Description	4
ASSESSMENTS.....	5
The More	5
PROJECT DESIGN AND RESULTS:.....	5
BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES TAKEN:.....	6
NOTES OF BEFORE CONDITIONS:	6
PROJECT STRUCTURE TOTALS:.....	7
BEFORE AND AFTER PICTURES OF STRUCTURES	9
The Glendyre	16
PROJECT DESIGN AND RESULTS:.....	16
BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES TAKEN:.....	16
NOTES OF BEFORE CONDITIONS:	17
PROJECT STRUCTURE TOTALS:.....	18
BEFORE AND AFTER PICTURES OF STRUCTURES	21
Broad Cove Distillery	28
PROJECT DESIGN AND RESULTS:.....	28
BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES TAKEN:.....	28
NOTES OF BEFORE CONDITIONS:	29
PROJECT STRUCTURE TOTALS:.....	31
BEFORE AND AFTER PICTURES OF STRUCTURES	33
Fraser’s Brook	46
PROJECT DESIGN AND RESULTS:.....	46
BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES TAKEN:.....	46
NOTES OF BEFORE CONDITIONS:	47
PROJECT STRUCTURE TOTALS:.....	48
BEFORE AND AFTER PICTURES OF STRUCTURES	50
Miramichi Brook	63
PROJECT DESIGN AND RESULTS:.....	63
BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES TAKEN:.....	63

NOTES OF BEFORE CONDITIONS:	64
PROJECT STRUCTURE TOTALS:.....	65
BEFORE AND AFTER PICTURES OF STRUCTURES	67
Macquarrie’s Brook	82
PROJECT DESIGN AND RESULTS:.....	82
OTHER INSTREAM HABITAT RESTORATION MEASURE TAKEN:	82
NOTES OF BEFORE CONDITIONS:	83
PROJECT STRUCTURE TOTALS:.....	84
BEFORE AND AFTER PICTURES OF STRUCTURES	86
The Big Shea	93
PROJECT DESIGN AND RESULTS:.....	93
OTHER INSTREAM HABITAT RESTORATION MEASURE TAKEN:	93
NOTES OF BEFORE CONDITIONS:	94
PROJECT STRUCTURE TOTALS:.....	95
BEFORE AND AFTER PICTURES OF STRUCTURES	97
The Little Shea	105
PROJECT DESIGN AND RESULTS:.....	105
OTHER INSTREAM HABITAT RESTORATION MEASURE TAKEN:	105
NOTES OF BEFORE CONDITIONS:	106
PROJECT STRUCTURE TOTALS:.....	108
BEFORE AND AFTER PICTURES OF STRUCTURES	110
Graham’s	144
PROJECT DESIGN AND RESULTS:.....	144
OTHER INSTREAM HABITAT RESTORATION MEASURE TAKEN:	144
NOTES OF BEFORE CONDITIONS:	145
PROJECT STRUCTURE TOTALS:.....	146
BEFORE AND AFTER PICTURES OF STRUCTURES	148

PROJECT BRIEF

Group:	Inverness South Angler Association (aka ISAA)
Contact:	Dave Cameron
Mailing Address:	P.O. Box 255, Mabou N.S. B0E 1X0
Telephone	902-945-2356
Email:	dcameroncb@gmail.com
Website	N/A

Project Description

Watershed(s):	Mabou Harbour, Broad Cove River, Graham River
Watercourse(s):	MacQuarrie Brook, Little Shea Brook, Big Shea Brook, Glendyer Brook, Miramichi Brook, More Brook, Fraser's Brook, Broad Cove River, Graham River

Project description and objectives:

<p>What habitat issues is this project addressing?</p> <p>The habitat restoration component of this project works to expand and enhance migratory access, holding capacity, and spawning areas alongside the continuous improvement of water quality in the Mabou Harbour, Broad Cove River, and Graham River Watersheds. The work being done builds upon two decades of continuous community stewardship that has resulted in a dramatic increase in recreational angling, water quality, and economic benefits to the host communities.</p> <p>There was one major project that ISAA (Inverness South Anglers Association) and funding partners, are taking on this season. This project is the impending installation of armour stone on two sections of bank in the mid-section, downstream, of Graham River. Kickers and boulder groupings are also to be incorporated into the bank stabilization design to slow the flow of water, as well as implementing three rock sills to dissipate energy levels.</p> <ul style="list-style-type: none"> • Removal of debris jams, beaver dams and flood deposits • Installation of digger and deflector logs; rock deflectors • Bank rock stabilization by hand and by machine using class 2 armour rock • Majority of work done by hand, but two bank stabilization sites are being done by machine using class 2 armour stone rock.
--

ASSESSMENTS

The More

TIME & DATE: 9:00 AM, MONDAY MAY 29TH, 2017

LOCATION: MORE'S BROOK FISH LADDER AND PICNIC PARK, INVERNESS COUNTY

WATERSHED: BROAD COVE RIVER, 58KM²

WEATHER: SUNNY, 13°C

CREW MEMBERS:

BRITTANY POLLEY (Technician)
 ALEC MACKINNON (Crew Chief)
 MICHEAL CAMPBELL (Crew Member)
 NATHAN MACLEAN (Crew Member)
 SHAW CAMERON (Crew Member)
 KAILEY MORTENSEN (Crew Member)

BACKGROUND OF STRUCTURES UPSTREAM:

There is 650m of structures built above the fish ladder, on the upstream side of More's Brook.

BACKGROUND OF STRUCTURES DOWNSTREAM:

There is 1000m and 16 structures built below the fish ladder, on the downstream side of More's Brook.

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	More Brook
WATERSHED:	Broad Cove River
LOCATION:	Deepdale Road
NEAREST COMMUNITY:	Inverness
ROAD CROSSING [ACCESS POINT]	Deepdale Road
MAP # [NS TOPO SERIES 1:50,000]	Lake Ainslie 11K/3
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	632915
DOWNSTREAM PROJECT LIMIT: NORTHING	5120471
UPSTREAM PROJECT LIMIT: EASTING	632931
UPSTREAM PROJECT LIMIT: NORTHING	5120474

BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES TAKEN:

TYPE OF ACTION TAKEN:	Debris Removed, Original Channel Restored, Bank Stabilized with rock to prevent further erosion/scouring (Building Deflectors, Digger Logs, Bank Rock and Kickers, etc.)
DESIGN WIDTH:	2-4 meters
TOTAL LENGTH OF STREAM RESTORED:	196.45 meters
AREA IN SQ. METERS RESTORED:	2756.46 m ²
WIDTH OF WATERCOURSE:	2-3m
# TREES PLANTED:	N/A

NOTES OF BEFORE CONDITIONS:

STRUCTURE PRESENT	WAY POINT #	COMMENTS
FISH LADDER/BRIDGE CULVERT	04	Looks good, mild siltation and rock buildup in culvert. Mild buildup of rocks in the fish ladder. Will need to be cleaned. The pool below the fish ladder had accumulated a lot of pebbles within the former pool; thus, changing the watercourse's morphology. More rocks are needed for bank stabilization on the left side of the downstream.
STRUCTURE PRESENT	WAY POINT #	COMMENTS
DIGGER LOG AND DEFLECTOR	05	More rocks are needed for the digger log stabilization. Mildly washed out. Maintenance.
STRUCTURE PRESENT	WAY POINT #	COMMENTS
DIGGER LOG AND DEFLECTOR	06	Doing well from last year. Deflector is well, needs more rocks to bring it up to bank height. Lots of rock around to do so.
STRUCTURE PRESENT	WAY POINT #	COMMENTS
BRIDGE STRUCTURE	03	Looks good, no clogging under this pre-existing structure.
DIGGER LOG	07	Structure needs to be fully replaced due to winter damage

DIGGERLOG AND DEFLECTOR	10	Structure has been built recently. No maintenance needed.
DIGGER LOG	11	New structure that was recently built. No deflectors needed due to the width of the river.
DIGGER LOG AND DEFLECTOR	13	Digger log needs to be fully replaced. Deflectors were maintained.

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	5
DEFLECTORS	4
BANK ROCK	N/A
ROCK SILLS	N/A
<i>TOTAL STRUCTURES: 9</i>	

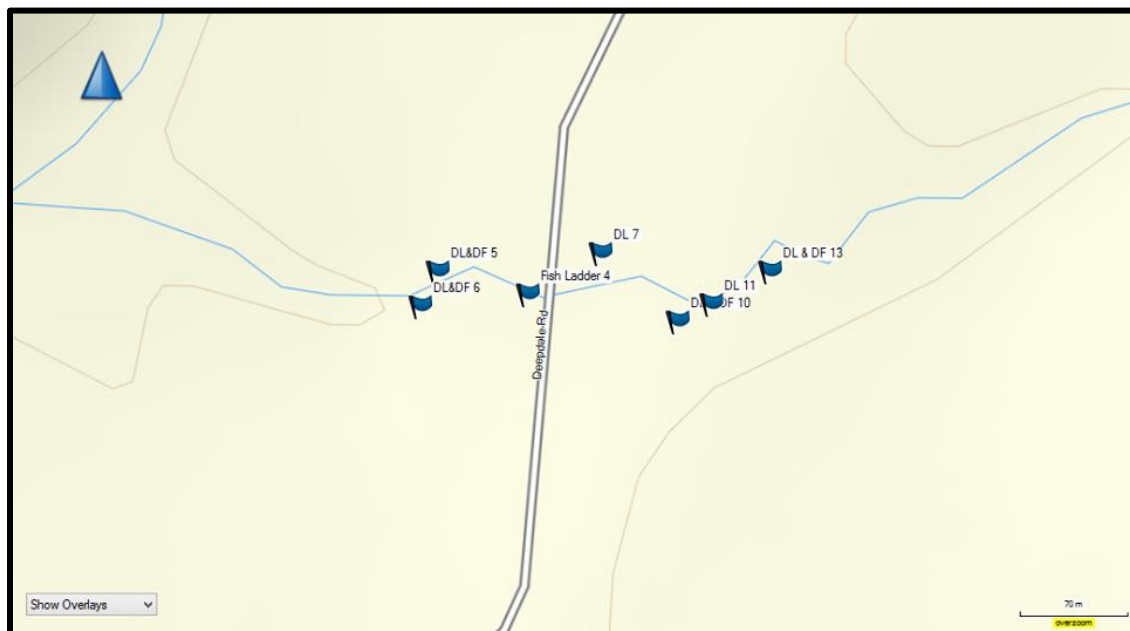


Figure 1. Basecamp map view of structures on the More Brook.

