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Stream Surveys of the West (Upper) Moberly River Watershed (Summer, 1992)

H. Hohndorf, G. Hopcraft and T. Down
February 1993

PWFWCP Report No. 67

The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave. 3rd Floor, Prince George B.C. V2L 3H9

Website: *www.bchydro.bc.ca/environment/initiatives/pwcp/*

This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

Citation: H. Hohndorf, G. Hopcraft and T. Down. February 1993. Stream surveys of the west (Upper) Moberly River Watershed (Summer, 1992). Peace/Williston Fish and Wildlife Compensation Program, Report No. 67. 17pp plus appendices.

Author(s): Hagen Hohndorf[1], Grant Hopcraft[1] and Ted Down[1]
Address(es): [1] BC Environment, Fisheries Branch, Rm. 200 10003 110th Ave. Fort St. John, B.C. V1J 6M7

ABSTRACT

The West Moberly River (upstream of Moberly Lake) is a watershed for which minimal fisheries inventory had been collected despite the presence of an active logging program. Preliminary inventory and anecdotal information suggested a diverse but declining fish population. The purpose of this work was to survey, map and describe fish habitat and populations in the West Moberly watershed with the goal of providing a database useful for establishing informed management, habitat protection and enhancement prescriptions. This work was undertaken during the summer of 1992 under unusually dry conditions. The principle sport fish found included mountain whitefish, bull trout and rainbow trout. The latter two species showed some segregation within the watershed. Fish populations appear to be depressed (based on available habitat) but further work should be undertaken on mainstem habitats which may provide vital shelter during low flow periods.

ACKNOWLEDGEMENTS

Financial support for this project was primarily provided by the Peace/Williston Fisheries Compensation Program. The Biology Co-operative Programs of Simon Fraser University and the University of Victoria are acknowledged for their assistance in placing the senior and secondary author into this project. Ted Euchner and Randy Tancock (BC Environment, Fort St. John) provided technical support throughout the project. Drafting, data entry and organizational assistance was provided by Kerry Harvey.

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Introduction

West Moberly is the local name applied to that portion of the Moberly River upstream of Moberly Lake. The West Moberly River originates in the Rocky Mountains approximately 65 km west of Chetwynd. It parallels the Pine River to the south as it flows eastward into Moberly Lake at 55°49' N. latitude, 122°52' W. longitude (Figure 1). Moberly Lake is drained by the continuation of the Moberly River which flows northeast to it's confluence with the Peace River, just south of Fort St. John.

Anecdotal information suggested that the West Moberly supported fish populations typical to mountain streams in the Peace drainage and this was further supported by members of the West Moberly Indian Band who reported bull trout *(Salvelinus confluentus),* mountain whitefish *(Prosopium williamsoni),* Arctic grayling *(Thymallus arcticus)* and rainbow trout *(Oncorhynchus mykiss)* to be generally present in this river system (pers. com., Chief George Desjarlais).

The first formal inventory undertaken in this upper watershed appears to be stream surveys conducted by BC Environment, Fisheries Branch staff in 1991. Sites surveyed included Hullcross Creek, Highrise Creek, Shangweshi Creek, one unnamed creek, and the mainstream West Moberly itself. The results of these surveys are on file in the Fort St. John, Fisheries Branch office. An Amoco proposal to conduct exploratory drilling for petroleum in the Beattie Peaks area has resulted in an environmental impact assessment for the West Moberly watershed, and provides some concerns for fisheries but no hard inventory data.

The present study was funded by the Peace/Williston Fisheries Compensation Program. Although primarily focused on the Williston and Dinosaur Lake watersheds, this program does support enhancement activities in nearby watersheds as there are limited opportunities to effectively enhance fish in Dinosaur Lake itself. The present study is consistent with Compensation Program objectives in that critical fish habitat is identified both for protection and to identify possible enhancement opportunities.

Fish and fish habitat surveys of the West Moberly River system were conducted in the summer of 1992. The specific objectives of these surveys were to:

(1) Determine species composition for both traditional sport and non-sport species.

(2) Survey, categorize, and map fish habitat throughout the study area.

(3) Determine Arctic grayling, bull trout, and rainbow trout population characteristics, such as density, distribution, age structure, recruitment, and growth.

(4) Assess enhancement opportunities for sport fish and their habitat.

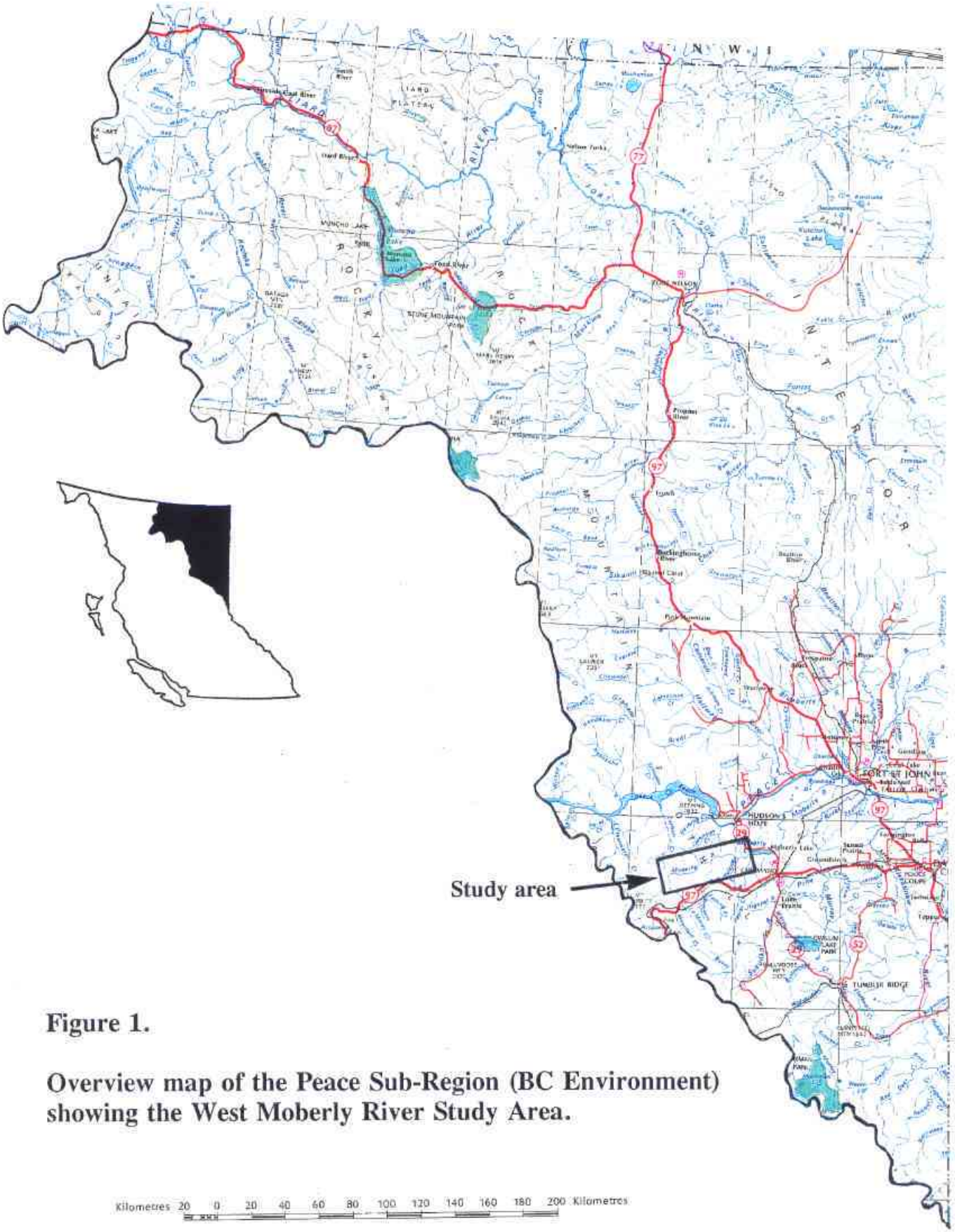


Figure 1.

Overview map of the Peace Sub-Region (BC Environment) showing the West Moberly River Study Area.

Materials and Methods

Although it would have been desirable to survey each tributary and each reach of the mainstem West Moberly, we were restricted to ground access for this project. As such, desirable survey locations were first identified on Department of Energy, Mines, and Resources 1:50,000 topographical maps. Accessibility of reaches was assessed using 1:50,000 aerial photomosaics in conjunction with maps provided by the West Fraser Forest Products 5-year development plan. Survey sites on tributaries were often located near the mouth, since such areas are typically of lower gradient and more likely to be frequented by fish than are the higher gradient areas typically found further upstream. Figure 2 provides the approximate locations of inventory sites in the West Moberly watershed. Precise sampling locations have been plotted onto 1:50,000 topographical maps (Appendix C[1]).

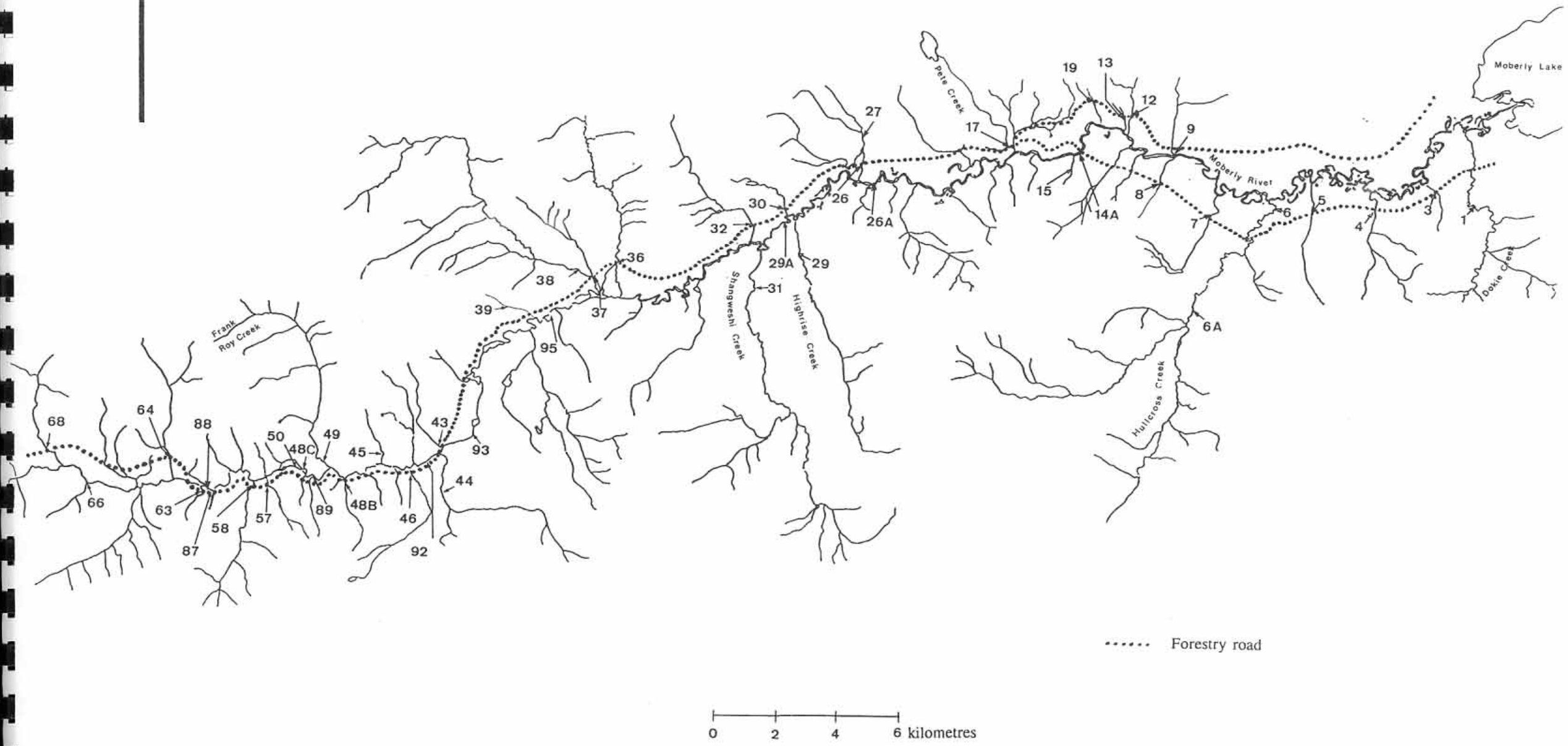
Surveys were conducted June 2 - June 19, and July 29 - August 6, 1992. Peak freshet flows usually occur in late May to mid-June in the Peace watershed, therefore the larger systems and mainstem were surveyed during the latter time interval. Several smaller systems surveyed in June were revisited in July/August to obtain comparative flows. Survey sites were accessed with a 4-wheel drive vehicle, although for the majority of the sites, 2-wheel drive would have sufficed.

Survey data was recorded on Department of Fisheries and Oceans (DFO)/Ministry of Environment (MOE) Stream Survey Forms (Appendix A), according to the Stream Survey Field Guide (DFO/MOE, 1989). Since surveys were based on sites, as opposed to reaches, any information pertaining to reaches on the survey forms were omitted.