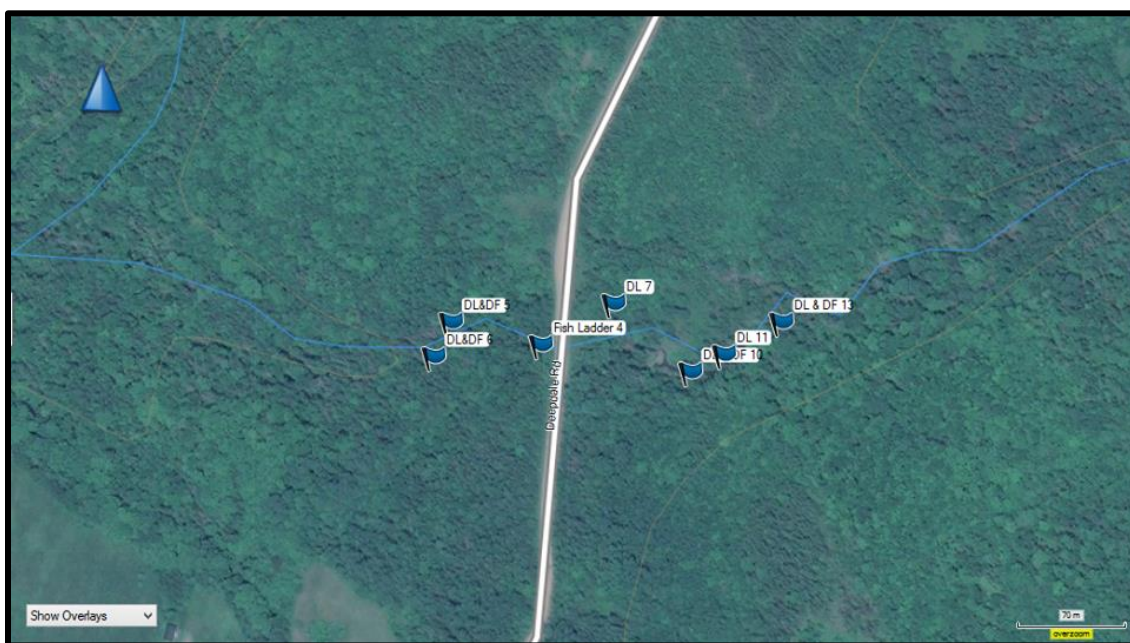


Figure 2. Basecamp map using overlays; showing the structures on the More Brook.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on the More Brook have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 04 – Fish Ladder/Bridge and Culvert



Figure 3: Fish Ladder, Bridge, and Culvert of the More Brook.

Way Point 05 – Digger Log and Deflector

An after picture for this structure is not available. Winter damage has been maintained.



Figure 4: A before picture of a digger log/deflector structure on the More Brook

Way Point 07 – Digger Log and Deflector



Figure 5: Photo of digger log the needs to be fully replaced on the More Brook

Way Point 10 – Digger Log and Deflector



Figure 6: New structure recently built on the More Brook during the Enfield Training Session with Adopt a Stream.

Way Point 11- Digger Log



Figure 7. A before picture; Digger log was removed and replaced during Enfield Training Session with Adopt a Stream.



Figure 8. Replaced digger log structure installed by the Enfield Training Session with Adopt a Stream on the More Brook.

Way Point 13 – Digger Log and Deflector



Figure 9. A before picture of a digger log and deflector structure on the More Brook.



Figure 10: An after picture of the maintained digger log deflectors on More Brook.

Maintained structures without waypoints on the More Brook.



Figure 11. New Digger Log installed during the Enfield Training Session with Adopt a Stream with on the More Brook.

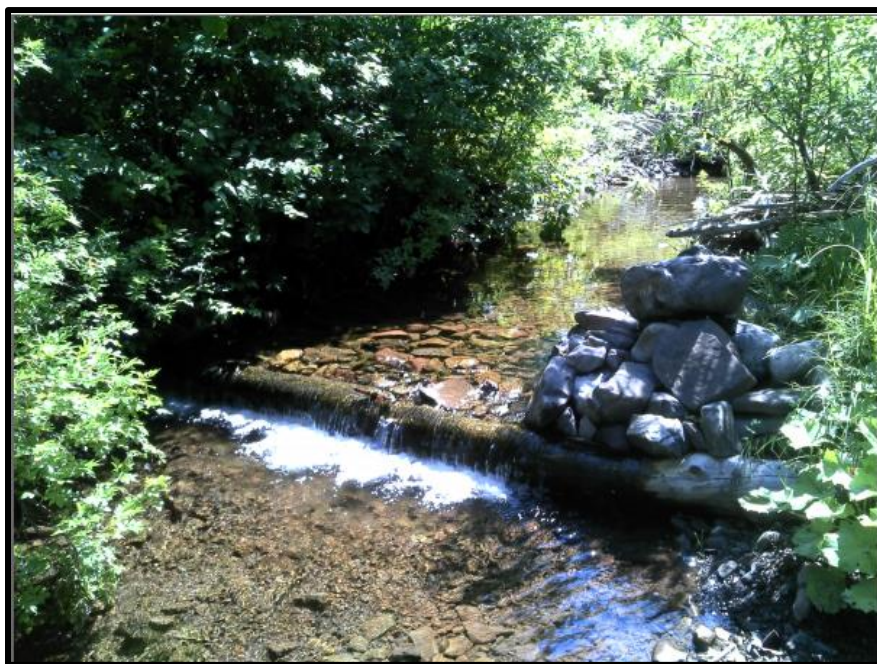


Figure 12. Maintained structure of a digger log and deflector on the More Brook.

The Glendyre

WORD DAY 4: FRIDAY JUNE 2nd, 2017

TIME: 9:22 AM

LOCATION: GLENDYRE, INVERNESS COUNTY WATERSHED

ACCESS POINT: BLACK STONE RD, AT CULVERTS

WEATHER: SUNNY, 18 °C

CREW MEMBERS: BRITTANY POLLEY (Technician)

ALEC MACKINNON (Crew Chief)

MICHEAL CAMPBELL (Crew Member)

NATHAN MACLEAN (Crew Member)

SHAW CAMERON (Crew Member)

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	Glendyer Brook
WATERSHED:	Mabou Harbour
LOCATION:	Smithville Road
NEAREST COMMUNITY:	Mabou
ROAD CROSSING [ACCESS POINT]	Smithville Road
MAP # [NS TOPO SERIES 1:50,000]	Lake Ainslie
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	630139
DOWNSTREAM PROJECT LIMIT: NORTHING	5108431
UPSTREAM PROJECT LIMIT: EASTING	630524
UPSTREAM PROJECT LIMIT: NORTHING	5108471

BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES TAKEN:

TYPE OF ACTION TAKEN:	Debris Removed, Original Channel Restored, Bank Stabilized with rock to prevent further erosion/scouring (Building Deflectors, Digger Logs, Bank Rock and Kickers, etc.)
TOTAL LENGTH OF STREAM RESTORED:	172.02 meters
WIDTH OF WATERCOURSE:	2-4 m
AREA IN SQ. METERS RESTORED:	222.62 m ²

NOTES OF BEFORE CONDITIONS:

STRUCTURE PRESENT	WAY POINT #	COMMENTS
Digger Log #1 <i>downstream</i>	55	Good condition. Sign says INV 233. Needs rocks.
Digger Log #7 <i>upstream</i>	56	Good Condition. Little short; could use a deflector on downstream.
Digger Log #8 <i>upstream</i>	57	Good Condition. Lots of oxygen. Good pool, 2-8 feet.
Digger Log #9 <i>upstream</i>	58	Between bank rocks look good. Good shade. Debris is embedded.
Digger Log #10 <i>upstream</i>	59	Nice pool, between 9-10 feet. Good oxygen. Can't take out, buried, creating pool.
Digger Log #2 <i>Downstream</i>	60	Good.
Digger Log #3 <i>Downstream</i>	61	Good.
Digger Log #4 <i>Downstream</i>	62	Needs to be reset.
Deflector	139	At Cathy's Farm by the bridge.

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	8
DEFLECTORS	1
BANK ROCK	N/A
ROCK SILLS	N/A
	<i>TOTAL STRUCTURES: 9</i>

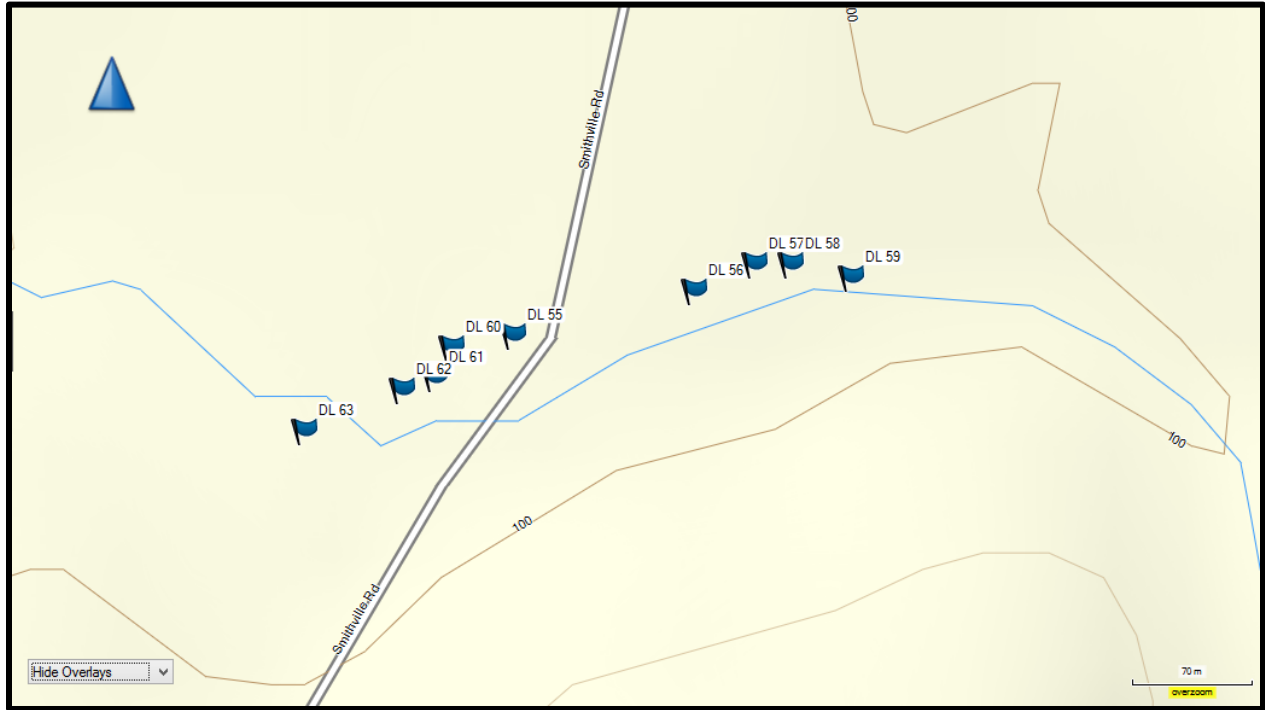


Figure 14. Basecamp map showing the structures on the Glendyre River.



Figure 15. Basecamp map with overlays showing the structures on the Glendyre River.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on the Glendyre River have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 56: Digger Log



Figure 16. Digger Log structure on the Glendyre.

Way Point 57: Digger Log



Figure 17. Digger Log structure on the Glendyre River.

Way Point 58: Digger Log and Deflector



Figure 18. Digger Log and Deflector on the Glendyre River.

Way Point 59: Digger Log



Figure 19. Buried digger log that needs to be fully replaced.

Way Point 60: Digger Log



Figure 20. Maintained Digger log structure.

Way Point 61: Digger Log



Figure 21. Maintained digger log structure on the Glendyre.

Way Point 139 – Deflector



Figure 22. Deflector that was maintained at waypoint 139.