Typically, a stream length of 100 m was surveyed for each site. Width and depth measurements were carried out using surveyor's tape and measuring sticks, respectively. About five measurements were taken for each of these parameters. Channel widths and wetted widths were recorded to the nearest 0.1 m. Depths were recorded to the nearest 1.0 cm. Gradients were measured with a clinometer. Parameters such as % pool-riffle-run, % debris, % bars, % unstable banks, and % total cover, were established using ground estimates, as was 'length surveyed'. The location of obstructions was recorded with reference to the survey site, as opposed to the distance of the obstruction from the mouth. Measurements of pH, dissolved oxygen, and conductivity were omitted due to time constraints. However, on occasion, comments were made regarding conductivity in streams where electroshocker output was noticed to be uncharacteristically low, indicating low conductivity. In cases where water clarity (as an estimate of turbidity) exceeded measurable depth, the measurement for the deepest pool was used. Widths and depths for the discharge measurements were recorded to the nearest 0.1 m, and nearest 1.0 cm, respectively. Velocities were determined using the floating object method, where a floating object was timed a known distance along the stream (usually 10 m).

Appendix 'C' is only available in the BC Environment, Fort St. John Library copy of this report.

Figure 2. West (Upper) Moberly River Survey Sites



In some cases, where streams were either too low in flow or too deep, a rudimentary survey was completed. These surveys included temperature measurements, photographs, and, on occasion, depths and widths. In other cases, only temperatures and descriptions of flow were recorded in a temperature log, but no stream survey forms were completed.

Fish were collected using either a Coffelt BP-1C gas-powered backpack electroshocker, or a Dirigo 850 battery-powered backpack electroshocker. Fish were usually collected within the survey site boundaries, and occasionally beyond, in instances where potential fish habitat lay just outside the boundaries. The electroshocking was carried out in a single-pass upstream fashion (without the use of stopnets at either end of the survey site) to determine fish species present. Outputs of 150 Watts and 100 V - 500 V were used with the gas-powered, and battery-powered shockers, respectively. The Dirigo shocker did not appear as effective at capturing fish as did the Coffelt model. As such, no reliable estimates of relative abundance (to compare tributaries) are possible. Captured fish were anaesthetized using a solution of MS-222 (Tricaine methane sulfonate), enumerated, measured (fork-length), and released. A small, representative sample of each catch was sacrificed, and preserved in 10% formalin (archived at Fisheries Branch, Fort St.John). Scale samples for age determination were taken from any char, trout, grayling or whitefish over 15 cm in fork-length.

Results and Discussion

A summary of the biophysical data collected for each survey site is presented in Table 1, while copies of the original stream survey forms, along with corresponding photographs are included in Appendix A. Table 2 provides temperature and flow observations for sites that were not formally surveyed.

A species distribution map for the study area is presented in Figure 3. Summaries of habitat characteristics for: sites where fish were found; sites with good sport fish habitat but where no fish were found; and sites where neither fish nor suitable sport fish habitat were found; are presented in Tables 3, 4, and 5, respectively. Appendix B provides specific data for all fish sampled.

Relatively few fish were captured over the course of this study (n=214) and the majority (>86%) of these were cottids (Appendix B). Sport species were captured in very low numbers including 12 bull trout, 7 rainbow trout and 7 mountain whitefish (together accounting for 12.2% of the catch). As such, no population age structure or growth statistics are available. Although it appears that fish populations are generally depressed in this watershed (relative to available habitat), both the level of effort and the unreliable functioning of the Dirigo electroshocker must be taken into account.

The summer of 1992 was exceptionally hot and dry, resulting in lower than average flows throughout the Peace River watershed. Many of the West Moberly tributaries had insufficient flows at the time of survey to support fish, however, these systems may be seasonally important or may flow year-round under normal climatic conditions. Generally, many of the West

Moberly tributaries appeared flashy, with high flow during June, and low or no flow by early August (see discharges, Tables 1 & 2). The more stable tributaries often exhibited significant beaver activity (dams) which may have resulted in the loss of certain habitat types and impeded fish passage but may also be providing critical holding areas during low flow periods. Given the unusually low water levels in many tributaries, it is possible that significant numbers of fish were taking refuge in the deeper, less accessible waters of the mainstem West Moberly.

As many of the surveys were conducted close to tributary mouths, stream gradients were generally lower than 3% (Table 1), and stream channels were typically unconfined. Water temperatures during early June were found to be generally low (< 12°) which may have an impact on productive capacity, even where habitat was suitable.

Juvenile rainbow trout were found at site 6A (Hullcross Cr.), and at the mouth of site 9 (an unnamed creek- see Figure 3), which concurs with the 1991 results identifying rainbow trout in at least 2 other tributaries of the West Moberly system (unpublished Fisheries Branch data, Fort St. John files). Substrate found at site 6A consisted mostly of gravels and larges. Cover was mainly provided by deep pools and cutbanks, with LOD and overstream vegetation being minor components.

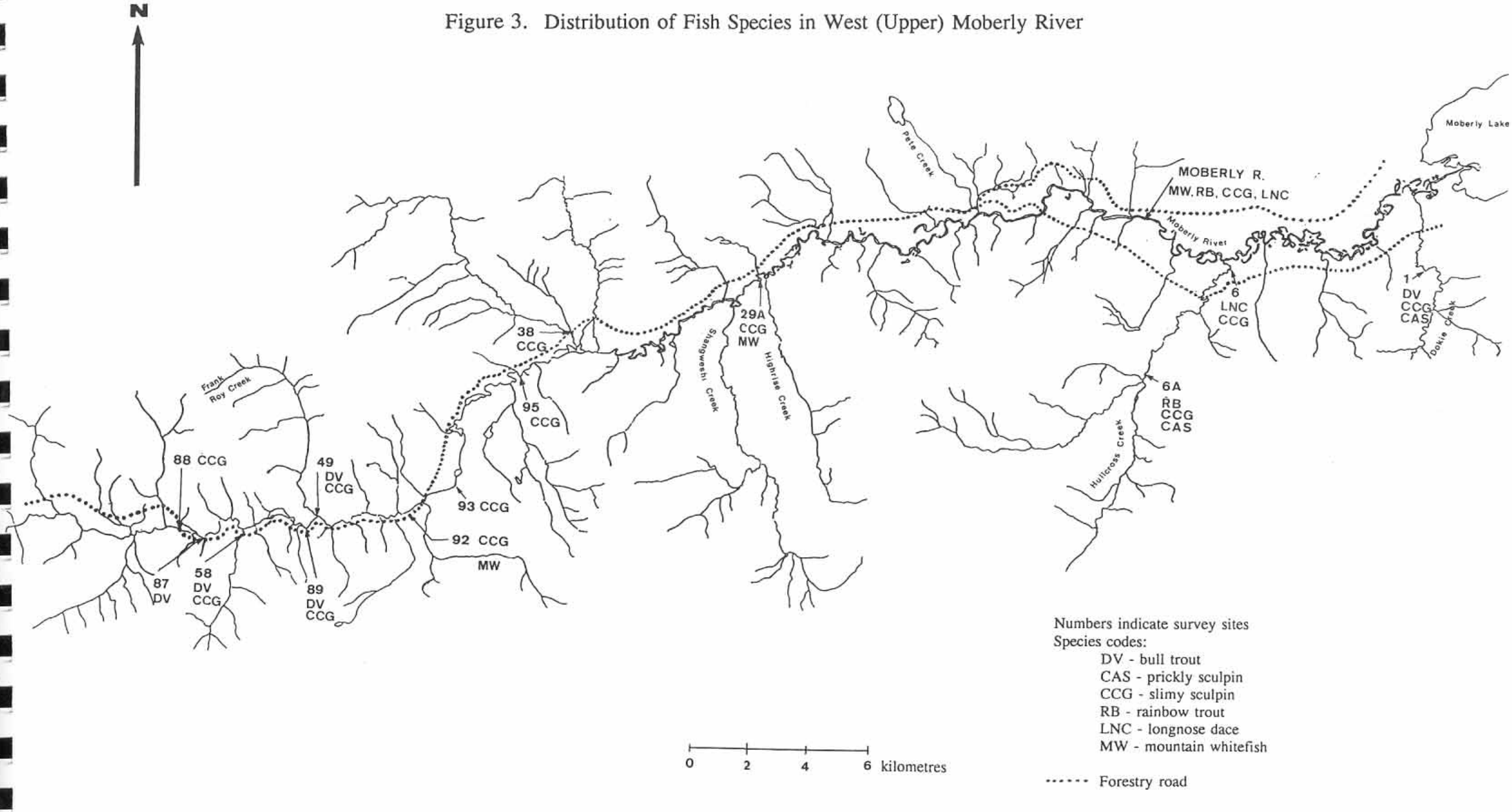
Bull trout were found at 5 locations (sites 1, 49, 58, 87, 89; Figure 3), with the majority of these fish being juveniles. Common habitat characteristics among these sites included larges as the major component of substrate, with deep pool and larges providing most of the cover. Temperature would appear to be only occasionally limiting for bull trout in this watershed as the maximum temperature recorded was 17°C., which is still within the tolerance range of this species. In most instances, temperatures were in the preferred range for bull trout (less than 15°C.). Woody debris may be very important to bull trout but was not found in abundance at many of the sites.

For the most part, bull trout were found in the upper half of the West Moberly, while rainbow trout were only found in the lower reaches (Figure 3). It is not clear whether this represents a true segregation or is the result of either sampling bias or the impact of previous angling/environmental pressures on the indigenous species. It is not uncommon to find bull trout occupying the higher gradient headwaters in systems such as the West Moberly as this species seems to be a specialist at exploiting cold, unproductive waters. The apparent segregation could be the result of inter-specific competition (although this seems unlikely given the apparent low densities of both species) or simply differences in habitat preference.

No Arctic grayling were found in the course of these surveys, even though apparently suitable grayling habitat was found at sites # 6A, 12, 44, 49, 58, 68, 88, & 89 (Figure 3; Tables 3 & 4). All of these sites were characterized by a prevalence of gravel and larges, however, deep pool habitat may be limiting at some sites.

Mountain whitefish were found at several sites throughout the West Moberly watershed (Figure 3) although never in any abundance. It is likely, however, that potentially significant adult

Figure 3. Distribution of Fish Species in West (Upper) Moberly River



Numbers indicate survey sites
Species codes:
- DV - bull trout
- CAS - prickly sculpin
- CCG - slimy sculpin
- RB - rainbow trout
- LNC - longnose dace
- MW - mountain whitefish

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populations of this and other species were present in the mainstem river, occupying deep pool and other such habitats that were inaccessible to the survey techniques employed in this study. Other techniques such as snorkel surveys could be employed to get a better estimate of sport fish species distribution and population characteristics in the West Moberly system.

Several sites exhibited apparently suitable fish habitat, yet no fish were found (Table 4). This may have been due to obstacles further downstream, such as low flows, logjams, or beaver dams. Habitat present at sites 44 and 68 appeared suitable for salmonids, as a significant amount of larges were present. Cover consisted of mainly deep pools and boulders. Site 12 also exhibited good salmonid habitat (majority of substrate consisted of gravels and larges, with a combination of deep pool, boulder and cutbank for cover), however, due to accessibility problems, no electroshocking was performed.

Sites with poor sport fish habitat are listed in Table 5. These sites exhibited a combination of beaver dams, low flows (lack of flow towards end of summer), lack of cover, high turbidity, lack of appropriate substrate (gravels, larges), or steep gradients, making these areas generally unsuitable for sport fish. The majority of these sites should probably not be considered further in terms of potential enhancements.

The majority of the obstructions and resulting fish habitat loss among the sites surveyed was due to beaver dams and logjams (Tables 4 & 5). However, not all of these obstructions are necessarily detrimental to fish populations. Further studies would be required to determine the nature of the actual impact at these sites. If access to critical stream habitat, or flooding of fluvial spawning areas is demonstrated as a limiting factor, dam removal could be considered as a possible habitat enhancement, assuming resident beavers could be controlled (and if it is desirable to do so).

Conclusions & Recommendations

This study has confirmed the presence of breeding populations of several important sport species (including bull trout, rainbow trout and mountain whitefish) in the West Moberly system. However, fish densities appear to be quite low and may be in some jeopardy. Arctic grayling, which were expected to be found in the watershed, were conspicuously absent although personal communication with members of the West Moberly Indian Band indicates that this species is still present in low numbers.

Surveys on both the mainstream West Moberly and its tributaries indicated that habitat requirements for all three species were met at many of these survey sites. Juvenile bull trout and juvenile rainbow trout were noted to occupy sites with different cover and substrate characteristics. Several sites displayed suitable sport fish habitat, yet no sport fish were found, possibly due to obstructions such as logjams, culverts, and beaver dams. These sites might be enhanced through the removal of these obstructions. Future surveys should employ fish census methods such as snorkel and angling surveys at sites where electroshocking is ineffective due to low conductivity or high flows.

Table 1: Summary of selected physical parameters for survey sites in the West Moberly watershed.

Site #	Name	Date Y/M/D	Comment	Temp. (°C)	Dischrg. (m^3/s)	Grad. (%)
1	Dokie	92/06/19	survey + EL	15	0.105	1.5
3	unnamed	92/06/16	dry			
4	unnamed	92/06/16	dry			
5	unnamed	92/06/16	temperature	14		
6	Hulcross	92/06/18	survey + EL	17	0.54	1
6A	Hulcross	92/06/18	survey + EL	11	0.58	1
7	unnamed	92/06/16	dry			
8	unnamed	92/06/17	dry			
9	unnamed	92/06/17	survey + EL	8	0.097*	2
10	unnamed	92/06/16	temperature	10		
11	unnamed	92/06/17	survey	12	0.03*	1
12	unnamed	92/06/16	survey	12	0.071	1
13	unnamed	92/06/16	temperature	11	*	
14	unnamed	92/06/16	dry			
14A	Moberly R.	92/07/29	survey + EL	15	3.0	0.5
15	unnamed	92/07/29	temperature	12		
17	Pete Ck.	92/06/12	dry			
26	unnamed	92/06/16	partial survey	9		
26A	Moberly R.	92/07/29	temperature	15		
27	unnamed	92/06/03	EL	11	*	
29	Highrise	92/06/12	survey + EL	5	0.34*	2
29A	Moberly R.	92/07/29	survey + EL	15	3.7	0.5
30	unnamed	92/06/04	temperature	12.4	*	
31	Shangweshi	92/06/04	EL	10	*	

Table 1: (con't.)