Broad Cove Distillery

WORK DAY 2: TUESDAY MAY 30TH, 2017

TIME: 1:00PM

LOCATION: BROAD COVE RIVER, BROAD COVE DISTILLERY, INVERNESS COUNTY

WATERSHED: BROAD COVE

WEATHER: SUNNY, 18°C

CREW MEMBERS: BRITTANY POLLEY (Technician)

ALEC MACKINNON (Crew Chief)

MICHEAL CAMPBELL (Crew Member)

NATHAN MACLEAN (Crew Member)

SHAW CAMERON (Crew Member)

KAILEY MORTENSEN (Crew Member)

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	Broad Cove River
WATERSHED:	Broad Cove River
LOCATION:	Glenora Distillery
NEAREST COMMUNITY:	Inverness
ROAD CROSSING [ACCESS POINT]	Route 19 13756
MAP # [NS TOPO SERIES 1:50,000]	
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	0629452
DOWNSTREAM PROJECT LIMIT: NORTHING	5112453
UPSTREAM PROJECT LIMIT: EASTING	0628747
UPSTREAM PROJECT LIMIT: NORTHING	5112215

BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES TAKEN:

TYPE OF ACTION TAKEN:	Debris/windfall removed, bank stabilization via hand rocking thus preventing further erosion/scouring (Building Deflectors, Digger Logs, Bank Rock and Kickers, etc.)
DESIGN WIDTH:	
TOTAL LENGTH OF STREAM RESTORED:	747.04 meters
# TREES PLANTED:	N/A
WIDTH OF WATERCOURSE:	4-7

AREA IN SQ. METERS RESTORED:	3016.52 m/sq
-------------------------------------	--------------

NOTES OF BEFORE CONDITIONS:

STRUCTURE PRESENT	WAY POINT #	COMMENTS
Digger Log and Deflector	20	Maintenance needed.
Digger Log and Deflector	21	Maintenance needed.
Digger Log and Deflector	22	Maintenance needed.
Digger Log and Deflector	23	Maintenance needed.
Digger Log and Deflector	24	Maintenance needed.
Digger Log # 6	64	Could use rock, but is great.
Digger Log # 7	65	Good condition, bank is eroding
Digger Log #8	66	Buried digger log. Used another log to put on top.
Digger Log #10	67	Two deflectors are very good condition. Built on more with rock.
Digger Log # 11	68	Nice Digger Log, could use more rock.

Digger Log #12	69	Replace, to small. Debris from #12 can stay, its helping the bank. Debris can stay, minimum delimiting.
Digger Log #13	70	Add some rock on the left side along with the bottom. Big pooling.
Deflector #14	71	Deflector needs more rock.
Digger Log #15	72	Extension of digger log. 8-7 to the left.
Digger Log #16	73	Looks good needs extensions.
Digger Log #17	74	Was an old fish hut. Needs logs and possibly deflectors.
Digger Log #18 Deflector	75	Good rock work or wood deflector.
Digger Log #19	76	Needs rock deflector. Good clear debris.
Digger Log #20	77	Looks good. Rock Deflector. Needs some rock maintenance

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	18
DEFLECTORS	7
BANK ROCK	N/A
ROCK SILLS	N/A
<i>TOTAL STRUCTURES: 25</i>	

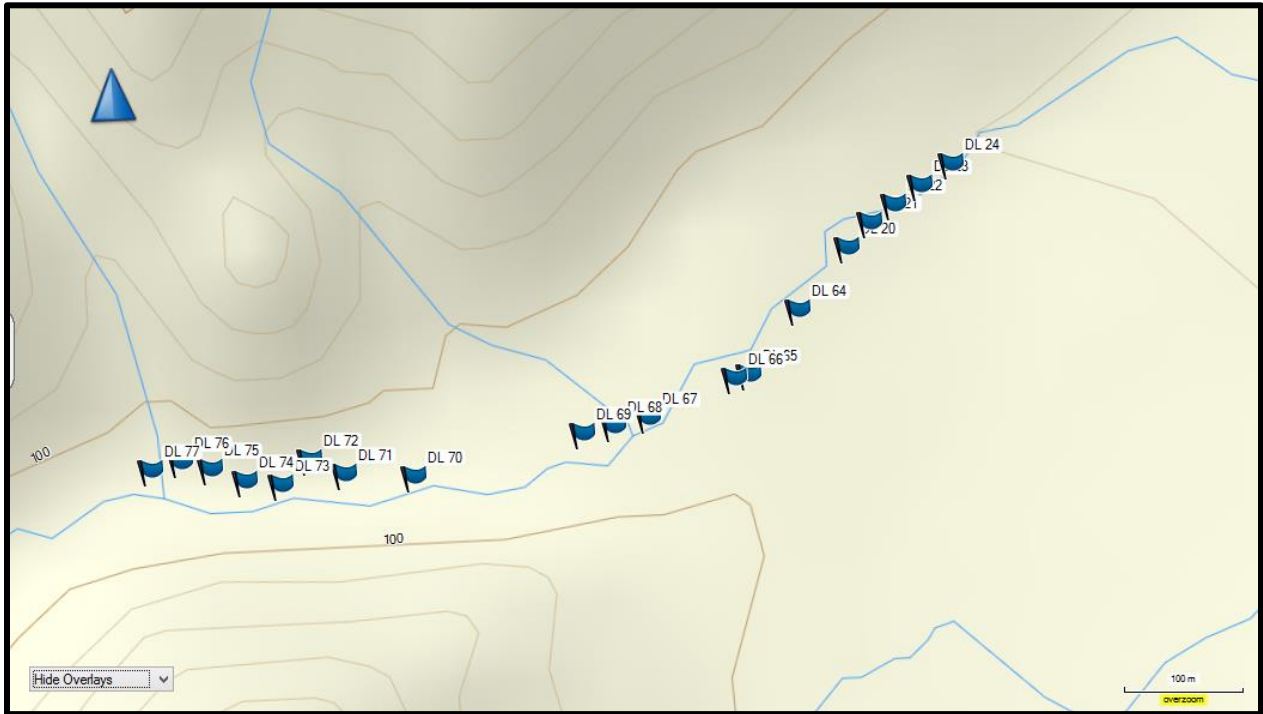


Figure 23. Basecamp map showing the structures of the Broad Cove Distillery River.



Figure 24. Basecamp overlay map showing the structures of the Broad Cove Distillery River.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on the Broad Cove Distillery River have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 20: Digger Log and Deflector



Figure 25. Digger log structure that was maintained.

Way Point 21: Digger Log and Deflector



Figure 26. Before picture of the digger log and deflector.

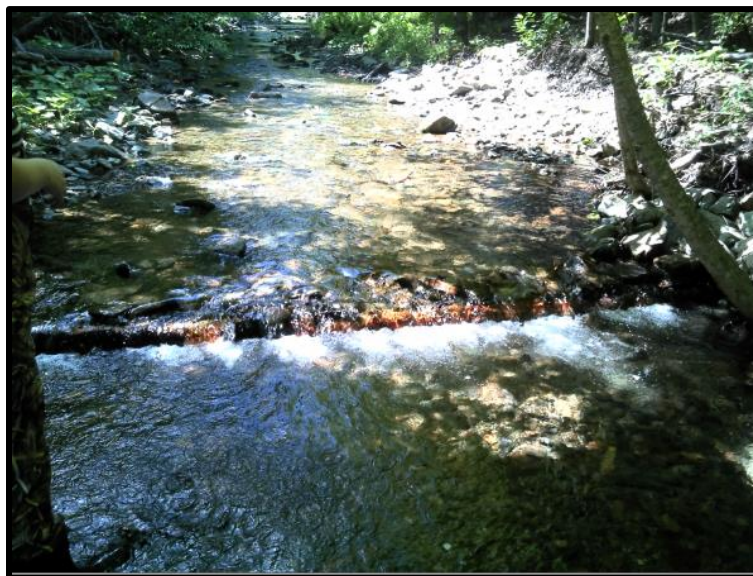


Figure 27. After picture of the maintained digger log and deflector.

Way Point 22: Digger Log and Deflector



Figure 28. Before picture of the digger log and deflector.



Figure 29. After picture of the digger log and deflector.

Way Point 23: Digger Log and Deflector



Figure 30. Before picture of the digger log and deflector.



Figure 31. After picture of the digger log and deflector.

Way Point 24: Digger Log and Deflector



Figure 32. Before picture of the digger log and deflector.



Figure 33. After picture of the digger log and deflector.

Way Point 64: Digger Log and Deflector



Figure 34. Maintained digger log and deflector structure.

Way Point 66: Digger Log



Figure 35. Deflector structure that was maintained. Digger log was buried.

Way Point 67: Digger Log and Deflector



Figure 36. Before picture of a digger log and deflector structure that was maintained.



Figure 37. After picture of the digger log and deflector structure.

Way Point 68: Digger Log and Deflector



Figure 38. Digger log and deflector structure that was maintained.

Way Point 69: Digger Log



Figure 39. Maintained digger log structure.

Way Point 70: Digger Log



Figure 40. Digger log structure that needed maintenance.

Way Point 71: Deflector



Figure 41. Deflector structure before maintenance.

Way Point 77: Digger Log



Figure 42. Digger log that was maintained.

Fraser's Brook

WORK DAY 3: WEDNESDAY MAY 31ST, 2017

TIME: 10:00am

LOCATION: FRASER BROOK, INVERNESS COUNTY

WEATHER: SUNNY/CLOUDY , 13°C

CREW MEMBERS: BRITTANY POLLEY (Technician)

ALEC MACKINNON (Crew Chief)

MICHEAL CAMPBELL (Crew Member)

NATHAN MACLEAN (Crew Member)

SHAW CAMERON (Crew Member)

KAILEY MORTENSEN (Crew Member)

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	Fraser's Brook
WATERSHED:	Broad Cove River
LOCATION:	Foot Cape Road
NEAREST COMMUNITY:	Inverness
ROAD CROSSING [ACCESS POINT]	Foot Cape Road
MAP # [NS TOPO SERIES 1:50,000]	Lake Ainslie 11K/3
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	630951
DOWNSTREAM PROJECT LIMIT: NORTHING	5116636
UPSTREAM PROJECT LIMIT: EASTING	0630577
UPSTREAM PROJECT LIMIT: NORTHING	5116968

BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES

TAKEN:

TYPE OF ACTION TAKEN:	Debris Removed, Original Channel Restored, Bank Stabilized with rock to prevent further erosion/scouring (Building Deflectors, Digger Logs, Bank Rock and Kickers, etc.)
TOTAL LENGTH OF STREAM RESTORED:	512.94 meters
AREA IN SQ. METERS RESTORED:	4921.55 m ²
WIDTH OF WATERCOURSE:	2-3m
# TREES PLANTED:	N/A

NOTES OF BEFORE CONDITIONS:

STRUCTURE PRESENT	WAY POINT #	COMMENTS
Digger Log	36	Starting from the head of the river. Looks good; has good shade.
Digger Log	37	Has debris overhead but is not hurting anything.
Digger Log	38	Broke down and cast aside.
Digger Log	39	Looks good but needs maintenance.
Digger Log	40	Looks good. Needs rock.
Digger Log	41	Looks good, no problems. Needs some bank rock, but there is no rock around.
Deflector/Bank Log	42	Looks good.
Digger Log	43	Needs more rock for the deflector. Log is working.
Digger Log	44	Looks good, needs maintenance.
Deflector	45	Looks good.
Digger Log	46	Maintenance.
Digger Log	47	Good condition.
Deflector	48	
Digger Log	49	Needs maintenance.
Digger Log	50	Needs maintenance.
Digger Log	51	Needs maintenance.
Deflector	52	Needs maintenance.
Digger Log	53	Looks good, need maintenance.
Digger Log	54	Slight maintenance needed.

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	15
DEFLECTORS	3
BANK ROCK	N/A
ROCK SILLS	N/A
	<i>TOTAL STRUCTURES: 18</i>

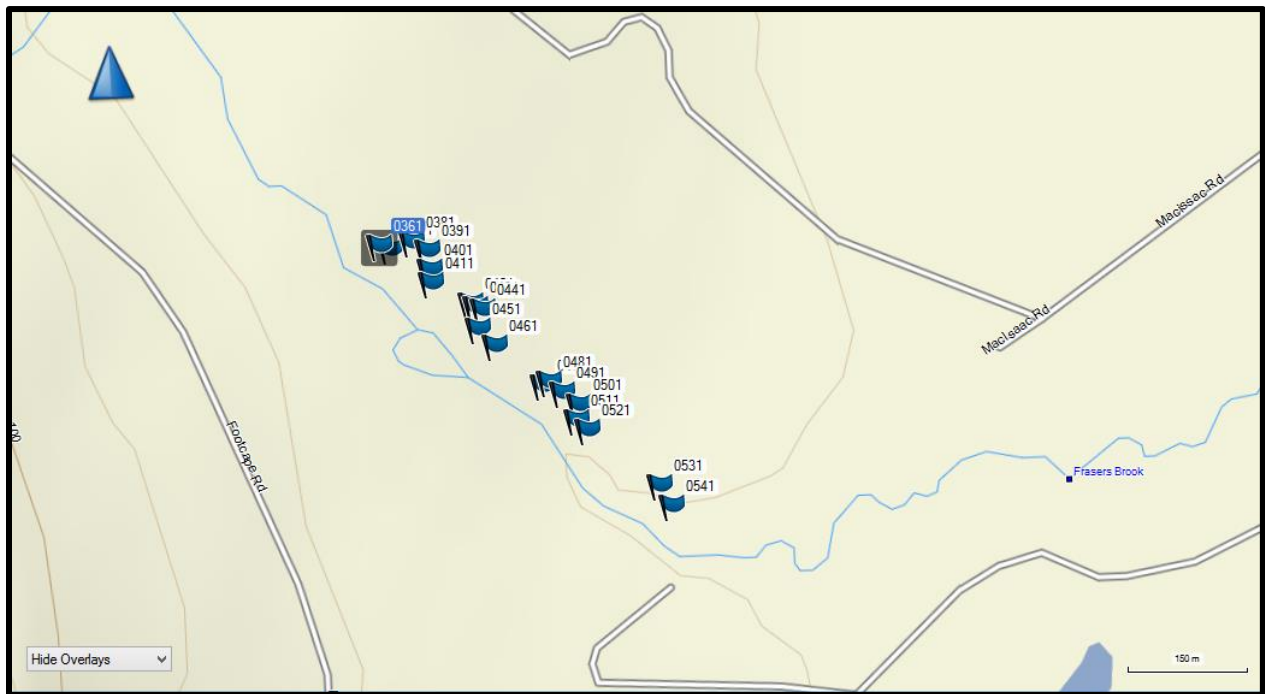


Figure 43. Basecamp map showing the structures on Frasers Brook.



Figure 44. Basecamp map using overlays showing the structures on Frasers Brook.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on Frasers Brook have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 36 – Digger Log



Figure 45. Before picture of digger log structure.



Figure 46. After picture of the digger log structure.

Way Point 37- Digger Log



Figure 47. An after picture of a digger log structure with debris overhead.

Way Point 38 – Deflector

- Original structure at this way point was a digger log but was cast aside; therefore, it needs to be fully replaced.



Figure 48. Deflector structure that was maintained.

Way Point 39 – Digger Log

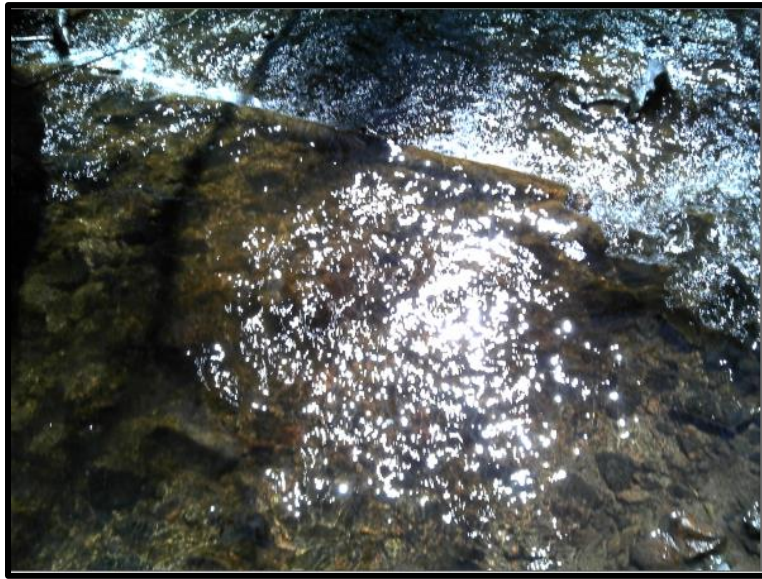


Figure 49. Before picture of a digger log structure.



Figure 50. An after picture of the digger log structure for waypoint 39.

Way Point 40 – Digger Log



Figure 51. Photo of a digger log structure for waypoint 40.

Way Point 41 – Digger Log & Deflector



Figure 52. Digger log structure for waypoint 41.

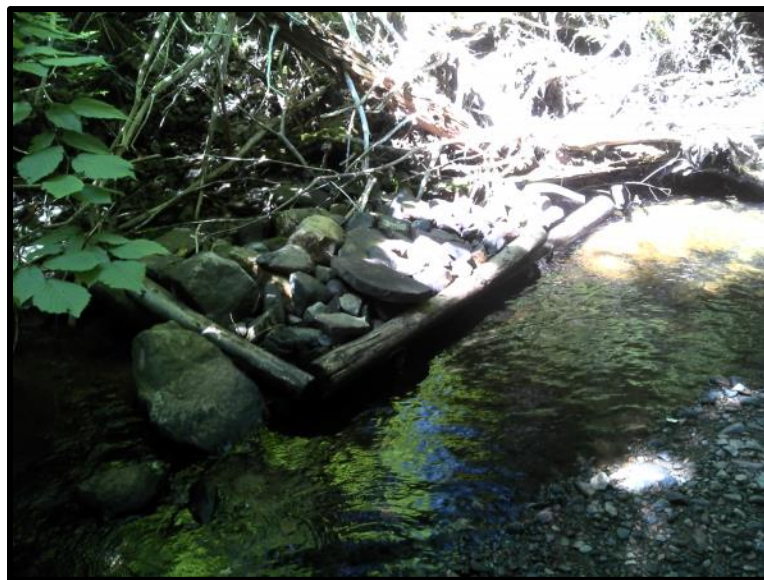


Figure 53. Deflector structure for waypoint 41.

Way Point 42 – Deflector/Bank Log



Figure 54. Deflector/Bank log structure at waypoint 42.

Way Point 44 – Digger Log



Figure 55. Digger Log structure for waypoint 44.

Way Point 46 – Digger Log



Figure 56. Digger Log structure for waypoint 46.

Way Point 47 – Digger Log



Figure 57. Digger Log structure for way point 47.

Way Point 48 – Deflector



Figure 58. Deflector for waypoint 48.

Way Point 49 – Digger Log



Figure 59. Digger Log for waypoint 49.

Way Point 53 – Digger Log



Figure 60. Digger Log structure for waypoint 53.

Miramichi Brook

WORK DAY 7: WEDNESDAY JUNE 7TH, 2017

TIME: 10:52am

LOCATION: NORTHEAST MABOU RIVER, INVERNESS COUNTY

WATERSHED: MABOU HARBOUR WATERSHED

ACCESS POINT: ROSEDALE RD.

WEATHER: SUNNY, 15°C

CREW MEMBERS: BRITTANY POLLEY (Technician)

ALEC MACKINNON (Crew Chief)

MICHEAL CAMPBELL (Crew Member)

NATHAN MACLEAN (Crew Member)

SHAW CAMERON (Crew Member)

KAILEY MORTENSEN (Crew Member)

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	Miramichi Brook
WATERSHED:	MabouHarbour Watercourse
LOCATION:	North East Mabou River, Inverness County
NEAREST COMMUNITY:	Inverness
ROAD CROSSING [ACCESS POINT]	Rosedale Road
MAP # [NS TOPO SERIES 1:50,000]	Lake Ainslie 11K/3
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	0631810
DOWNSTREAM PROJECT LIMIT: NORTHING	5095726
UPSTREAM PROJECT LIMIT: EASTING	0632524
UPSTREAM PROJECT LIMIT: NORTHING	5095662

BANK STABILIZATION & OTHER INSTREAM HABITAT RESTORATION MEASURES

TAKEN:

TYPE OF ACTION TAKEN:	Debris Removed, Original Channel Restored, Bank Stabilized with rock to prevent further erosion/scouring (Building Deflectors, Digger Logs, Bank Rock and Kickers, etc.)
TOTAL LENGTH OF STREAM RESTORED:	417.14 meters
AREA IN SQ. METERS RESTORED:	2326.87 m ²
WIDTH OF WATERCOURSE:	7-10m
# TREES PLANTED:	N/A

NOTES OF BEFORE CONDITIONS:

STUCTURE PRESENT	WAY POINT #	COMMENTS
Digger Log and Deflector	146	Looks good needs maintenance.
Digger Log and Deflector	147	Looks good, maintenance needed.
Digger Log and Deflector	148	Good. Needs maintenance,
Digger Log and Deflector	149	Okay condition. Needs maintenance.
Digger Log and Deflector	150	Looks nice. Good pooling area.
Digger Log and Deflector	151	Looks good. Maintenance needed.
Digger Log and Deflector	152	Looks good. Maintenance needed.
Digger Log and Deflector	153	Looks good. Maintenance needed.
Digger Log and Deflector	154	Looks good. Maintenance needed.
Digger Log & Deflector	162	Digger log is buried. Maintenance needed on deflector.
Deflector	164	Two deflectors.
Deflector	165	Needs more rock and debris removal.
Deflector	166	Maintenance needed.
Digger Log	167	Needs to be resealed. Maintenance is needed.
Digger Log and Deflector	168	Looks good, rock is needed.
Digger Log	169	Nice pool. Needs rock.
Digger Log and Deflector	170	Maintenance needed.
Digger Log	171	Needs maintenance.