Site #	Name	Date Y/M/D	Comment	Temp. (°C)	Dischrg. (m^3/s)	Grad. (%)
32	unnamed	92/06/04	survey + EL	8	0.11*	4
33	unnamed	92/07/29	dripping			
36	unnamed	92/06/03	survey + EL	14	0.23*	2.5
37	unnamed	92/06/12	partial survey	5		
38	unnamed	92/06/03	survey + EL	6.5	0.93	1
39	unnamed	92/06/11	partial survey	6.5	*	
41	unnamed	92/06/11	partial survey	7	*	
43	unnamed	92/06/10	dry			
44	unnamed	92/06/19	survey + EL	10	0.28	2
45	unnamed	92/08/04	partial survey	8		
46	unnamed	92/06/11	survey	6.5	1.03*	2
47	unnamed	92/06/11	partial survey	5.5	*	
48B	unnamed	92/06/11	survey	5	0.66*	10
48C	unnamed	92/06/10	survey	6	0.06*	4
49	Frank Roy	92/08/04	survey + EL	17	0.13	3
50	unnamed	92/06/10	dry			
57	unnamed	92/06/10	dry			
58	unnamed	92/08/05	survey + EL	17	0.34	3
61	unnamed	92/06/10	dry			
63	unnamed	92/06/10	partial survey	7	*	12
64	unnamed	92/06/02	survey	6	4.62*	6
66	unnamed	92/06/02	survey + EL	5	0.59*	0.5
68	unnamed	92/08/06	survey + EL	15	0.23	5
86	Moberly R.	92/08/06	dry			
87	Moberly R.	92/08/04	partial survey	15		

Table 1: (con't.)

Site#	Name	Date Y/M/D	Comment	Temp. (°C)	Dischrg. (m^3/s)	Grad. (%)
88	Moberly R.	92/08/06	survey + EL	10	0.46	0.5
89	Moberly R.	92/08/05	survey + EL	10	1.4	0.5
92	Moberly R.	92/07/30	survey + EL+AG	12	2.79	1
93	Moberly R.	92/07/30	survey + EL	11	2.63	1
95	Moberly R.	92/07/29	survey + EL	16	2.2	0.5

Note: **survey** - FHIIP stream survey form completed (Appendix A)
partial survey - FHIIP stream survey form incomplete (Appendix A)
temperature - temperature and qualitative flow observations only (Table 2)
EL - electrofishing survey
AG - angling
* - water course dry as of 92/08/12.

Table 2: Temperature (Comments on Unsurveyed Sites).

Site #	Name	Date Y/M/D	Temp. (°C)	Comment
5	unnamed	92/06/16	14	small trickle (large quantities of algae)
10	unnamed	92/06/16	10	small trickle
13	unnamed	92/06/16	11	small trickle
15	unnamed	92/07/29	12	stagnant pools @ mouth
26A	Moberly	92/07/29	15	too deep to survey + EL
30	unnamed	92/06/04	12.4	trickle
31	Shangweshi	92/06/04	10	medium flow; survey completed '91
31	Shangweshi	92/07/29	15	pools, trickle + underground
44	unnamed	92/06/11	6.5	survey + EL completed 92/06/19

Note: No stream survey forms for these sites.

Table 3: Habitat Summary of Sites where Fish were Found.

Site#	Name	Species	Temp	Pool/ Riffle/ Run (%)	Fines/ Gravels/ Larges (%)	Cover (%)	Ave. Max. Riffle/ Pool Depth (cm)
1	Dokie	DV(2) CCG(18) CAS(46)	15	20/45/35	10/30/60	TC20 (DP45/ B20/CB15)	13/41
6	Hullcross	LNC(2) CCG(15)	17	40/15/45	30/45/25	TC60 (DP80/LOD20)	18/92
6A	Hullcross	RB(6) CCG(10) CAS(2)	11	35/40/25	5/50/45	TC30 (DP40/CB30/ LOD15/OV15)	18/76
9	unnamed (mouth)	MW(5) RB(1) CCG(l) LNC(l)	8	40/50/10	15/60/25	TC35 (DP60/ LOD20/OV15)	8/42
29A	Moberly	MW(4) CCG(l)	15	35/20/45	35/30/35	TC40 (DP45/ LOD30/CB15)	36/144
38	unnamed	CCG(19)	6.5	20/40/40	15/50/35	TC40 (DP50/ LOD25/CB25)	38/71
49	Frank Roy	DV(6) CCG(9)	17	10/75/15	5/15/80	TC15 (DP35/B55)	12/32
58	unnamed	DV(3) CCG(12)	17	10/55/35	5/15/80	TC20 (DP30/ B50/LOD10)	21/40

Table 3: (con't.)

Site #	Name	Species	Temp (^0C)	Pool/ Riffle/ Run (%)	Fines/ Gravels/ Larges (%)	Coyer (%)	Ave. Max. Riffle/ Pool Depth (cm)
87	Moberly	DV(5)	15		5/25/60		
88	Moberly	CCG(l)	10	15/40/45	10/30/55	TC25 (DP45/ B25/OV10)	18/60
89	Moberly	DV(1) CCG(25)	10	20/30/50	10/35/55	TC25 (DP55/B35)	25/74
92	Moberly	CCG(7) MW(2)	12	15/30/55	15/15/65	TC25 (DP35/ OV25/CB20)	28/69
93	Moberly	CCG(16)	11	10/30/60	10/30/60	TC20 (DP30/ LOD20/CB25/OV15/B 10)	21/71
95	Moberly	CCG(6)	16	10/70/20	25/45/30	TC40 (DP50/ LOD35/CB15)	23/86

Species: CAS=prickly sculpin, CCG=slimy sculpin, DV=bull trout, LNC=longnose dace, MW = mountain whitefish, RB=rainbow trout (number of specimens found).

Cover: TC = total cover, DP = deep pool, LOD = large organic debris, B=boulder, OV = overstream vegetation, CB=cutbank

Note: See Stream Survey Field Guide (1989) for details describing subject columns.

Table 4: Summary of Sites with Adequate Sport Fish Habitat but No Fish Found.

Site #	Name	Temp (^{0}C)	Pool/ Riffle/ Run (%)	Fines/ Gravels/ Larges (%)	Cover	Ave. Max. : Riffle/ Pool Depth (cm)	Possible Reasons For Fish Absence	Species Expected To Be Found
12	unnamed	12	25/40/35	5/35/60	TC20 (DP60/ B20/ CB10)	9/19	possibility of logjams and chutes downstream	Juvenile RB
14A	Moberly	15	15/10/75	20/20/60	TC30 (DP70/ LOD 10)	23/101	elecroshocker difficulties in large water bodies	AG DV
44	unnamed	10	20/60/20	T/25/75	TC20 (DP50/ B35/ OV 15)	22/37	unknown	Juvenile DV AG
68	unnamed	15	10/80/10	T/25/65	TC20 (DP25/ B60)	18/42	possible velocity barrier downstream	Juvenile DV AG

Species: AG=Arctic grayling, DV=bull trout, RB=rainbow trout

Cover: TC = total cover, DP = deep pool, LOD = large organic debris, B = boulder, OV=overstream vegetation, CB = cutbank

Note: see Stream Survey Field Guide (1989) for details describing subject columns.

Table 5: Summary of Sites Surveyed with Poor Sport Fish Habitat.

Site #	Name	Temp (°C)	Pool/ Riffle/ Run (%)	Fines/ Gravels/ Larges (%)	Dp.Pool/ LOD/ Boulders/ Over. Veg./ Cutbank (%)	Ave. Max. Riffle/ Pool Depth (cm)	Comment (problems)
11	unnamed	12	15/60/25	15/55/40	TC20 (DP55/ LOD20/OV20)	6/16	dry braids downstream
26	unnamed	9					slow, shallow + muddy
29	Highrise	5	15/40/45	5/25/70	TC20 (DP40/ B25/CB20)	20/42	dry (92/08/12)
32	unnamed	8	0/70/30	5/25/70	TC 10 (DP45/B45)	15/21	no pool, low cover, dry (92/08/12)
36	unnamed	14	5/60/35	T/25/75	TC 15 (LOD85)	21/28	dry (92/08/12)
37	unnamed	5					multiple, impenetrable beaver dams
39	unnamed	6.5				*-/62*	impenetrable beaver dams, dry (92/08/12)
41	unnamed	7					becomes marsh, dry(92/08/12)
46	unnamed	6.5	10/55/35	5/20/75	TC 15 (DP45/ LOD40/OV10)	26/44	dry (92/08/12)
45	unnamed	8					high fines, highly braided with low flow

Table 5: (con't.)

Site #	Name	Temp (°C)	Pool/ Riffle/ Run (%)	Fines/ Gravels/ Larges (%)	Dp.Pool/ LOD/ Boulders/ Over. Veg./ Cutbank (%)	Ave. Max. Riffle/ Pool Depth (cm)	Comment (problems)
47	unnamed	5.5				7/22	high fines, low flow, dry (92/08/12)
48B	unnamed	5	5/90/5	T/10/90	TC20 (DP10/ LOD40/B45)	19/35	high gradient + riffle, dry (92/08/12)
48C	unnamed	6	10/15/75	85/15/0	TC65 (IV10/ OV40/CB40)	12/22	beaver dam, high fines, low flow, dry (92/08/12)
63	unnamed	7				10/26	shallow, high gradient, dry (92/08/12)
64	unnamed	6	0/100/0	T/5/95	TC<5 (B100)	51/-	no pool, low cover, dry (92/08/12)
66	unnamed	5	5/15/80	65/35/	TC40 (DP45/ LOD35/CB10)	47/69	dry (92/08/12)

Cover: TC=total cover, DP = deep pool, LOD = large organic debris, B=boulder, IV = instream vegetation, OV=overstream vegetation, CB = cutbank

Note: See Stream Survey Field Guide (1989) for details describing subject column.

APPENDIX A

West Moberly River Stream Survey Forms
with
Corresponding Photographs

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Dokie Creek (local)	Access	V2
Watershed Code	230-744816095	Length (km)	
Location	Downstream of Beaverdam (~200m downstream of roadcrossing)	Map	93 P/13
U.T.M.	1 - 707 - 6189	Measure (m)	100 GE
Date Y M D	92 06 19	Time	13:10
Agency	FJ	Crew	GH / HH /
Photos	H - 2 - 3	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	10.7	T	11.3, 10.2, 12.3, 8.8, 11.1
	Ave.Wet Width (m)	4.6	T	5.2, 5.1, 6.2, 3.7, 2.7,
	Ave.Max.Riffle Depth (cm)	15	MS	18, 10, 11, 11, 15
	Ave.Max.Pool Depth (cm)	40	MS	69, 40, 29, 37, 28
	Gradient %	1.5	CL	
	% Pool 20, Riffle 45, Run 25, Other		GE	
	Side Chan. 5		GE	
	Debris: Area ☑ 5-15		GE	
	Debris: Stable %	5	GE	
	COVER: Total %	20	GE	
	Comp. sum 100%: Dp Pool 45, L.O.D. 10, Boulder 20, In Veg T, Over Veg 10, Cutbank 15			
	Crown Closure %	5		Aspect W

OBSTRUCTIONS

C	Ht	Type	Loc'n
2	2.5	BD	

BED MATERIAL

		%
Fines	clay, silt, sand (<2mm)	10
Gravel	small (2-16mm)	10
	large (16-64mm)	20
Cobble	sm.cobble (64-128mm)	30
	lge. cobble (128-256mm)	20
	boulder (>256mm)	10
	Bedrock (B)	–
D_{90} (cm) 42	Compaction	L (M) H

BANKS

Height (m)	.5
% Unstable	20
Texture	F (G) (L) R
Confinement	EN CO FC OC (UC) N/A
Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A
Stage	Dry L (M) H Flood
Flood Signs Ht (m)	.67
Braided	(Y) N
Bars (%)	10
pH	
O_2 (ppm)	
Water Temp. (°C)	15
Turb. (cm)	40
Cond. (25°C)	

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	5.6	T	5, 6.1, 5.9, 5.9, 5.3
Mean Depth (m)	.1	MS	.15, 0.6, 0.08, 0.09, .12
Mean Velocity (m/s)	.257	10m F	4/5/10, 4.3s/10, 3.9s/10, 4.2s/10, 3.2/10
Discharge (m^3/s)	.105	[illegible] F	

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

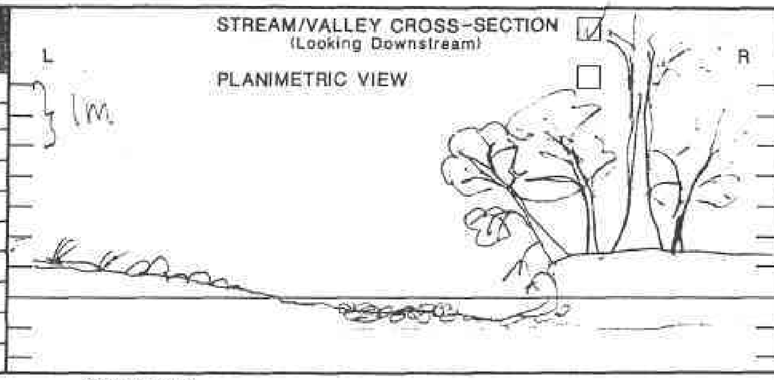
REVISED DEC. 87 SS1 87

FISH SUMMARY

C	Species	No.	Size Range (mm)	[illegible]	Use	[illegible]
	DV	2	114 - 254	J + A	R	EL
	CCG	18	31 - 89	J + A	R	EL
	CAS	46	31 - 86	J + A	R	EL

STREAM/VALLEY CROSS-SECTION (Looking Downstream) ☑

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 Algae cover rocks but do not provide much cover for fish

2 Beaverdam ~200m downstream of bridge

3 May be braided during periods of higher flow

4 Juvenile sculpins difficult to distinguish as prickly or slimy

photos H - 2 - beaver dam @ top end; - 3 - log jam @ lower end

NOTE: pictures taken 92/08/12; flow is considerably less.