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	15
DEFLECTORS	15
BANK ROCK	N/A
ROCK SILLS	N/A
	<i>TOTAL STRUCTURES: 30</i>

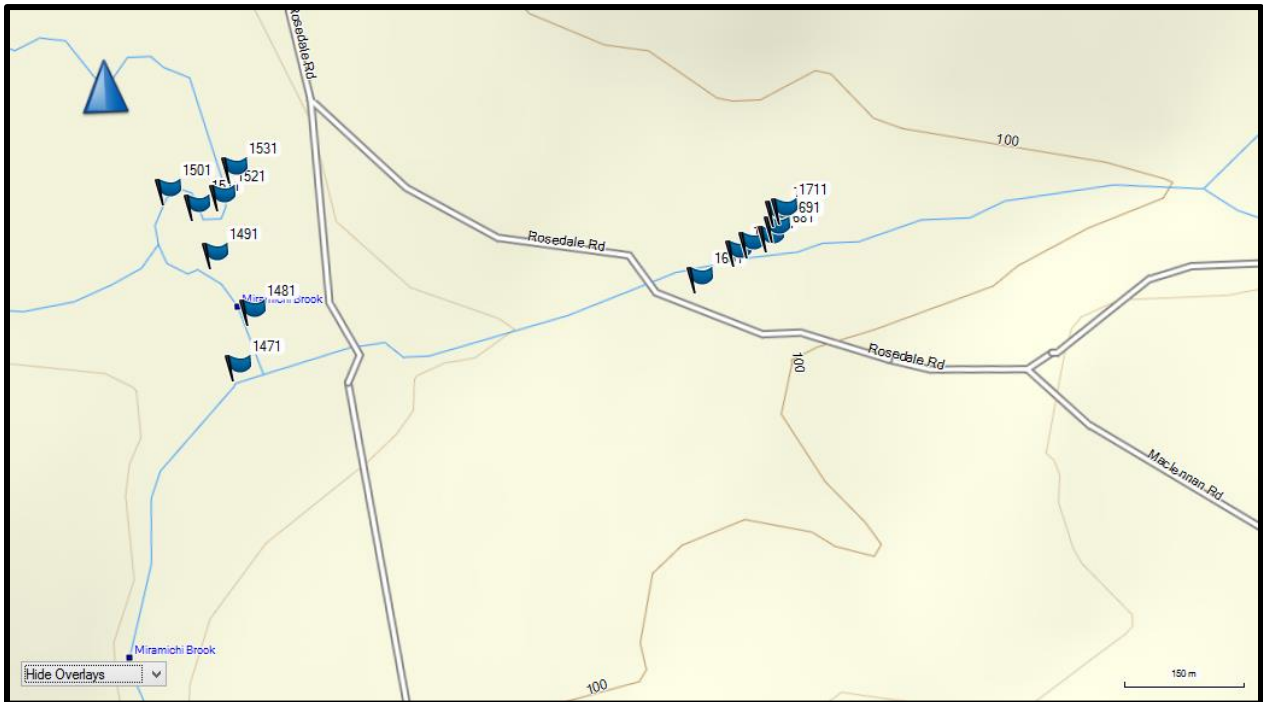


Figure 61. Basecamp map showing structures on the Miramichi Brook.



Figure 62. Basecamp map using overlays showing the structures of the Miramichi Brook.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on the Miramichi Brook have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 146 – Digger Log



Figure 63. Digger log for waypoint 146.

Way Point 147 – Digger Log



Figure 64. Digger log for waypoint 147.

Way Point 148 – Digger Log



Figure 65. Digger Log structure for waypoint 148.

Way Point 149 – Deflector



Figure 66. Deflector structure for waypoint 149.

Way Point 150 – Digger Log



Figure 67. Digger Log structure for waypoint 150.

Way Point 151 – Deflector



Figure 68. Deflector structure at waypoint 151 that was maintained.

Way Point 152 – Digger Log



Figure 69. Digger Log structure at waypoint 152.

Way Point 153 – Digger Log



Figure 70. Digger Log structure that was maintained at waypoint 153.

Way Point 162 – Digger Log



Figure 71. Digger Log structure at waypoint 162.

Way Point 164 – Deflector



Figure 72. Deflector structure at waypoint 164.

Way Point 166 – Deflector



Figure 73. Deflector at waypoint 166 that needed maintenance.

Way Point 167 – Digger Log



Figure 74. Uplifted digger log structure at waypoint 167.

Way Point 168 – Digger Log & Deflector



Figure 75. Digger log and deflector that was maintained at waypoint 168.

Way Point 169 – Digger Log



Figure 76. Digger Log structure at waypoint 169.

Way Point 170 – Digger Log and Deflector



Figure 77. Digger log and deflector at waypoint 170.

Macquarrie's Brook

WORK DAY 6: TUESDAY JUNE 6TH, 2017

TIME: 9:00am

LOCATION: MACQUARRIE BROOK, INVERNESS COUNTY

WATERSHED: NORTH EAST MABOU RIVER

ACCESS POINT: LAKE AINSLIE CHAPEL BROOK VILLAGE ROAD

WEATHER: CLOUDY, 13°C

CREW MEMBERS: BRITTANY POLLEY (Technician)

ALEC MACKINNON (Crew Chief)

MICHEAL CAMPBELL (Crew Member)

NATHAN MACLEAN (Crew Member)

SHAW CAMERON (Crew Member)

KAILEY MORTENSEN (Crew Member)

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	MacQuarrie Brook
WATERSHED:	Mabou Harbour
LOCATION:	West River/ Hays River
NEAREST COMMUNITY:	Centerville
ROAD CROSSING [ACCESS POINT]	Unnamed Road connecting Lake Ainslie Chapel Brook Village Road and East Sky Glen Road
MAP # [NS TOPO SERIES 1:50,000]	Lake Ainslie 11K/3
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	0634991
DOWNSTREAM PROJECT LIMIT: NORTHING	5103454
UPSTREAM PROJECT LIMIT: EASTING	0635188
UPSTREAM PROJECT LIMIT: NORTHING	5103528

OTHER INSTREAM HABITAT RESTORATION MEASURE TAKEN:

TYPE OF ACTION TAKEN:	Debris Removed, Original Channel Restored, Bank Stabilized with rock to prevent further erosion/scouring (Building Deflectors, Digger Logs, Bank Rock and Kickers, etc.)
DESIGN WIDTH:	3-4m
TOTAL LENGTH OF STREAM RESTORED:	215.71 m
AREA RESTORED:	377.10m ²

NOTES OF BEFORE CONDITIONS:

STRUCTURES PRESENT	WAY POINT #	COMMENTS
Digger Log	122	Maintenance needed.
Digger Log	123	Maintenance needed.
Digger Log	124	Maintenance needed.
Digger Log	125	Maintenance needed.
Digger Log and Deflector	126	Maintenance needed.
Digger Log	127	Maintenance needed.
Digger Log	128	Maintenance needed.
Digger Log	129	Maintenance needed.
Digger Log	130	Maintenance needed.
Digger Log	131	Maintenance needed.
Digger Log	132	Maintenance needed.
Digger Log	133	Maintenance needed.
Digger Log	134	Maintenance needed.
Deflector	135	Good.
Digger Log and Deflector	137	Looks good. Nice pool.
Digger Log	138	Looks good. Maintenance needed.

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	15
DEFLECTORS	3
BANK ROCK	N/A
ROCK SILLS	N/A
<i>TOTAL STRUCTURES: 18</i>	

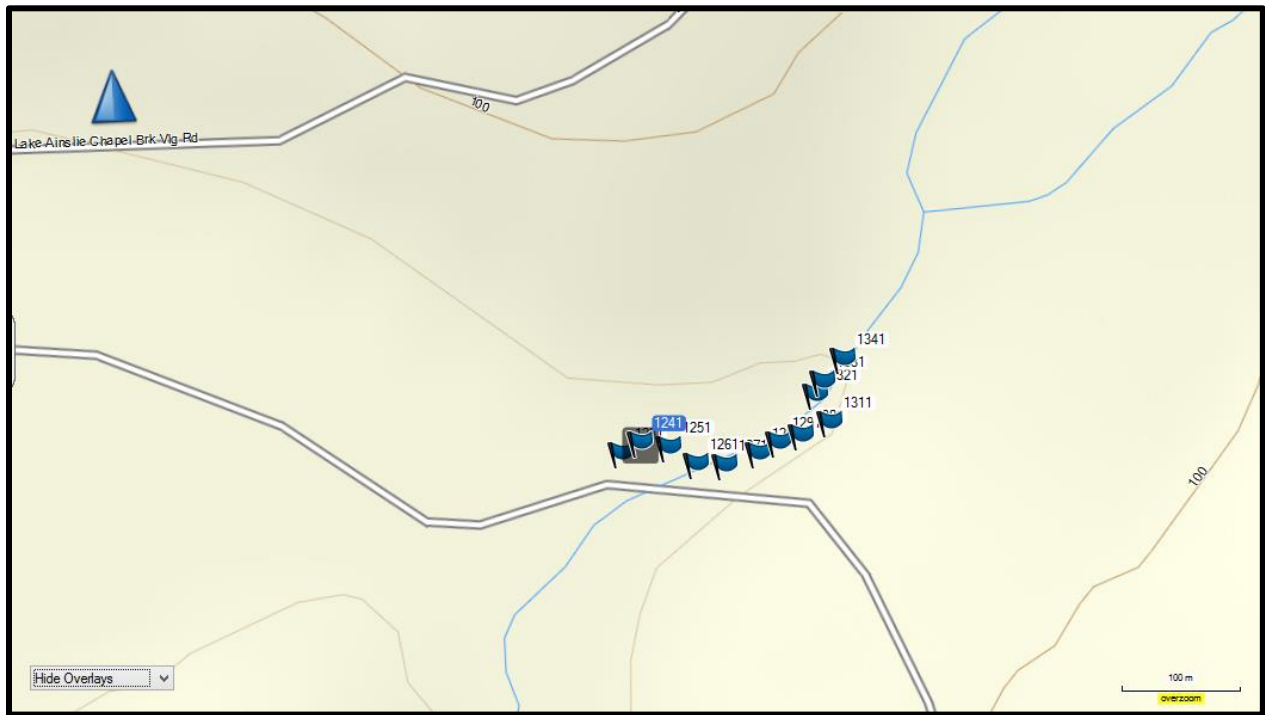


Figure 78. Basecamp map showing the structures on the Macquarie's Brook.