Edited by:

Date Y M D:

Site 1; Dokie Crk. (Beaver dam *at top* end of reach)

Site 1; Dokie Crk. (Logjam *at* lower end of site)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Hullcross	(local)	Access V2	Method
Watershed Code	Reach No.	Length(km)	
Location ~ 300m upstream from small farm	Maps 93-O/16	Site No. 6A	Distance(m) 100 GE
U.T.M. 10.5622.61794	Fish Card (Y) N	C	Field [x] Hist [ ]
Date Y M D 92 06 18 Time 10:35	Agency FS Crew GH/HH/	Photos —	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	12.5	T	8.9, 12.3, [illegible], 21.9, 10.8
	Ave.Wet.Width (m)	6.5[illegible]	T	8.6, 7.5, 4.8, 7.5, 4.2
	Ave.Max.Riffle Depth (cm)	18[illegible]	MS	23, 28, 16, 11, 13
	Ave.Max.Pool Depth (cm)	76[illegible]	MS	125, 43, 45, 66, 103
	Gradient %		CL	
	% Pool 35 Riffle 40 Run 25 Other		GE	
7	Side Chan. 0		GE	
	Beds 30		GE	
	Stable %	25	GE	
	COVER: Total %	30	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	40	15	0	0	15	30

Crown Closure % 5 | Aspect N

OBSTRUCTIONS

C		Type	Loc'n
1	.4	BD	

C	BED MATERIAL		%
	Fines	clay, silt, sand (<2mm)	5
	Gravel	small (2-16mm)	15
		large (16-64mm)	35
		sm.cobble (64-128mm)	40
		lge.cobble (128-256mm)	5
		boulder (>256mm)	T
	Bedrock (R)		—
	D_{90} (cm) 14	Compaction (L) M H	

C	BANKS					
	Height(m) .77	%Unstable 35				
	Texture (F G) L R					
	Confinement	EN	CO	FC	OC	(UC) N/A
	Valley: Channel Ratio	0-2	2-5	5-10	(10+)	N/A
	Stage	Dry	(L M)	H	Flood	
3	Flood Signs Ht(m) .6	Braided	Y	(N)		
	Bars (%) 5	pH		O_2(ppm)		
	Water Temp.(°C) 11	Turb.(cm) 103	Cond.(25°C)			

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	5.5	T	5.5, 5.6, 4.4, 5.4, 6.5
Mean Depth (m)	0.3	MS	.56, .43, .18, .17, .16
Mean Velocity (m/s)	0.47	10m F	285/10, 225/10, 184/10, 205/10, 184/10
Discharge (m³/s)	0.58	—	

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

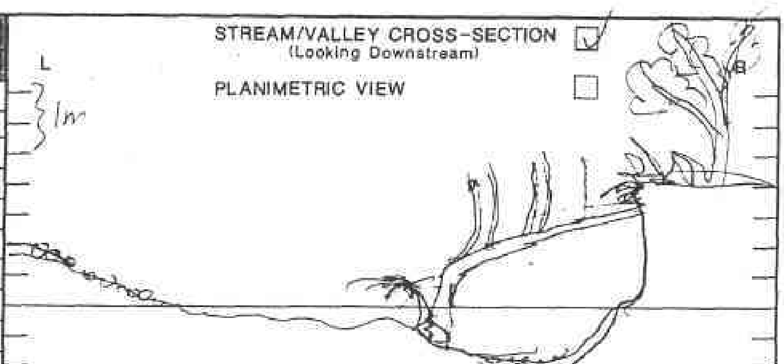
REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Stage	Use	Method
1	RB	6	89-103	J	R	EL
	CCG	10	51-108	J,A	R	EL
	CAS	2	74-101	A	R	EL

STREAM/VALLEY CROSS-SECTION (Looking Downstream) [x]

PLANIMETRIC VIEW [ ]



COMMENTS

Channel Stability [ ], Debris [ ], Management Concerns [ ], Obstructions [ ], Riparian Zone [ ], Valley Wall Processes [ ], Etc.

1. old beaver dam at upstream end of site → Broken & double on a 1.5 to 2m
2. some side channels downstream of site (some evidence of dry side channels w/in site).
3. some minor braiding downstream of site.
4. some fish were taken (preserved) from this site.

Edited by:

Date Y M D:

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Hullcross Creek	(local)	Access:	Method
Watershed Code		Reach No.	Length(km)
Location	about 500 meters from mouth (access by old cart track)	Map# 93-P/13	Site No. 6	Lthsurv(m) 75	GE
U.T.M.	10.5642.6188	Fish Card: (Y) N	C 4	Field ✓	Hist
Date Y M D	92 06 18	Time 14:30	Agency FJ	Crew GH / AH /	Photos	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	18.4	T	23, 15.8, 19, 18, 16.3
	Ave.Wet.Width (m)	8.3	T	7.5, 8.6, 10.9, 6.9, 7.7
	Ave.Max.Riffle Depth (cm)	18	MS	30, 14, 11, 12, 23
	Ave.Max.Pool Depth (cm)	92	MS	63, 101, 110, 118, 67
	Gradient %	1°	CL	
	% Pool 40 / Riffle 15 / Run 45 / Other		GE	
	Side Channels: 0 ☑ 5-10 ☐ 10-40 ☐ >40 ☐		GE	
	15: 0 ☐ 0-5 ☐ 5-15 ☐ 15+ ☐		GE	
	Stable %	30 (1)	GE	
	COVER: Total %	60	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	80	20	0	T	0	0

Crown Closure %: 0 | Aspect: N

C	BED MATERIAL		%
	Fines	clay, silt, sand (<2mm)	70
	Gravels	small (2-16mm)	15
		large (16-64mm)	35
	Larges	sm.cobble (64-128mm)	25
		lge.cobble (128-256mm)	T
		boulder (>256mm)	T
	Bedrock (R)		

D_{90}(cm): 11 | Compaction: L (M) H

C	BANKS			
(3)	Height(m) 55	% Unstable 55		
	Texture	(F G) L R		
	Confinement	EN CO FC OC (UC) N/A		
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A		
	Stage	Dry (L → M) H Flood		
	Flood Signs Ht(m)	97	Braided	Y (N)
	Bars (%)	0	pH	O_2(ppm)
	Water Temp.(°C)	17	Turb.(cm) n/00	Cond.(25°C)

OBSTRUCTIONS			
C	Ht(m)	Type	Loc'n
(2)		BV	

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	8.2	T	10.3, 8.3, 7.2, 7.9, 7.1
Mean Depth (m)	0.25	MS	45, 39, 52, 15, 19
Mean Velocity (m/s)	0.35	F (5m)	28, 27, 33, 28, 27
Discharge (m^3/s)	0.54		

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

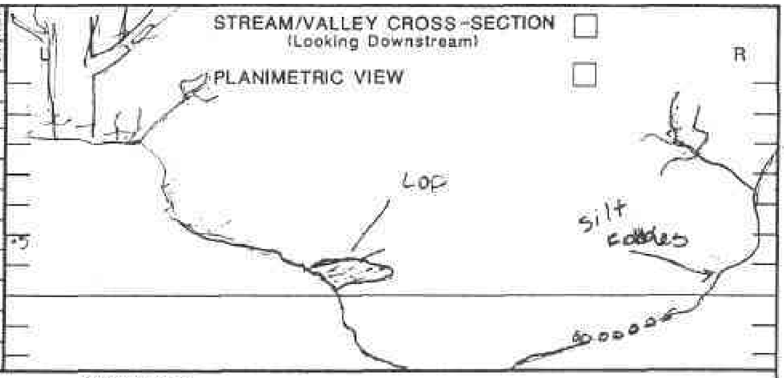
REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range(mm)	Life Phase	Use	Method/Ref.
	LNC	2	100 - 113	J - A	R	EL
	CCG	15	36 - 70	J - A	R	EL

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 (1) most debris is lwy
2 (2) old broken beaver dam → water is free flowing through (not obstruction @ present)
3 (3) fines covering most of gravels + cobbles → thin layer (algae etc.)
4 4 Electroshocked EO

Edited by:

Date Y M D:

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) unnamed	(local)	Access	V2	Method
Watershed Code 230-7441-8705	Reach No.		Length(km)	
Location From culvert to 30 meters down stream	Map# 93-0/16	Site No. 9	Lt/Survey(m) 30 ①	
U.T.M. 10-5609-6183R	Fish Card (Y) N	C	Field ☑ Hist. ☐	
Date Y M D 92 06 17	Time 11:20	Agency FT	Crew KA/GH /	Photos #2-17-18,49 Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	5.3	T	6.6 4.4, 4.8 5.6 4.9
	Ave.Wet.Width (m)	3.3	T	5.1, .8, 2.6, 4.0, 3.9
	Ave.Max.Riffle Depth (cm)	8	ms	9, 7, 7, 7, 8
	Ave.Max.Pool Depth (cm)	42	ms	65, 35, 37, 31, 41
	Gradient %	2	CL	
	% Pool 40 Riffle 50 Run	0 Other	GE	
	Side Chan.% 0☐ 0-10☐ 10-40☑ >40☐		GE	
	Debris Area% 0☐ 0-5☐ 5-15☑ >15☐		GE	
	Debris Stable %	15	GE	
	COVER: Total %	35	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	60	20	0	0	15	5

Crown Closure %	40	Aspect	SW ②

OBSTRUCTIONS C	Ht(m)	Type	Loc'n
3	.15	CV	
4		X	
5		BD	

C	BED MATERIAL		%
	Fines	clay,silt,sand (<2mm)	
	Gravels	small (2-16mm)	
	Gravels	large (16-64mm)	
	Larges	sm.cobble (64-128mm)	
	Larges	lge.cobble (128-256mm)	
	Larges	boulder (>256mm)	
	Bedrock (R)		
	D_{90}(cm) 14	Compaction	L (M) H

C	BANKS			
	Height(m) .20	%Unstable 20		
	Texture	F (G) L R		
	Confinement	EN CO FC OC (UC) N/A		
	Valley: Channel Ratio	0-2 2-5 5-10 (10>) N/A		
	Stage	Dry (L → M) H Flood		
	Flood Signs Ht(m) .77	Braided	(Y) N	
	Bars (%) 15 ⑥	pH	O_2(ppm)	
	Water Temp.(°C) 8	Turb.(cm) 65	Cond.(25°C)	

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	3.5	T	4, 3.5, 2.5, 3.9
Mean Depth (m)	.10	ms	.07, .09, .1, .11, .15
Mean Velocity (m/s)	.37	F	12, 12, 18, 15, 13
Discharge (m^3/s)	.097		

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87

FISH SUMMARY

C	Species	No.	Size Range(mm)	Life Phase	Use	Method/Ref
	MW	5	109 - 278	J + A	R	ES
	RB	1	120	J/A	R	ES
	CCG	1	88	J/A	R	ES
	LNC		87	J/A	R	ES

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

L R

PLANIMETRIC VIEW ☐

COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

① From culvert to first obstruction (old log jam)
② Aspect SW @ site but changes just below to E
③ Culvert @ top of site has small drop
④ log jam @ bottom of site → old + falling apart rotting
⑤ multiple beaver dams further down stream
⑥ old bar now turned into braid → bar has vegetation on

photos #2-17 looking downstream near culvert
-18 log jam @ downstream end
-19 mouth of creek where all fish caught

- mouth is v. slow moving → most fish caught at culvert - m.b.
no fish in site

Edited by:

Date Y M D

Site 9; unnamed (Looking downstream from culvert

Site 9; unnamed (Logjam at downstream end)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	unnamed	(local)	Access: V2 / Method
Watershed Code	23 0274 4 3E 3	Reach No.	Length (km)
Location	50 meters downstream from road	Map# 93 O/16	Site No. 11 / Ent.Surv.(m) 50 / GE
		U.T.M. 10-5592-61834	Fish Card: Y (N) / C / Field / Hist.
Date Y M D: 92 06 17	Time 13:45	Agency F / Crew / Photos 2-20-21	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	4.5	T	3.7, 4.5, 4.4, 3.8, 6.6
	Ave.Wet.Width (m)	1.7	T	1.7, 1.6, 2.1, 1.7, 1.6
	Ave.Max.Riffle Depth (cm)	6.2	ms	4 7 8 6 6
	Ave.Max.Pool Depth (cm)	16.4	ms	12, 9, 18, 24, 19
	Gradient %	1	GE	
	% Pool 15, Riffle 60, Run 25, Other		GE	
	Side Chan.% 0 ☑0-10 ☐10-40 ☐>40 ☐		GE	
	Debris Area% 0 ☐0-5 ☐5-15 ☑>15 ☐		GE	
	Debris Stable %	5	GE	
	COVER: Total %	20	GE	
	Comp. sum 100%: Dp Pool 65, L.O.D. 20, Boulder /, In Veg T, Over Veg 20, Cutbank 5			
	Crown Closure %	30	Aspect	N

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n
	.5	X	
1	.5	CV	
2			

BED MATERIAL

C			%
	Fines	clay, silt, sand (<2mm)	15
	Gravels	small (2-16mm)	20
	Gravels	large (16-64mm)	35
	Larges	sm.cobble (64-128mm)	30
	Larges	lge.cobble (128-256mm)	10
		boulder (>256mm)	
	Bedrock (R)		
	D_{90}(cm) 18	Compaction L (M) H	

BANKS

C		
	Height(m) 1/2	%Unstable 15
	Texture	(F) (G) L R
	Confinement	EN CO FC OC (UC) N/A
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A
	Stage	Dry (L) M H Flood
	Flood Signs Ht(m) .26	Braided (Y) N
	Bars (%) (3)	pH / O_2(ppm)
	Water Temp.(°C) 12	Turb.(cm) 24 / Cond.(25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	1.5	T	1.2, 1.3, 1.3, 1.4, 2.4
Mean Depth (m)	.10	ms	.10, .12, .17, .06, .06
Mean Velocity (m/s)	.27	F	22, 18, 17, 18, 19
Discharge (m^3/s)	.03		

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

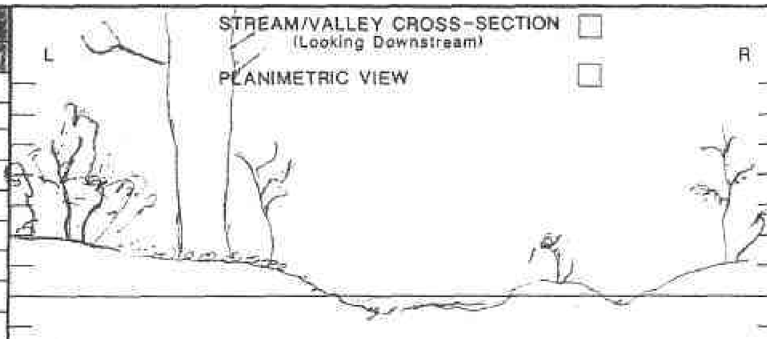
FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Eff.
	stream too small to ES					

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R



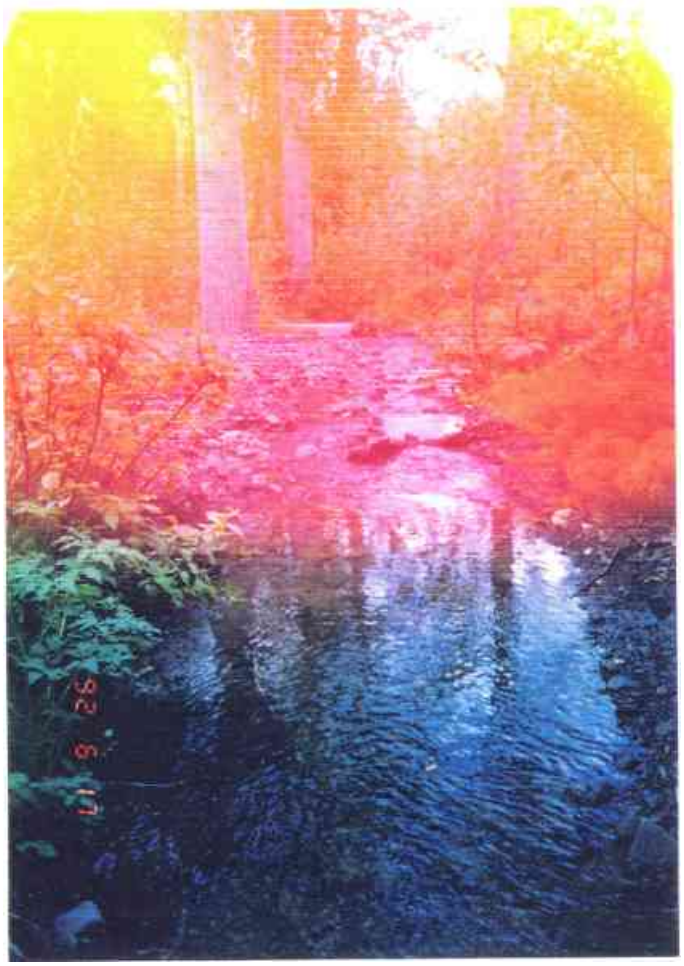
COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

(1) culvert upstream by road
(2) stream braids downstream + each braid dries up
(3) exposed bed material below reach

photos 2-20 - looking downstream @ survey site
21 - looking @ log jam on upstream end

Edited by:
Date Y M D



Site 11; unnamed (Looking downstream at survey site)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Unnamed creek	(local)		Access	V2	Method
Watershed Code 230 7448 71 5		Reach No.		Length (km)	
Location 10 m upstream from mouth	Map# 92 C/16	Site No. 12		Lth.surv.(m) 25	GE
	U.T.M. 10.5598.61845	Fish Card	Y (N)	C	Field ☑ Hist. ☐
Date Y M D 91 2 01 6 16	Time 15 13	Agency 57	Crew GH AH /	Photos #12 - 14,15	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	4.2	T	6.9, 3.2, 3.3, 4.3, 3.3
	Ave.Wet.Width (m)	2.2	T	2.7, 1.7, 1.4, 2.3, 2.7
	Ave.Max.Riffle Depth (cm)	8.6	M3	10, 7, 7, 9, 10
	Ave.Max.Pool Depth (cm)	19	M3	23, 20, 16, 21, 17
	Gradient %	1	CL	
	% Pool 25 Riffle 40 Run 35 Other		GE	
1	Side Chan.% 10	0 ☐ 0-30 ☐ 10-40 ☐ >40 ☐	GE	
2	Debris Area%	0 ☐ 0-5 ☑ 5-15 ☐ >15 ☐	GE	
	Debris Stable %	15	GE	
	COVER: Total %	20	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	60	5	20	0	5	10

Crown Closure % 10 | C | Aspect S

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n
3			

C	BED MATERIAL		%	
	Fines	clay, silt, sand (<2mm)	5	5
	Gravels	small (2-16mm)	10	15
	Gravels	large (16-64mm)	25	25
	Larges	sm.cobble (64-128mm)	40	40
	Larges	lge.cobble (128-256mm)	15	15
	Larges	boulder (>256mm)	5	5
	Bedrock (R)		—	—
	D_{90} (cm) 25	C	Compaction	L (M) H

C	BANKS			
	Height (m) .36	%Unstable 15		
	Texture	F (G) (C) R		
	Confinement	EN CO FC OC (UC) N/A		
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A		
	Stage	Dry (L) → (M) H Flood		
4	Flood Signs Ht(m) 0.25	Braided (Y) N		
	Bars (%) 0	pH	O_2 (ppm)	
	Water Temp.(°C) 12	Turb.(cm) 21	Cond.(25°C)	

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	2.5	T	2.0, 2.2, 2.4, 3.0, 2.9
Mean Depth (m)	0.09	M5	.10, .10, .07, .07, 0.09
Mean Velocity (m/s)	0.42	(5m) F	.175, .125, .05, .134, .95
Discharge (m³/s)	0.071		

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

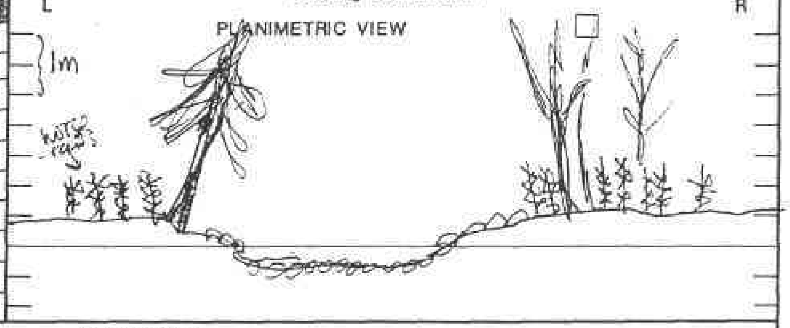
FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method (EF)
			NO EL		done	

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

L R

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 Some side channels upstream & downstream of survey site
2 Some logjams up & downstream of site.
3 Some minor logjams + chutes downstream of ~~[illegible]~~ site
4 Minor braids (triples) + dry braids
#2-14, 15 → 14: Looking downstream @ mouth where creek joins braid of Morely
15: looking downstream at survey site
5 NOTE: Easier road access sketched in on map 93 0-16!
~~- No Fish habitat.~~

Edited by:

Date Y M D:

Site **12;** unnamed (Looking downstream from survey site)

Site 12; unnamed (Mouth where creek joins braid of Moberly)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Moberly	(local)	Access	U2	Method
Watershed Code	Reach No.	Length(km)		
Location starting 30 m upstream of bridge	Maps 93-O/16	Site No. 14A	Distance(m) 100	GE
	U.T.M. 10.5583.61839	Fish Card Y (N)	C	Field / Hist
Date Y M D 91 2 05 29	Time 3:15	Agency FS	Crew HU/GLL	Photos H-4-5	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width(m)	37.8	T	40.2, 46.9, 37.1, 30.?, 28.9
	Ave.Wet.Width(m)	20.0	T	23.2, 23.2, 19.7, 18.3, 15.8
	Ave.Max.Riffle Depth (cm)	23	MC	21, 22, 18, 34, 18
	Ave.Max.Pool Depth (cm)	101	MS	128, 124, 75, 104, 73
	Gradient %	.5	CL	
	% Pool 15, Riffle 10, Run 75, Other		GE	
2	Side Chan.% 0 / 0-20 ☒ / 20-40 / >40		GE	
	Debris Area% 0 / 0-5 ☒ / 5-15 / >15		GE	
	Debris Stable %	15	GE	
	COVER: Total %	30	GE	
3	Comp. sum 100%: Dp Pool 70, L.O.D. 10, Boulder 5, In Veg 10, Over Veg 5, Cutbank		T	
	Crown Closure %	T		Aspect E

C	BED MATERIAL	%
	Fines: clay, silt, sand (<2mm)	
	Gravels: small (2-16mm)	
	Gravels: large (16-64mm)	
	Cobbles: sm.cobble (64-128mm)	
	Cobbles: lge cobble (128-256mm)	
	boulder (>256mm)	
	Bedrock (R)	
	D_{90}(cm) 26	Compaction L (M) H

C	BANKS	
	Height(m) 4?	%Unstable 20
	Texture (F) G (C) R	
	Confinement	EN CO FC (OC) UC N/A
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A
	Flow	Dry L (M) H Flood
1	Flood Signs Ht(m) .62	Braided Y (N)
	Bars (%) 15	pH	O_2(ppm)
	Water Temp.(°C) 15	Turb.(cm)	Cond.(25°C)

OBSTRUCTIONS: C | Ht(m) | Type | Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	15.5	T	15.3, 15.2, 15, 15.8, 15.7
Mean Depth (m)	0.89	MS	118, 89, 118, 85, 80, 37
Mean Velocity (m/s)	0.29	F(10m)	35, 30, 29, 32, 44
Discharge (m^3/s)	3.01	F	

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

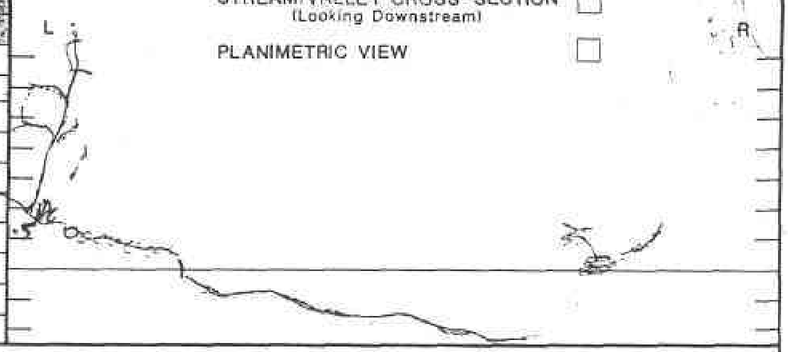
REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref.
	ES but no fish caught					

STREAM/VALLEY CROSS-SECTION (Looking Downstream) ☐

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

photos H-5 → looking towards upstream end
4 → " " downstream " " bridge.