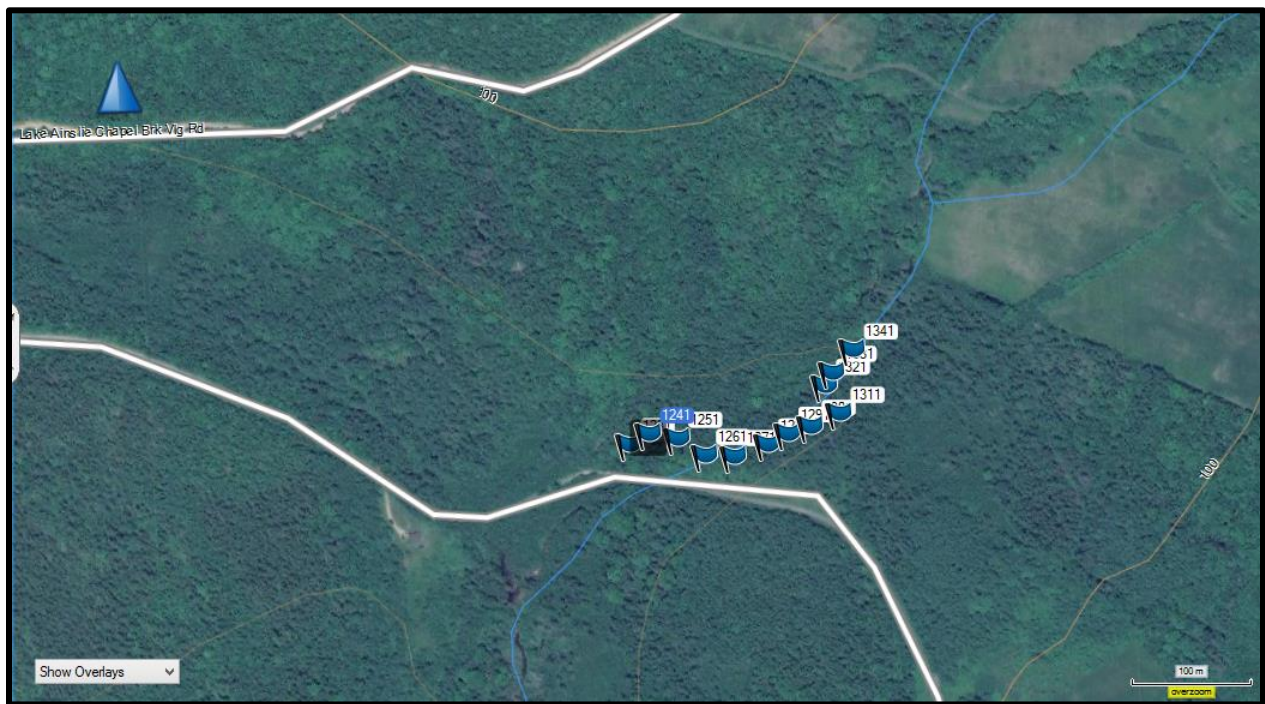


Figure 79. Basecamp map with overlays showing the structures on the Macquarie's Brook.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on the Macquarie's Brook have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 123 – Digger Log



Figure 80. Digger Log at waypoint 123.

Way Point 124 – Digger Log



Figure 81. Digger Log structure at waypoint 124.

Way Point 127 – Digger Log



Figure 82. Digger Log structure at waypoint 127.

Way Point 128 – Digger Log



Figure 83. Digger Log structure at waypoint 128.

Way Point 130 – Digger Log



Figure 84. Digger Log structure at waypoint 130.

Way Point 131 – Digger Log



Figure 85. Digger Log Structure at way point 131.

Way Point 133 – Digger Log



Figure 86. Digger Log structure at waypoint 133.

The Big Shea

WORK DAY 6: WEDNESDAY JUNE 7TH, 2017

TIME: 9:00am

LOCATION: BIG SHEA RIVER

WATERSHED: NORTH EAST MABOU RIVER

ACCESS POINT: 3601 HIGHWAY 252; Cow farm; Old Mull River Road

WEATHER: CLOUDY, 13°C

CREW MEMBERS: BRITTANY POLLEY (Technician)

ALEC MACKINNON (Crew Chief)

MICHEAL CAMPBELL (Crew Member)

NATHAN MACLEAN (Crew Member)

SHAW CAMERON (Crew Member)

KAILEY MORTENSEN (Crew Member)

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	The Big Shea
WATERSHED:	The North East Mabou River
LOCATION:	The Big Shea River
NEAREST COMMUNITY:	Mabou
ROAD CROSSING [ACCESS POINT]	3601 Highway 252; cow farm/Old Mull River Road
MAP # [NS TOPO SERIES 1:50,000]	Lake Ainslie 11K/3
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	0630061
DOWNSTREAM PROJECT LIMIT: NORTHING	5100164
UPSTREAM PROJECT LIMIT: EASTING	0630975
UPSTREAM PROJECT LIMIT: NORTHING	5100401

OTHER INSTREAM HABITAT RESTORATION MEASURE TAKEN:

TYPE OF ACTION TAKEN:	Debris Removed, Original Channel Restored, Bank Stabilized with rock to prevent further erosion/scouring
DESIGN WIDTH:	6-7m
TOTAL LENGTH OF STREAM RESTORED:	462.06 m
AREA RESTORED:	2947.95 m ²

NOTES OF BEFORE CONDITIONS:

STRUCTURE PRESENT	WAY POINT #	COMMENTS
Deflector	135	Side bank looks good.
Digger Log and Deflector	137	Looks good. Nice pooling.
Digger Log	138	Looks good. Needs maintenance.
Deflector	140	Looks good. Did its job.
Deflector	141	Established good.
Deflector	142	Doing well.
Digger Log	143	Big. Doing well.
Digger Log	144	May need maintenance and deflector.

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	4
DEFLECTORS	4
BANK ROCK	N/A
ROCK SILLS	N/A
<i>TOTAL STRUCTURES: 8</i>	

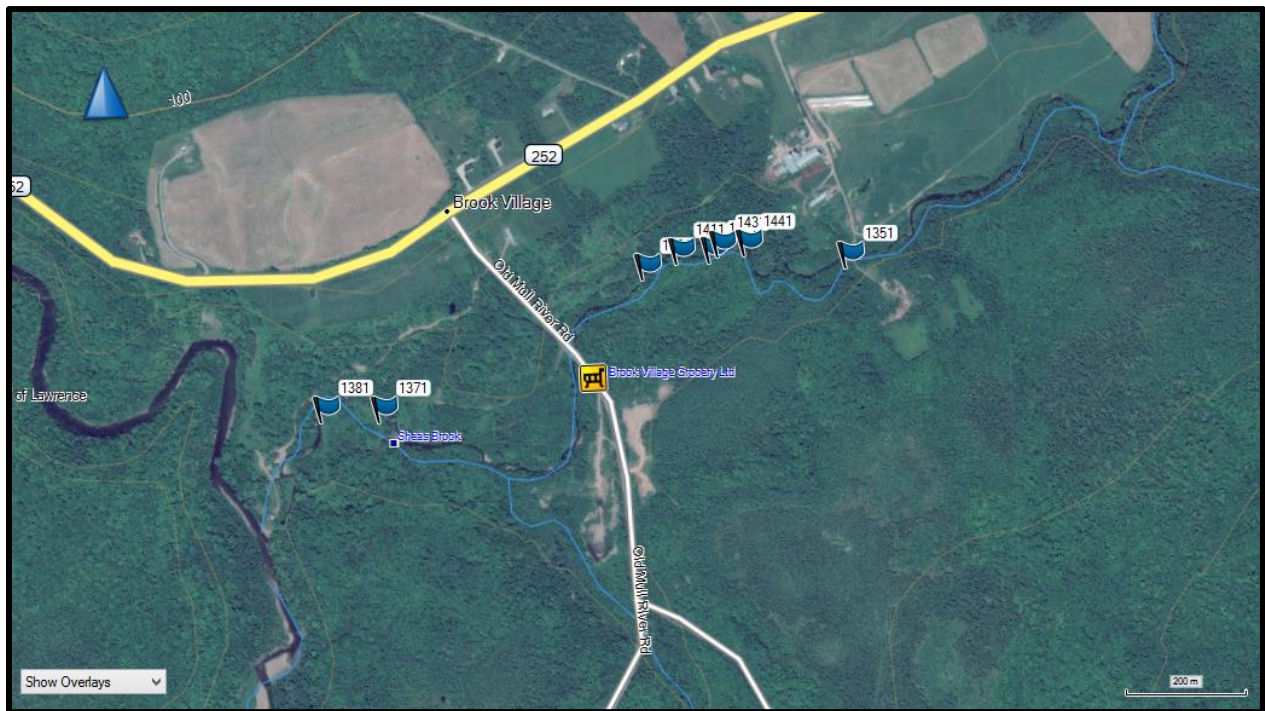


Figure 87. Basecamp map with overlays showing the structures at the Big Shea behind the cow farm and towards the beaver dam.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on the Big Shea River have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 135 – Deflector



Figure 88. Deflector at waypoint 135.

Way Point 137 – Deflector



Figure 89. Deflector structure at waypoint 137.

Way Point 138 – Digger Log



Figure 90. Digger Log Structure at waypoint 138.

Way Point 140 – Deflector



Figure 91. Deflector structure at waypoint 140.

Way Point 141 – Deflector



Figure 92. Deflector structure at waypoint 141.

Way Point 142 – Deflector

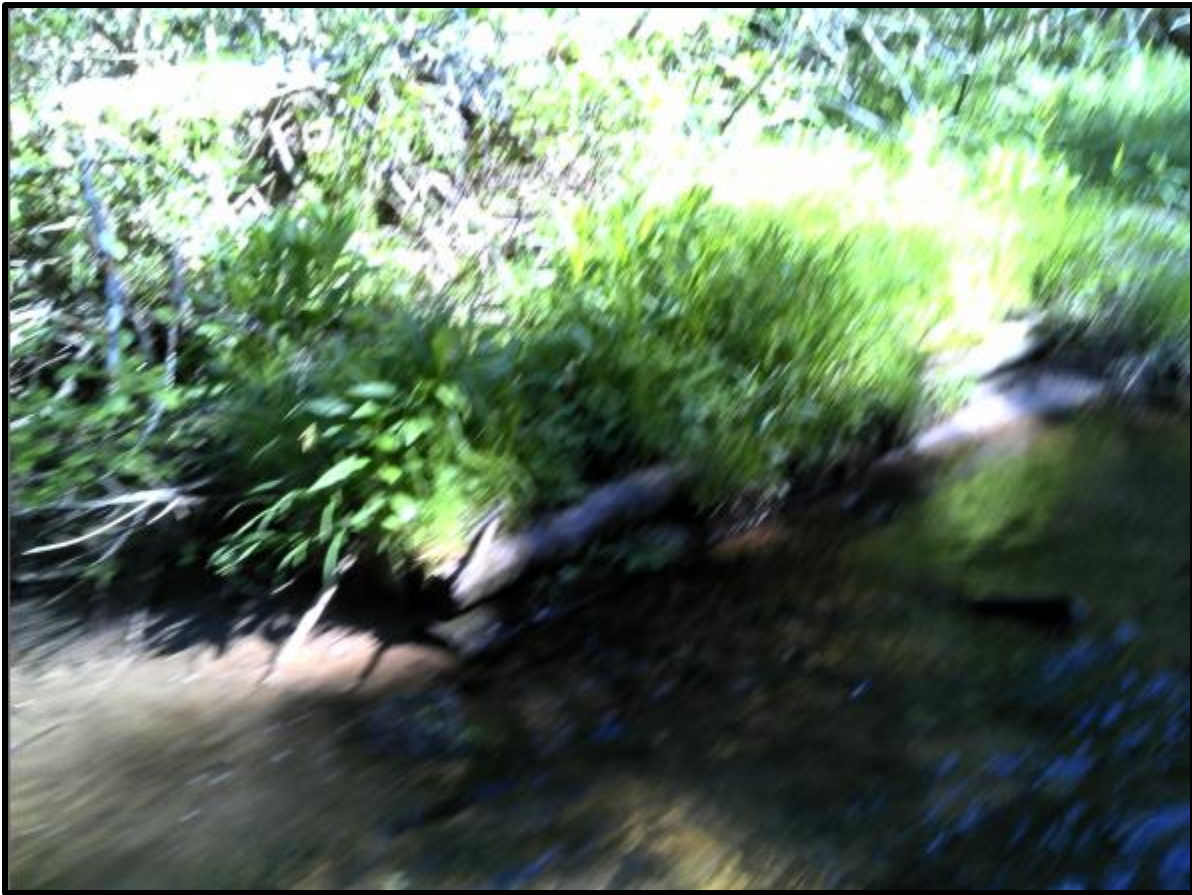


Figure 93. Deflector at waypoint 142.