1 slight braid just upstream of survey site
2 side channel " " "

3 most deep pools are actually slow deep runs

Edited by:

Date Y M D:

Site 14A; Moberly R. (Looking upstream to top end of site)

Site 14A; Moberly R. (Looking downstream at site to bridge)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) unnamed (local) | Access | | Method

Watershed Code 2 3 0 7 4 4 8 7 7 | Reach No. | Length(km)

Location north ~300 m upstream from power line crossing on Meberly. | Map# | Site No. 26 | Lth surv.(m)

U.T.M. 16 5512 61829 | Fish Card Y (N) C | Field ☐ Hist. ☐

Date Y M D 9 2 0 1 6 1 6 | Time | Agency FJ | Crew HF / GH / | Photos 2-12 | Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)			
	Ave.Wet Width (m)			
	Ave.Max.Riffle Depth (cm)			
	Ave.Max.Pool Depth (cm)			
	Gradient %			
	Pool ☐ Riffle ☐ Run ☐ Other ☐			
	Sin. Chan.% 0 ☐ 0-20 ☐ 20-40 ☐ >40 ☐			
	Area% 0 ☐ 0-5 ☐ 5-15 ☐ >15 ☐			
	Stable %			
	COVER: Total %			
	Comp. sum 100% / Dp Pool / L.O.D. / Boulder / In Veg / Over Veg / Cutbank			
	Crown Closure %	C	Aspect	

C	BED MATERIAL	%
	Fines	clay,silt,sand (<2mm)
	Gravels	small (2-16mm)
		large (16-64mm)
	Cobbles	sm.cobble (64-128mm)
		lge.cobble (128-256mm)
		boulder (>256mm)
	Bedrock	
	D_{90}(cm)	C Compaction L M H

C	BANKS		
	Height(m)	%Unstable	
	Texture F G L R		
	Confinement	EN CO FC OC UC N/A	
	Valley: Channel Ratio	0-2 2-5 5-10 10+ N/A	
	Stage	Dry L M H Flood	
	Flood Signs Ht(m)	Braided Y N	
	Bars (%)	pH	O_2(ppm)
	Water Temp.(°C) 9	Turb.(cm)	Cond.(25°C)

OBSTRUCTIONS			
C	Ht(m)	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)			
Mean Depth (m)			
Mean Velocity (m/s)			
Discharge (m^3/s)			

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87 SS1.87

FISH SUMMARY

C	Species	No.	Size Range(mm)	Stage Present	Use	Method

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream) L R

PLANIMETRIC VIEW ☐

COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

- very slow moving
- cows grazing around 1 crossing causing v. muddy water
- photo 2-12 → view of mouth

Edited by:

Date Y M D

Site 26; unnamed (View of mouth)

DFO/MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	[illegible] Creek (local)		Access	V2	Method
Watershed Code	2[illegible]7 4 4 8 7 8 9	Reach No.		Length(km)	
Location	Near powerlines (about 100m downstream)	Map# 93-0/16	Site No. 29	Lthsurv(m) 50m	GE
		U.T.M. 10-5496-61797	Fish Card Y (N)	C	Field ☑ Hist. ☐
Date Y M D 92 06 12	Time 12:30	Agency FJ	Crew GH/HH	Photos #2-10, 11	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	8.08	T	7.1, 9.5, 7.6, 9.3, 6.9
	Ave.Wet.Width (m)	3.62	T	2.9, 4.5, 4.0, 4.2, 2.5
	Ave.Max.Riffle Depth (cm)	~~[illegible]~~ 20	MS	19, 25, 18, 16, 20
	Ave.Max.Pool Depth (cm)	~~[illegible]~~ 42	MS	38, 34, 43, 41, 52
	Gradient %	2	CL	
	% Pool 15 Riffle 40 Run 45 Other		GE	
	% Chan. 0 ☐ 0-20 ☐ 20-40 ☐ >40 ☐		GE	
	Area % ☐ 0-5 ☑ 5-15 ☐ >15 ☐		GE	
	Stable %	50	GE	
	COVER: Total %	20	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	40	5	25	0	10	20

Crown Closure % 15 | C Aspect N

C	BED MATERIAL		%
	Fines	clay, silt, sand (<2mm)	5
	Gravels	small (2-16mm)	5
		large (16-64mm)	10
	Larges	sm.cobble (64-128mm)	25
		lge. cobble (128-256mm)	30
		boulder (>256mm)	15
	Bedrock (R)		0

D_{90}(cm) 30 | C Compaction L (M) H

C	BANKS						
	Height(m) .81	%Unstable 30					
	Texture	(F)	G	(L)	R		
	Confinement	EN	CO	FC	OC	(UC)	N/A
	Valley: Channel Ratio	0-2	2-5	5-10	(10+)	N/A	
3		Dry	L	(M)	H	Flood	
	Flood Signs Ht(m) .89	Braided	Y	(N)			
	Bars (%) -	pH		O_2(ppm)			
	Water Temp.(°C) 5	Turb.(cm) 52	Cond.(25°C)				

C	OBSTRUCTIONS		
C	Ht(m)	Type	Loc'n
1	1	X	

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	3.12	T	4.2, 2.9, 3.1, 2.8, 2.6
Mean Depth (m)	.25	MS	.23, .28, .27, .19, .28
Mean Velocity (m/s)	.58	F	17.2/10, 23.3/10, 20.8/10, 14.4/10, 13.9/10
Discharge (m^3/s)	.34		

REACH SYMBOL (Fish)

(Width Valley:Channel, Slope) (Bed Material)

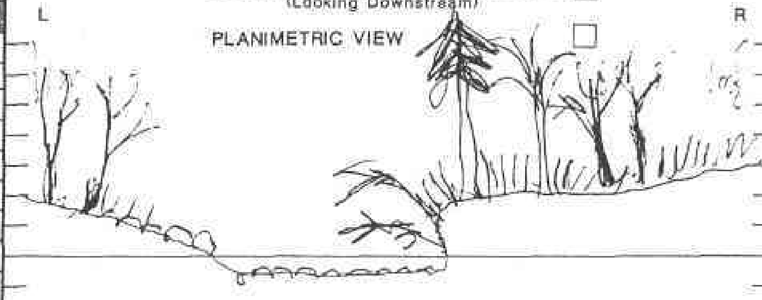
REVISED DEC. 87 SS187

C	Species	No.	Size Range(mm)	Life Phase	Use	Method(s)

STREAM/VALLEY CROSS-SECTION ☑ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 ~200 m downstream from where sideroad crosses creek (under powerlines)
2 But dry ~2 km downstream.
Photos: #2-10 Logjam @ downstream end of site
#2-11 : upstream view above logjam
- Electrofished for 100m starting at logjam - no fish

Edited by:

Date Y M D:

Site 29; Highrise Crk. (Upstream view from logjam)

Site 29; Highrise Crk. (Logjam at downstream end of site)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Mobesly	(local)	Access	12 Method
Watershed Code 23.074.481	Reach No.	Length(km)	
Location 20 meters downstream of bridge	Map# 93-O/16	Site No. 29A	Lin.surv.(m) 100 GE
	U.T.M. 10.5497.6?Q17	Fish Card: Y (N)	C Field ✓ Hist.
Date Y.M.D 92 07 29 Time 13:20 Agency FD Crew HH/GW	Photos K-6-7	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	62.8	T	87.D, 77.7, 33, 53
	Ave.Wet.Width (m)	14.4	T	16.8, 18.4, 11.4, 16.7, 13.9
	Ave.Max.Riffle Depth (cm)	36	MS	27, 38, 35, 39, 41
	Ave.Max.Pool Depth (cm)	144	MS	200, 120, 85, 122, 200
	Gradient %	.5	CL	
	%Pool 35 Riffle 20 Run 45 Other		GE	
1	Side Chan.% ☐0 ☐<5 ☑5-20 ☐20-40 ☐>40		GE	
	Debris Area% ☐0 ☐<5 ☐5-15 ☑15-25 ☐>25		GE	
	Debris Stable %	25	GE	
	COVER: Total %	40	GE	
	Comp. sum 100%: Dp Pool 45, L.O.D. 30, Boulder T, In Veg 5, Over Veg 5, Cutbank 15			
	Crown Closure %	T	Aspect	E

C	BED MATERIAL	%
	Fines: clay,silt,sand (<2mm)	35
	Gravels: small (2-16mm)	10
	Gravels: large (16-64mm)	20
	Cobble: sm.cobble (64-128mm)	30
	Cobble: lge.cobble (128-256mm)	5
	boulder (>256mm)	+
	Bedrock (R)	0
	D_{90}(cm) 15	Compaction (L) M H

C	BANKS	
	Height(m) 2.8	%Unstable 35
	Texture (F) G L R	
	Confinement	EN CO (FC) OC UC N/A
	Valley: Channel Ratio	0-2 2-5 (5-10) 10+ N/A
	Stage	Dry (L) M H Flood
	Flood Signs Ht(m) .75	Braided Y (N)
	Bars (%) 40	pH	O_2(ppm)
	Water Temp.(°C) 15	Turb.(cm) 41	Cond.(25°C)

OBSTRUCTIONS			
C	Ht(m)	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	9.0	T	9.3, 8.7, 8.2, 9.2, 9.8
Mean Depth (m)	0.42	MS	54, 46, 56, 18, 38
Mean Velocity (m/s)	1.3	Flom	6, 8, 8, 7, 9
Discharge (m^3/s)	3.7	F	

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87 SS1.87

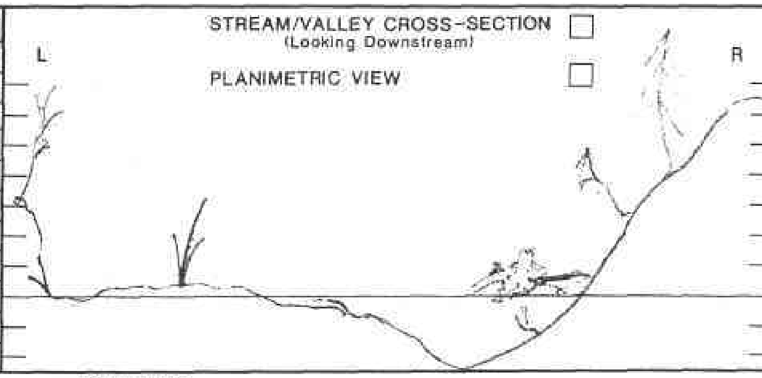
FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref.
	ES but no fish caught					
	seen: 3 fish (maybe mw)					
	1 sculpin (definitely)					

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1) more side channels in higher water

photos K-6 - looking upstream towards bridge
-7 - looking downstream @ LOD

Edited by:

Date Y M D:

Site 29A; Moberly R. (Looking upstream towards bridge)

Site 29A; Moberly R. (Looking towards downstream end of site)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Unnamed creek	(local)	
Access	V2	Method	
Watershed Code	23.07.4.498.02	Reach No.	
Length (km)			
Location	from road crossing	Map #	93 G/16
Site No.	32	Lth.surv.(m)	50
		Method	GE
U.T.M.	10.5479.6814	Fish Card	Y (N)
Field	☑	Hist.	☐
Date Y M D	92 06 14	Time	9:50
Agency	FJ	Crew	HT/GH/ML
Photos	None	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	4.0	T	3.5, 2.8, 2.5, 4.7, 6.5
	Ave.Wet Width (m)	2.16	T	2.5, 1.7, 1.9, 3.1, 1.6
	Ave.Max.Riffle Depth (cm)	15.2	MS	21, 12, 16, 10, 17
1	Ave.Max.Pool Depth (cm)	21.4	MS	— 21, 21, 23, 16, 19, 24, 26
	Gradient %	4	CL	
	% Pool 0 / Riffle 70 / Run 30 / Other –		GE	
	Side Chan.%	0 ☑ 0-5 ☐ 10-40 ☐ >40 ☐		
	Debris Area %	0 ☐ 0-5 ☑ 5-15 ☐ >15 ☐		
2	Debris Stable %	90		
	COVER: Total %	10		

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	45	5	45	0	5	0

Crown Closure %	50	Aspect	SSE

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n

BED MATERIAL

C	Bed material	%
	Fines: clay, silt, sand (<2mm)	–
	Gravels: small (2–16mm)	15
	Gravels: large (16–64mm)	5
	sm. cobble (64–128mm)	30
	lge. cobble (128–256mm)	35
	boulder (>256mm)	5
	Bedrock (R)	0

D_{90}(cm)	20	Compaction	L M (H)

BANKS

C				
	Height(m)	.5	% Unstable	40
	Texture	F (G) (L) R		
	Confinement	EN CO FC OC (UC) N/A		
	Valley: Channel Ratio	0–2 2–5 5–10 (10+) N/A		
	Stage	Dry L (M) H Flood		
3	Flood Signs Ht(m)	1.05	Braided	Y (N)
	Bars (%)	<5	pH	
			O₂(ppm)	
	Water Temp.(°C)	6	Turb.(cm)	26
	Cond. 25°C			

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	1.73	T	1.4 1.3 1.7 1.7 2.1 2.0
Mean Depth (m)	0.16	MS	0.1 0.25 0.29 0.23 0.10 0.14 0.15 0.15 0.19 0.10 0.17 0.14 0.14
Mean Velocity (m/s)	0.54	F	17.5/10m, 22.2/10, 19.7/10, 17.5/10, 15.6/10
Discharge (m³/s)	0.11		

REACH SYMBOL (Fish)

Scale Bed W

REVISED DEC. 87

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method	Ref

STREAM/VALLEY CROSS-SECTION ☑ (Looking Downstream)

PLANIMETRIC VIEW ☐

COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 Few pools found - most riffles only
2 Most debris rotted; fairly new channel
3 Some braiding occurring upstream of survey site
Note: 18 min of electroshocking (11:00-11:18) between 150 m downstream of culvert + culvert didn't turn up any fish

Edited by:

Date Y M D

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) unnamed Creek	(local)	Access V2	Method
Watershed Code 630-…-946		Reach No.	Length(km)
Location ~300 meters down from …	Map# 93-0/16	Site No. 36	Ltr.Surv.(m) 50 GE
	U.T.M. 10.5508.6…5	Fish Card Y (N)	C Field ✓ Hist.
Date Y M D 92 06 01	Time 14:30	Agency FT	Crew RC/AE/AH/GH	Photos	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	6.72	T	8.0 9.3 6.5 5.3 4.5
	Ave.Wet.Width (m)	3.8	T	4.3, 5.5, 2.5, 3.5, 3.2
	Ave.Max.Riffle Depth (cm)	21	ms	20 24, 23, 23, 20, 24, 18, 16, 24
	Ave.Max.Pool Depth (cm)	28	ms	30, 25
	Gradient %	2.5	Cl	
	% Pool 5% Riffle 60% Run 35% Other		GE	
	Side Chan.% 0 ☑ 0-10 ☐ 10-40 ☐ >40 ☐		GE	
	Debris Area% 0 ☐ 0-5 ☐ 5-15 ☑ >15 ☐		GE	
	Stable %	80	GE	
	COVER: Total %	15	GE	
	Comp. sum 100%: Dp Pool 5, L.O.D. 85, Boulder 5, In Veg /, Over Veg 5, Cutbank T			
	Crown Closure %	5	C Aspect	N

C	BED MATERIAL	%
	Fines: clay,silt,sand (<2mm)	T
	Gravels: small (2-16mm)	10
	Gravels: large (16-64mm)	15
	sm.cobble (64-128mm)	40
	lge.cobble (128-256mm)	30
	boulder (>256mm)	5
	Bedrock (R)	—
	D_{90}(cm) 25	C Compaction L M (H)

C	BANKS			
GE	Height(m) 80	%Unstable 95		
	Texture F (G) L R			
	Confinement	EN CO FC OC (UC) N/A		
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A		
	Stage	Dry L (M) H Flood		
	Flood Signs Ht(m) 1.1	Braided Y (N)		
	Bars (%) 0	pH	O_2(ppm)	
	Water Temp.(°C) 14	Turb.(cm)	Cond.(25°C)	

C	OBSTRUCTIONS: Name	Type	Loc'n
	NONE		

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	3.16	T	3.4 3.4 3, 2.85
Mean Depth (m)	0.19	T	3, 31, 20, 14, 6, 15, 23, 27, 14, 20, 15, 19, 20
Mean Velocity (m/s)	0.51	FO	21, 22.3, 16.4, 17.7, 20.7
Discharge (m^3/s)	0.23		

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87 SS187

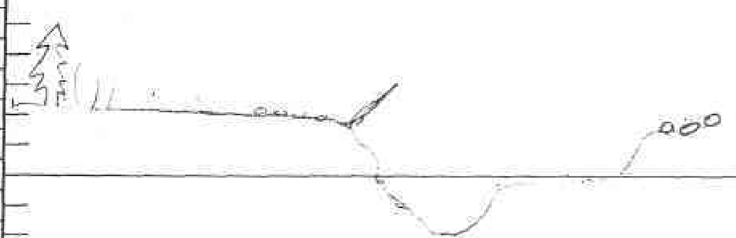
FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method (R)

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

many old channels + large gravel flood plains (have vegetation growing on)
electroshock for 15 mins over 150 m + no fish

Edited by:
Date Y M D

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) unnamed	(local)			Access: U2	Method
Watershed Code 123-074-484-308-4		Reach No.		Length(km)	
Location: from road crossing downstream	Map# 0-16	Site No. site 37		Lth.surv.(m)	
	U.T.M. 10-5425-6180	Fish Card Y N	C	Field	Hist.
Date Y M D 92 06 12	Time	Agency F3	Crew HH / GH /	Photos 2-9	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)			
	Ave.Wet.Width (m)			
	Ave.Max.Riffle Depth (cm)			
	Ave.Max.Pool Depth (cm)			
	Gradient %			
	%Pool / Riffle / Run / Other			
	Side Chan.% 0 / 0-10 / 10-40 / >40			
	LWD Area% 0 / 0-5 / 5-15 / >15			
	Stable %			
	COVER: Total %			
	Comp. sum 100%: Dp Pool / L.O.D. / Boulder / In Veg / Over Veg / Cutbank			
	Crown Closure %	C	Aspect	

OBSTRUCTIONS C	Ht(m)	Type	Loc'n
		BD	

C	BED MATERIAL	%
	Fines: clay,silt,sand (<2mm)	
	Gravels: small (2-16mm)	
	Gravels: large (16-64mm)	
	Cobbles: sm.cobble (64-128mm)	
	Cobbles: lge cobble (128-256mm)	
	boulder (>256mm)	
	Bedrock (R)	
	D_{90}(cm)	C Compaction L M H

C	BANKS		
	Height(m)	%Unstable	
	Texture	F G L R	
	Confinement	EN CO FC OC UC N/A	
	Valley: Channel Ratio	0-2 2-5 5-10 10+ N/A	
	Stage	Dry L M H Flood	
	Flood Signs Ht(m)	Braided Y N	
	Bars (%)	pH	O_2(ppm)
	Water Temp.(°C) 5	Turb.(cm)	Cond.(25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)			
Mean Depth (m)			
Mean Velocity (m/s)			
Discharge (m^3/s)			

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87 SS1.87

FISH SUMMARY

C	Species	No.	Size Range(mm)	Life Stage	Use	Method	Ref

STREAM/VALLEY CROSS-SECTION (Looking Downstream) ☐

PLANIMETRIC VIEW ☐

L R

COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

- multiple beaver ponds down stream of culvert : impenetrable

photo 2-9 → culvert @ road crossing in deep pool.

Edited by:

Date Y M D:

Site 37; unnamed (Looking upstream at culvert and deep pool)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) unnamed	(local)	Access U2	Method
Watershed Code 2 3 0 7 4 4 8 3 4 2 0 0 0	Reach No.	Length(km)	
Location ~200 m downstream of bridge	Map# 93-0/16	Site No. 38	Lthsurv(m) 50 GE
	U.T.M. 10.5422.61798	Fish Card (Y) N	C Field ☑ Hist. ☐
Date YMD 92 06 03	Time 10:15	Agency FS	Crew RT / HH GH / TE
Photos #1 - 12 ?	Air Photos		

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	10.6	T	15.8, 15.1, 8.0, 7.4, 6.7
	Ave.Wet.Width (m)	6.5	T	7.6, 9.2, 4.4, 4.6, 6.7
	Ave.Max.Riffle Depth (cm)	38	ms	22, 34, 38, 46, 52
	Ave.Max.Pool Depth (cm)	71	ms	60, 90, 70, 47, 70, 45, 61, 91, 105
	Gradient %	1%	CL	
	% Pool 20 Riffle 40 Run 40 Other		GE	
	Side Chan.% 0 ☑ 0-10 ☐ 10-40 ☐ >40 ☐			
	Debris Area% 0 ☐ 0-5 ☑ 5-15 ☐ >15 ☐			
	Debris Stable % 50		GE	
	COVER: Total % 40		GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	50	25			trace	25

Crown Closure % trace | Aspect ENE

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n
	NONE		

BED MATERIAL

C			%
	Fines	clay,silt,sand (<2mm)	15
	Gravels	small (2-16mm)	20
	Gravels	large (16-64mm)	30
	Larges	sm.cobble (64-128mm)	30
	Larges	lge.cobble (128-256mm)	5
		boulder (>256mm)	—
	Bedrock (R)		—

D_{90}(cm) 10 | C | Compaction L (M+H)

BANKS

C				
1	Height(m) .5	%Unstable 50%		
	Texture	F G L R		
	Confinement	EN CO FC OC (UC) N/A		
	Valley: Channel Ratio	0-2 2-5 5-10 (10>) N/A		
	Stage	Dry L (M→ H→ Flood)		
	Flood Signs Ht(m)	1.25	Braided	Y (N) (2)
	Bars (%)	<5%	pH	O_2(ppm)
	Water Temp.(°C) 6.5	Turb.(cm) >20 HE	Cond.(25°C)	

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	5.65	T	4.8, 4.8, 6.5, 6.5
Mean Depth (m)	0.31	ms	.15, .22, .19, .3, .51, .53, .25, .2, .43, .24
Mean Velocity (m/s)	0.71	FG	9.2, 16.1, 14.0, 15.1, 16.2
Discharge (m^3/s)	0.93		

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

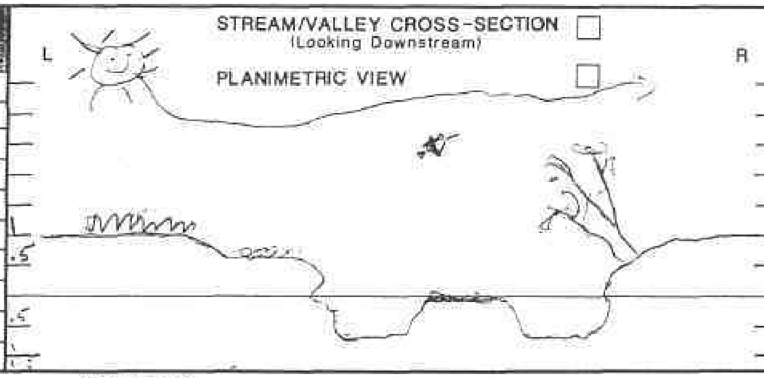
REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range(mm)	Age Class	Use	Method/Ref.
3	CCG	19	50-110	A	R	EL

STREAM/VALLEY CROSS-SECTION (Looking Downstream) ☐

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

2 Section between bridge + site highly braided ~ little defined channel → stream flowing

1 & under cutting banks

pictures 12 downstream on survey site

13 upstream " " "

NOTE: Reach #39 is not the correct reach # (see map)

3 Only one fish (50mm) was a juvenile; use may also include migration, spawning, incubation

Edited by:

Date Y M D:

Site 38; unnamed (Upstream view of survey site)

Site 38; unnamed (Downstream view of survey site)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Unnamed Creek	(local)	
Access		Method	
Watershed Code	23,074,48843	Reach No.	
Length(km)			
Location	From mouth to 40 m upstream (@ beaverdam)	Map#	93-0/9
Site No.	39	Lthsure(m)	40m GE
U.T.M.	10.5405.6176	Fish Card	Y (N) C
Field	✓	Hist.	
Date YMD	92/06/11	Time	—
Agency	FJ	Crew	GH/HH
Photos	# 2-8	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)			
	Ave.Wet.Width (m)	1.95m	T	
	Ave.Max.Riffle Depth (cm)			
	Ave.Max.Pool Depth (cm)	62cm	MS	0.78, 0.45 m
	Gradient %			
	% Pool / Riffle / Run / Other			
	Side Chan.% 0 / 0-10 / 10-40 / >40			
	Debris Area% 0 / 0-5 / 5-15 / >15			
	Debris Stable %			
	COVER: Total %			
	Comp. sum 100%: Dp Pool, L.O.D., Boulder, In Veg, Over Veg, Cutbank			
	Crown Closure %		Aspect	

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n
3	1	BD	40m

BED MATERIAL

C	Bed Material	%
2	Fines: clay, silt, sand (<2mm)	
	Gravels: small (2-16mm)	
	Gravels: large (16-64mm)	
	Larger: sm. cobble (64-128mm)	
	Larger: lge. cobble (128-256mm)	
	Larger: boulder (>256mm)	
	Bedrock (R)	
	D_{90}(cm)	C Compaction L M H

BANKS

C		
	Height(m)	% Unstable
	Texture	F G L R
	Confinement	EN CO FC OC UC N/A
	Valley: Channel Ratio	0-2 2-5 5-10 10+ N/A
	Stage	Dry L M H Flood
	Flood Signs Ht(m)	Braided Y N
	Bars (%)	pH O_2(ppm)
	Water Temp.(°C) 6.5	Turb.(cm) Cond.(25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)			
Mean Depth (m)			
Mean Velocity (m/s)			
Discharge (m^3/s)			

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R

COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☑, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 Actually deep runs. (100% of site is slow-flowing runs fed by beaver ponds.)
Photo #2-8: Beaver dam w/pond, 40m upstream from mouth
2 Bottom composition mostly fines & small gravels
3 Obstructions → beaver ponds.

Edited by:

Date Y M D:

Site 39; unnamed (Upstream view of beaver dam)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Unnamed creek	(local)				Access	V 2	Method			
Watershed Code	2 3 1 0 7 4 5 8 7 3			Reach No.		Length(km)					
Location	hiked down stream	Map#	03-C/9	Site No.	41	Lth surv.(m)					
		U.T.M	10 539261 75	Fish Card	Y (N)	C	Field ☑	Hist. ☐			
Date Y M D	92 06 11	Time	15:25	Agency	FS	Crew	GH / HH /	Photos	—	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)			
	Ave.Wet.Width (m)			
	Ave.Max.Riffle Depth (cm)			
	Ave.Max.Pool Depth (cm)			
	Gradient %			
	% Pool / Riffle / Run / Other			
	Side Chan.% 0 ☐ 0-10 ☐ 10-40 ☐ >40 ☐			
	Debris Area% 0 ☐ 0-5 ☐ 5-15 ☐ >15 ☐			
	Stable %			
	COVER: Total %			
	Comp. sum 100% / Dp Pool / L.O.D. / Boulder / In Veg / Over Veg / Cutbank			
	Crown Closure %	C	Aspect	

C	BED MATERIAL		%
	Fines	clay, silt, sand (<2mm)	
	Gravels	small (2-16mm)	
		large (16-64mm)	
	Larges	sm. cobble (64-128mm)	
		lge. cobble (128-256mm)	
		boulder (>256mm)	
	Bedrock (R)		
	D_{90} (cm)	C Compaction	L M H

C	BANKS				
	Height(m)		%Unstable		
	Texture	F	G	L	R
	Confinement	EN	CO	FC	OC UC N/A
	Valley: Channel Ratio	0-2	2-5	5-10	10+ N/A
	Stage	Dry	L	M	H Flood
	Flood Signs Ht(m)		Braided	Y	N
	Bars (%)		pH		O_2 (ppm)
	Water Temp.(°C)	7	Turb.(cm)		Cond.(25°C)

OBSTRUCTIONS			
C	Ht(m)	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)			
Mean Depth (m)			
Mean Velocity (m/s)			
Discharge (m^3/s)			

REACH SYMBOL
(Fish)

(Width, Valley:Channel, Slope) (Bed Material)