Way Point 143 – Digger Log



Figure 94. Digger Log Structure at waypoint 143.

Way Point 144 – Digger Log



Figure 95. Digger Log Structure at waypoint 144.

The Little Shea

WORK DAY: THURSDAY, JUNE 8TH, 2017

TIME: 9:00am

LOCATION: LITTLE SHEA RIVER

WATERSHED: NORTH EAST MABOU RIVER

ACCESS POINT: OLD MULL RIVER ROAD

WEATHER: CLOUDY, 13°C

CREW MEMBERS: BRITTANY POLLEY (Technician)

ALEC MACKINNON (Crew Chief)

MICHEAL CAMPBELL (Crew Member)

NATHAN MACLEAN (Crew Member)

SHAW CAMERON (Crew Member)

KAILEY MORTENSEN (Crew Member)

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	The Little Shea
WATERSHED:	The North East Mabou River
LOCATION:	The Little Shea River
NEAREST COMMUNITY:	Mabou
ROAD CROSSING [ACCESS POINT]	Old Mull River Road
MAP # [NS TOPO SERIES 1:50,000]	Lake Ainslie 11K/3
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	0630393
DOWNSTREAM PROJECT LIMIT: NORTHING	5100066
UPSTREAM PROJECT LIMIT: EASTING	0631200
UPSTREAM PROJECT LIMIT: NORTHING	5099387

OTHER INSTREAM HABITAT RESTORATION MEASURE TAKEN:

TYPE OF ACTION TAKEN:	Debris Removed, Original Channel Restored, Bank Stabilized with rock to prevent further erosion/scouring (Building Deflectors, Digger Logs, Bank Rock and Kickers, etc.)
DESIGN WIDTH:	4-5 m
TOTAL LENGTH OF STREAM RESTORED:	106 km
AREA RESTORED:	8316.23 m ²

NOTES OF BEFORE CONDITIONS:

STRUCTURE PRESENT	WAY POINT #	COMMENTS
Digger Log	78	Nothing can be done.
Digger Log	79	Needs debris removal. Maintenance needed.
Digger Log	80	More rock needed.
Digger Log	81	Repairs needed.
Digger Log	82	Looks good. Needs debris removal.
Deflector	83	Nice pool.
Digger Log	84	Little maintenance is needed.
Digger Log	85	Good condition.
Digger Log	86	Functioning well. Debris removal needed.
Deflector	87	Maintenance.
Digger Log	88	Deflector needed. Debris removal needed.
Digger Log	89	Maintenance needed. Nice pool.
Digger Log	90	Maintenance needed.
Digger Log	91	Maintenance needed.
Digger Log	92	Slight maintenance.
Digger Log	93	Needs maintenance.
Digger Log	94	Debris removal needed.
Digger Log	95	Maintenance and debris removal needed.
Digger Log	96	Looks good.
Digger Log	97	Not functioning. Nothing can be done.
Digger Log	98	Maintenance needed.
Digger Log and Deflector	99	Beautiful.
Digger Log	100	Nice pooling, small maintenance needed.

Digger Log	101	Maintenance and debris removal needed.
Digger Log	102	Maintenance needed. Beautiful pool.
Digger Log	103	More rock needed.
Digger Log	104	
Digger Log	105	Looks nice.
Digger Log	106	Looks good.
Digger Log	107	Needs maintenance.
Digger Log	108	Looks good. Needs maintenance.

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	28
DEFLECTORS	3
BANK ROCK	N/A
ROCK SILLS	N/A
<i>TOTAL STRUCTURES: 31</i>	

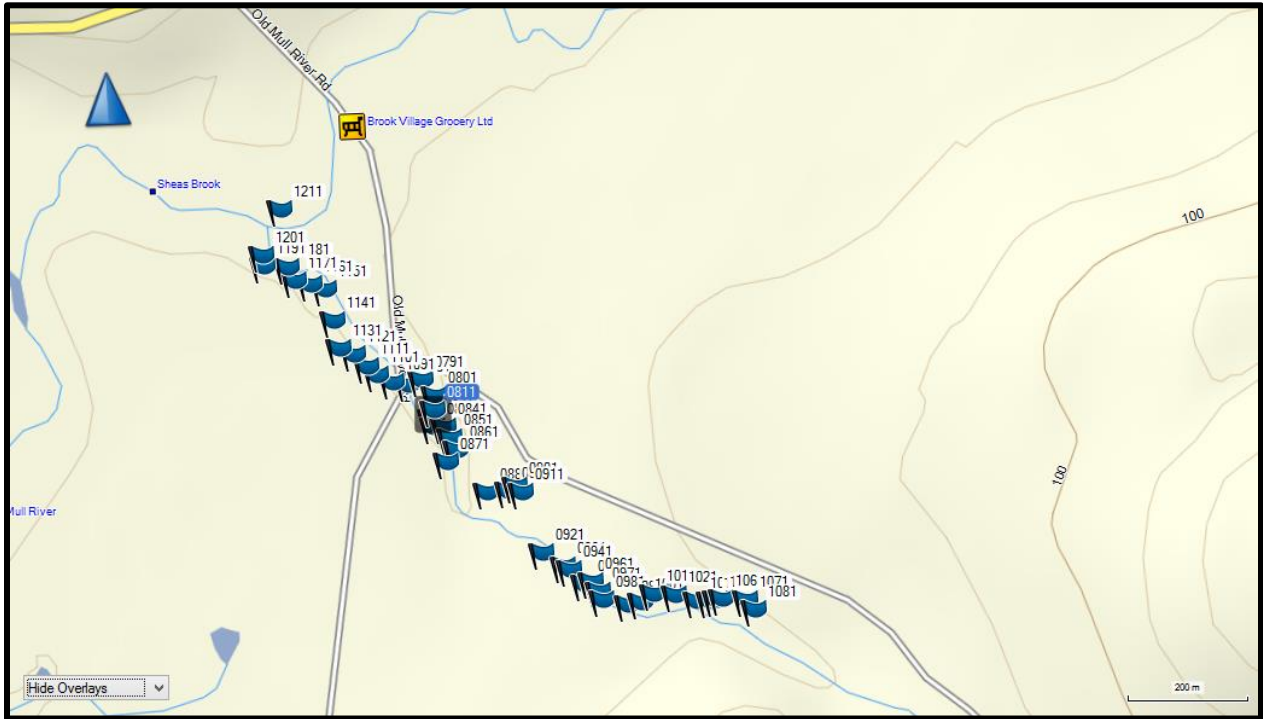


Figure 96. Basecamp map showing the structures on the Little Shea River.



Figure 97. Basecamp map with overlays showing the structures on the Little Shea River.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on the Little Shea River have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 79 – Digger Log



Figure 98. Digger log that needs to be fully replaced.

Way Point 81 – Digger Log



Figure 99. Digger Log Structure.

Way Point 85 – Digger Log



Figure 100. Digger Log at waypoint 85.

Way Point 86 – Digger Log



Figure 101. Digger Log structure at waypoint 86.

Way Point 87 – Deflector



Figure 102. Deflector structure at waypoint 87.

Way Point 88 – Digger Log



Figure 103. Digger Log structure at waypoint 88.

Way Point 89 – Digger Log



Figure 104. Digger Log structure at waypoint 89.

Way Point 90 – Digger Log



Figure 105. Digger Log at waypoint 90.

Way Point 91 – Digger Log



Figure 106. Digger Log at waypoint 91.

Way Point 92 – Digger Log



Figure 107. Digger Log at waypoint 92.

Way Point 93 – Digger Log



Figure 108. Digger Log at waypoint 93.

Way Point 94 – Deflector



Figure 109. Deflector at waypoint 94.

Way Point 95 – Digger Log



Figure 110. Digger Log at waypoint 95.

Way Point 96 – Digger Log



Figure 111. Digger Log Structure at waypoint 96.

Way Point 98 – Digger Log



Figure 112. Digger log at waypoint 98.

Way Point 99 – Digger Log and Deflector



Figure 113. Digger Log and Deflector at waypoint 99.

Way Point 100 – Digger Log and Deflector



Figure 114. Digger Log and Deflector at waypoint 100.

Way Point 101 – Digger Log



Figure 115. Digger Log at waypoint 101.

Way Point 102 – Digger Log



Figure 116. Digger Log at waypoint 102.

Way Point 103 – Digger Log



Figure 117. Digger Log at waypoint 103.

Way Point 105 – Digger Log



Figure 118. Digger Log at waypoint 105.

Waypoint 106 – Digger Log



Figure 119. Digger log at waypoint 106.

Way Point 107 – Digger Log



Figure 120. Digger Log at waypoint 107.

Way Point 108 – Digger Log



Figure 121. Digger Log at waypoint 108.

Way Point 109 – Digger Log



Figure 122. Digger log at waypoint 109.

Way Point 110 – Digger Log



Figure 123. Digger Log at waypoint 110.

Way Point 111 – Digger Log



Figure 124. Digger Log at waypoint 111.

Way Point 112 – Digger Log



Figure 125. Digger log at waypoint 112.

Way Point 113 – Digger Log

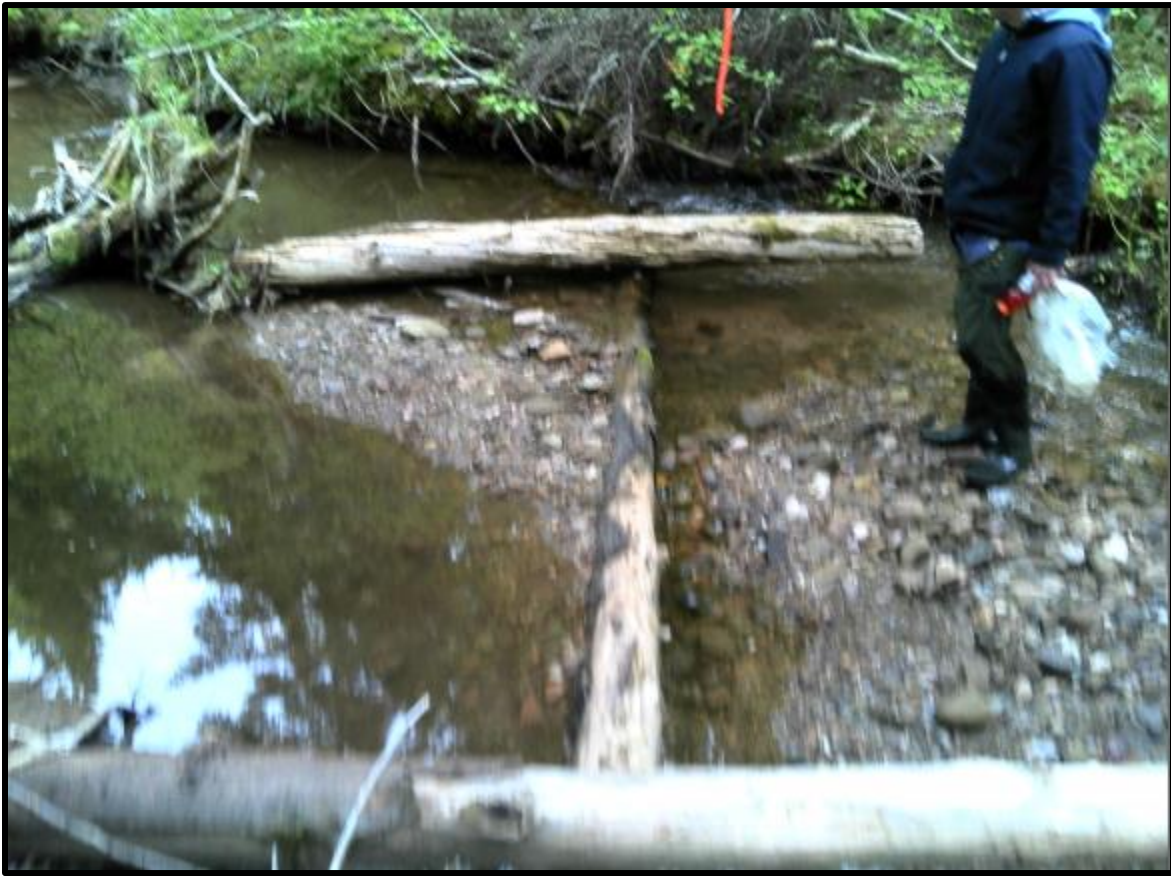


Figure 126. Digger log at waypoint 113.

Way Point 115 – Digger Log



Figure 127. Digger log at waypoint 115.

Way Point 117 – Digger Log



Figure 128. Digger Log structure at waypoint 117.

Way Point 118 – Digger Log



Figure 129. Digger Log at waypoint 118.

Way Point 119 – Digger Log



Figure 130. Digger Log at waypoint 119.

Way Point 120 – Digger Log



Figure 131. Digger Log at waypoint 120.

Graham's

WORK DAY: JULY 19TH , 2017

TIME: 9:00am

LOCATION: GRAHAM'S RIVER

WATERSHED: GRAHAM'S RIVER

ACCESS POINT: GRAHAM'S ROAD; CAMPBELLS ROAD

WEATHER: SUNNY, 22°

CREW MEMBERS: BRITTANY POLLEY (Technician)
 ALEC MACKINNON (Crew Chief)
 MICHEAL CAMPBELL (Crew Member)
 NATHAN MACLEAN (Crew Member)
 SHAW CAMERON (Crew Member)
 KAILEY MORTENSEN (Crew Member)

PROJECT DESIGN AND RESULTS:

LOCATION INFORMATION	
WATERCOURSE:	Graham's River
WATERSHED:	Graham's River
LOCATION:	Graham's River
NEAREST COMMUNITY:	Judique
ROAD CROSSING [ACCESS POINT]	Campbells Road & Graham's Road
MAP # [NS TOPO SERIES 1:50,000]	Lake Ainslie 11K/3
COORDINATES: UTM 20 T	
DOWNSTREAM PROJECT LIMIT: EASTING	0617682
DOWNSTREAM PROJECT LIMIT: NORTHING	5079600
UPSTREAM PROJECT LIMIT: EASTING	0618180
UPSTREAM PROJECT LIMIT: NORTHING	5079586

OTHER INSTREAM HABITAT RESTORATION MEASURE TAKEN:

TYPE OF ACTION TAKEN:	Debris Removed, Original Channel Restored, Bank Stabilized with rock to prevent further erosion/scouring (Building Deflectors, Digger Logs, Bank Rock and Kickers, etc.)
DESIGN WIDTH:	5-7 m
TOTAL LENGTH OF STREAM RESTORED:	1151.45 m
AREA RESTORED:	2272.69 m ²

NOTES OF BEFORE CONDITIONS:

STRUCTURE PRESENT	WAY POINT #	COMMENTS
Deflector	176	N/A
Deflector	177	N/A
Deflector	178	N/A
Deflector	183	N/A
Deflector	184	N/A
Deflector	185	N/A
Deflector	186	N/A
Deflector	187	N/A
Deflector	188	N/A
Deflector	189	N/A
Deflector	190	N/A
Deflector	191	N/A
Deflector	192	N/A
Deflector	193	N/A
Deflector	194	N/A
Deflector	195	N/A
Deflector	196	N/A
Deflector	206	1 meter into river. First two flags could be deflectors.
Bank Rock	207	40-50 feet in
Deflector	208	
Bank/Hand Rock	209	
Bank Rock	210	4 and 5 are placed close together. Flag after that is not marked on.
Deflector	211	3 meters out. Will be a big deflector.
Hand Rock	212	20 feet
Two Tier Bank Rock	213	20-25 feet, could use debris to fill in structures
Bank Rock	214	20 feet
Two Tier Bank Rock	215	1 meter out and stacked up to the bank
Deflector	216	1 meter into tree stump and two meters out. Picture was taken of the pool. Pool has changed and is shallower.
Digger Log	217	1 meter with deflector. (<i>structure 12</i>)
Deflector	218	Two tier deflector
Deflector	219	2 meters out
Digger Log	220	1 meter out with deflector. (<i>structure 17</i>) Should dig up to the tree to keep the digger log sturdy.
Deflector	221	Two tier deflector
Bank Rock	222	72 Feet long hand rock

PROJECT STRUCTURE TOTALS:

DIGGER LOGS	2
DEFLECTORS	27
BANK ROCK	8
ROCK SILLS	N/A
	<i>TOTAL STRUCTURES: 37</i>



Figure 132. Basecamp map showing the structures on the Graham's River.

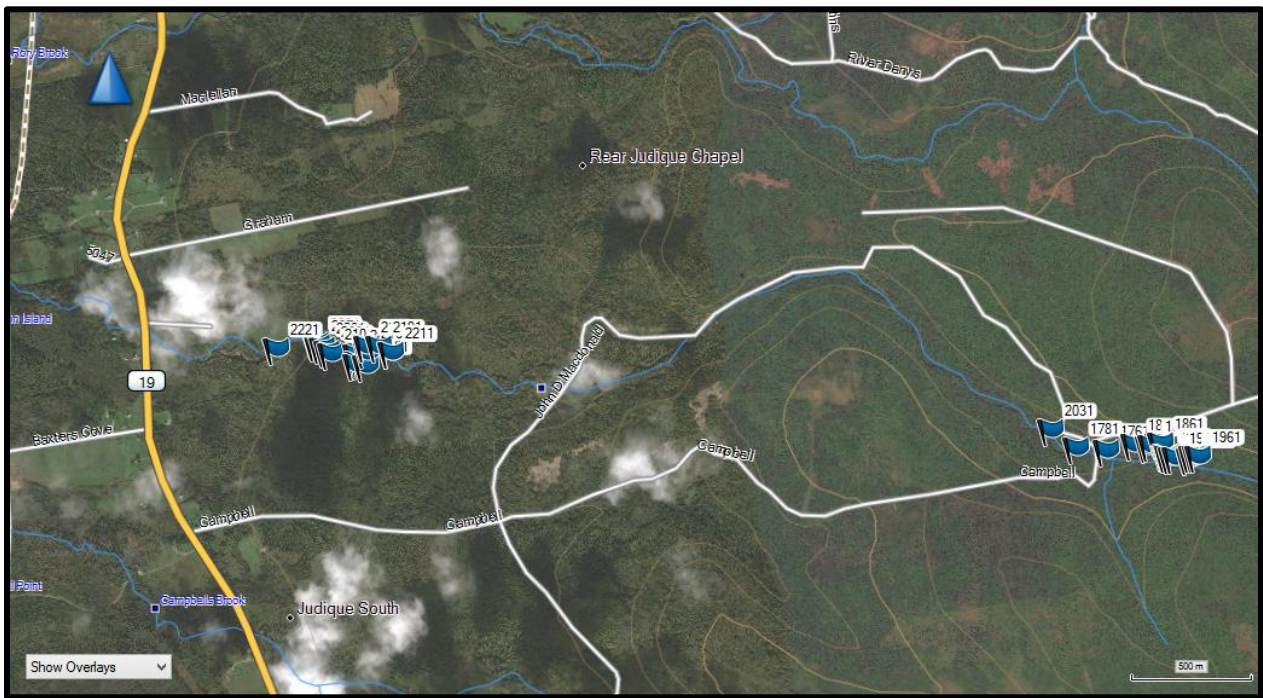


Figure 133. Basecamp map using overlays showing the structures on the Graham's river.

BEFORE AND AFTER PICTURES OF STRUCTURES

All past structures on the Graham's River have been maintained from the winter damage. All pictures may not be available. The few before and after pictures can be seen below.

Way Point 176 - Deflector



Figure 134. Before picture of deflector at way point 176.



Figure 135. After picture of deflector at way point 176.

Way Point 177 – Deflector



Figure 136. Before picture of deflector at way point 177.



Figure 137. After picture of deflector at way point 177.

Way Point 178 – Deflector



Figure 138. Before picture of deflector at way point 178.



Figure 139. After picture of deflector at waypoint 178.

Way Point 183 – Deflector



Figure 140. After picture of deflector at waypoint 183.

Way Point 184 – Deflector



Figure 141. Before picture of deflector at way point 184.



Figure 142. After picture of deflector at way point 184.

Way Point 187 – Deflector



Figure 143. Before picture of deflector at way point 187.

Way Point 189 – Deflector



Figure 144. Before picture of deflector at waypoint 189.

Way Point 190 – Deflector



Figure 145. Before picture of deflector at waypoint 190.

Way Point 206 – Deflector



Figure 146. Before picture of a deflector at waypoint 206.



Figure 147. After picture of deflector at waypoint 206.

Way Point 209 – Bank Rock



Figure 148. Before picture of bank rock structure at waypoint 209.



Figure 149. Progress picture of bank rock structure for way point 209.

Way Point 211 – Deflector



Figure 150. Before picture of deflector structure at way point 211.

Way Point 213 – Two Tier Bank Rock



Figure 151. Before picture of two tier bank rock at way point 213.



Figure 152. After picture of two tier bank rock at way point 213.

Way Point 214 – Bank Rock



Figure 153. Before picture of bank rock structure for way point 214.

Way Point 215 – Two Tier Deflector



Figure 154. Before picture of a two-tier deflector for way point 215.

Way Point 216 – Deflector



Figure 155. Before picture of a deflector for way point 216.

Way Point 217-218 – Digger Log and Deflector



Figure 156. Before picture of a digger log and deflector structure for way point 217 and 218.

Way Point 219 – Deflector



Figure 157. Before picture of a deflector structure at way point 219.

Way Point 220-221 – Digger Log and Deflector



Figure 158. Digger log and deflector before picture at way point 220-221.

Way Point 222 – Hand Rock



Figure 159. Before picture of hand rock structure at way point 222.



Figure 160. After picture of hand rock structure at way point 222.