REVISED DEC. 87 SS187

C	Species	No.	Size Range (mm)	Life Phase	Use	Comments

STREAM/VALLEY CROSS-SECTION (Looking Downstream) ☐

PLANIMETRIC VIEW ☐

L R

COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

Creek never reaches Moberly, instead turns into a marsh near Moberly (old channel of Moberly never reaches Moberly); no measurements taken)

Edited by:

Date Y M D:

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) unnamed creek	(local)	Access	V2	Method
Watershed Code 230 7448584	Reach No.	Length (km)	
Location ~100m downstream from where road crosses stream on map	Map# 93-0/9	Site No. 44	Lthsurv(m) 100
	U.T.M. 10.5387.6728	Fish Sam. Y (N)	C1	Field ☑ Hist. ☐
Date Y.M.D. 92 06 19	Time 10:15	Agency FJ	Crew GH/HW	Photos H-21	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	8.4	T	8.1, 8.0, 11.1, 7.6, 7.1
	Ave.Wet.Width (m)	3.6	T	0.6, 3.9, 4.2, 5.5, 2.6
	Ave.Max.Riffle Depth (cm)	22	MS	25, 23, 20, 16, 24
	Ave.Max.Pool Depth (cm)	37	MS	42, 35, 41, 23, 44
	Gradient %	2	CL	
	% Pool 20 Riffle 60 Run 20 Other		GE	
	Side Chan.% 0	0 ☐ 0-10 ☐ 10-40 ☐ >40 ☐	GE	
	Debris Area%	0 ☐ 0-5 ☑ 5-15 ☐ >15 ☐	GE	
	Debris Stable %	15	GE	
	COVER: Total %	20	GE	
	Comp. sum 100%	Dp Pool 50, L.O.D. T, Boulder 35, In Veg D, Over Veg 15, Cutbank T		
	Crown Closure %	15	Aspect	N

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n

BED MATERIAL

C	BED MATERIAL		%
	Fines	clay, silt, sand (<2mm)	T
	Gravels	small (2-16mm)	5
	Gravels	large (16-64mm)	20
	Cobble	sm.cobble (64-128mm)	25
	Cobble	lge.cobble (128-256mm)	35
		boulder (>256mm)	15
	Bedrock (R)		—
	D_{90}(cm) 35	Compaction	L (M) H

BANKS

C		
	Height(m) .62	%Unstable 10
	Texture	F (G L) R
	Confinement	EN CO FC OC (UC) N/A
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A
	[illegible]	Dry L (M) H Flood
	Flood Signs Ht(m) .66	Braided Y (N)
	Bars (%) T	pH	O_2(ppm)
	Water Temp.(°C) 10	Turb.(cm) 42	Cond (25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	3.5	T	3.4, 3.5, 2.8, 4.3
Mean Depth (m)	0.26	MS	.25, .23, .26, .24, .34
Mean Velocity (m/s)	0.41	(0.6) F	226/10, 306/10, 214/10, 205/10, 286/10
Discharge (m^3/s)	0.28		

REACH SYMBOL (Fish)

Width Valley ... Bed Ma...

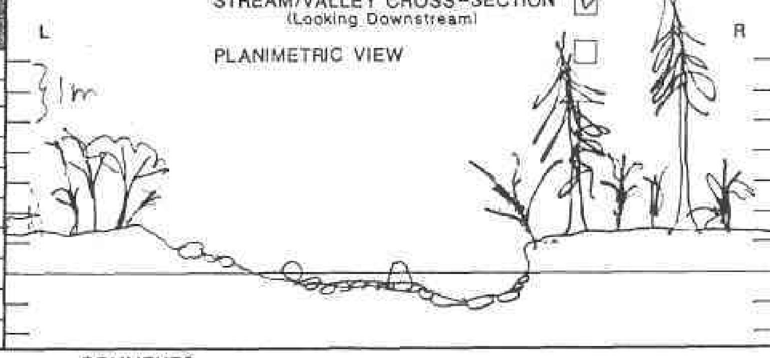
REVISED DEC. 91 SS1...

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Stage	Use	Method

STREAM/VALLEY CROSS-SECTION ☑ (Looking Downstream)

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 Electroshocked for ~150m - no fish

photos #-21 → 25 - upstream of site looking downstream

Edited by:

Date Y.M.D.

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Unnamed creek	(local)	Access	Method
Watershed Code 230-744HB-894	Reach No.	Length(km)	
Location @ mouth to 50 m upstream	Map # 93-0/4	Site No. 45	Chan./Grad.(m) 30	6E
	U.T.M.	Fish Card Y (N)	C	Field ✓ Hist.
Date Y M D 97 02 04 Time 12:25 Agency EJ Crew GH/...	Photos	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)			
	Ave.Wet.Width (m)			
	Ave.Max.Riffle Depth (cm)			
	Ave.Max.Pool Depth (cm)			
	Gradient %			
	% Pool / Riffle / Run / Other			
	Side Chan.% 0 / 0-10 / 10-40 / >40			
	Debris Area% 0 / 0-5 / 5-15 / >15			
	Debris Stable %			
	COVER: Total %			
	Comp. sum 100%: Dp Pool / L.O.D. / Boulder / In Veg / Over Veg / Cutbank			
	Crown Closure %			
C	Aspect	NE		

C	BED MATERIAL	%
	Fines: clay, silt, sand (<2mm)	
	Gravels: small (2-16mm)	
	Gravels: large (16-64mm)	
	Cobble: sm.cobble (64-128mm)	
	Cobble: lge.cobble (128-256mm)	
	boulder (>256mm)	
	Bedrock (R)	
	D_{90}(cm)	
C	Compaction L M H	

C	BANKS					
	Height(m)		%Unstable			
	Texture	F	G	L	R	
	Confinement	EN	CO	FC	OC	UC N/A
	Valley: Channel Ratio	0-2	2-5	5-10	10+	N/A
	Stage	Dry	(L)	M	H	Flood
	Flood Signs Ht(m)		Braided	(Y)	N	
	Bars (%) 65		pH		O_2(ppm)	
	Water Temp.(°C) 8		Turb.(cm)		Cond.(25°C)	

OBSTRUCTIONS			
C	Ht(m)	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)			
Mean Depth (m)			
Mean Velocity (m/s)			
Discharge (m^3/s)			

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

REVISED DEC. 87 SS187

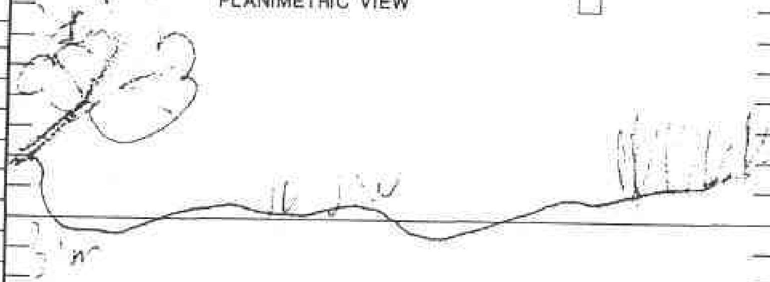
FISH SUMMARY

C	Species	No.	Size Range(mm)	Life Phase	Use	Method/Ref.

STREAM/VALLEY CROSS-SECTION ☑ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 Highly braided
2 Low flow + mostly sands → ≠ very good fish habitat

Edited by:

Date Y M D:

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Unnamed	(local)			Access	UZ	Method		
Watershed Code	230-748-189-5		Reach No.		Length(km)				
Location	from mouth of stream to 50 m above. (1st deep pool & minor chute.	Map#	93-0/9	Site No.	46	Lth.surv.(m)	50	GE	
		U.T.M.	10-537761726	Fish Card	Y (N)	C	Field ☐	Hist. ☐	
Date Y M D	92 08 11	Time	13:20	Agency	EJ	Crew	HH/GF/	Photos	2-4-5-6 Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	6.7	T	10.7, 5.9, 6.1, 5.0, 5.8
	Ave.Wet.Width (m)	4.2	T	4.9, 4.7, 4.3, 2.9, 4.3
	Ave.Max.Riffle Depth (cm)	25 ~~26~~	ms	25, 25, 28, 29, 21
	Ave.Max.Pool Depth (cm)	44 ~~49~~	ms	60, 63, 54, ~~65~~ 28, 24, 17
	Gradient %	2	CL	
	% Pool 10 Riffle 50 Run 35 Other		GE	
	Side Chan.% 0 ☑ 0-10 ☐ 10-40 ☐ >40 ☐		GE	
	Debris Area% ~5 0 ☐ 0-5 ☑ 5-15 ☐ >15 ☐		GE	
	Debris Stable % 10		GE	
	COVER: Total % 15		GE	
	Comp. sum 100% ~~60~~ Dp Pool 40 L.O.D. 5 Boulder / In Veg 10 Over Veg T Cutbank			
	Crown Closure % 20 C Aspect N			

C	OBSTRUCTIONS	Ht(m)	Type	Loc'n
	①			

C	BED MATERIAL		%
	Fines	clay,silt,sand (<2mm)	5
	Gravels	small (2-16mm)	5
		large (16-64mm)	15
	Larges	sm.cobble (64-128mm)	40
		lge.cobble (128-256mm)	25
		boulder (>256mm)	10
	Bedrock (R)		
	D_{90}(cm) 20 C Compaction (L) M H		

C	BANKS					
	Height(m) 4.7	%Unstable 10				
	Texture (F) G C R					
	Confinement	EN	CO	FC	OC	(UC) N/A
	Valley: Channel Ratio	0-2	2-5	5-10	(10+)	N/A
	Stage	Dry	L	(M)	H	Flood
	Flood Signs Ht(m) .3	Braided	Y (N)			
	Bars (%) 0	pH		O_2(ppm)		
	Water Temp.(°C) 6.5	Turb.(cm)		Cond.(25°C)		

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	4.6	T	4.2, 4.8, 4.5, 4.6, 5.3
Mean Depth (m)	.28	ms	20, 16, 17, 27, 21, 22
Mean Velocity (m/s)	1.07 ~~10~~	F	19.2, 9.3, 8.3, 9.4, 10.8 5/10 m
Discharge (m^3/s)	1.03		

REACH SYMBOL
(Fish)

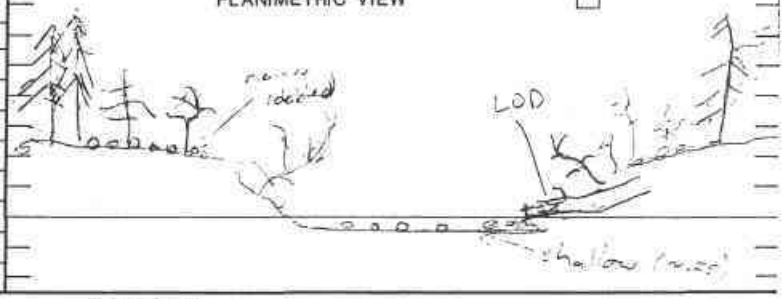
(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87 SS157

C	Species	No.	Size Range(mm)	Life Phase	Use	Method(s)

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

① log jam about 100 m upstream from mouth causing possible obstruction

photos → 4 upstream from mouth
5-6 same log jam (wheels) → lower log jam
7 upper log jam → more of a fish obstruction

- stream labelled @ crossing as "MUE" 11/06/92

Edited by:

Date Y M D:

Site 46; unnamed (Looking upstream near mouth)

Site 46; unnamed (View of lower logjam)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Unnamed Creek (local)		Access VZ	Method
Watershed Code 230744	Reach No.	Length(km)	
Location (has been labelled K? ... w/ orange tape @ roadside) 10m upstream	Map# 930-9	Site No. 47	Lthsurv(m) ... GE
U.T.M. 10.5373.6172	Fish Card Y (N)	C 1	Field [ ] Hist [ ]
Date Y M D 92 06 11 Time 12:10 Agency FS Crew GH / HH	Photos #2-2,3	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	2.1	MS	2.2, 2.0,
	Ave.Wet Width (m)	1.15	MS	0.8, 1.5
	Ave.Max.Riffle Depth (cm)	7	MS	9, 6, 5, 6
	Ave.Max.Pool Depth (cm)	22	MS	18, 24, 25, 19
	Gradient %			
	% Pool / Riffle / Run / Other			
	Side Chan.% 0 [ ] <10 [ ] 10-40 [ ] >40 [ ]			
	Debris Area% 0 [ ] 0-5 [ ] 5-15 [ ] >15 [ ]			
	Stable %			
	COVER: Total %			
	Comp. sum 100%: Dp Pool, L.O.D., Boulder, In Veg, Over Veg, Cutbank			
	Crown Closure %		C Aspect	

OBSTRUCTIONS C	Hgt(m)	Type	Loc'n
2	1	F	10m

C	BED MATERIAL	%
2	Fines: clay, silt, sand (<2mm)	
	Gravels: small (2-16mm)	
	Gravels: large (16-64mm)	
	Cobbles: sm.cobble (64-128mm)	
	Cobbles: lge.cobble (128-256mm)	
	boulder (>256mm)	
	Bedrock (R)	
	D_{90}(cm)	C Compaction L M H

C	BANKS		
3	Height(m)	%Unstable	
	Texture	F G L R	
	Confinement	EN CO FC OC UC N/A	
	Valley: Channel Ratio	0-2 2-5 5-10 10+ N/A	
	Stage	Dry (L) M H Flood	
	Flood Signs Ht(m) 1m	Braided Y (N)	
	Bars (%)	pH	O_2(ppm)
	Water Temp.(°C) 5.5	Turb.(cm) 25	Cond.(25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)			
Mean Depth (m)			
Mean Velocity (m/s)			
Discharge (m^3/s)			

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

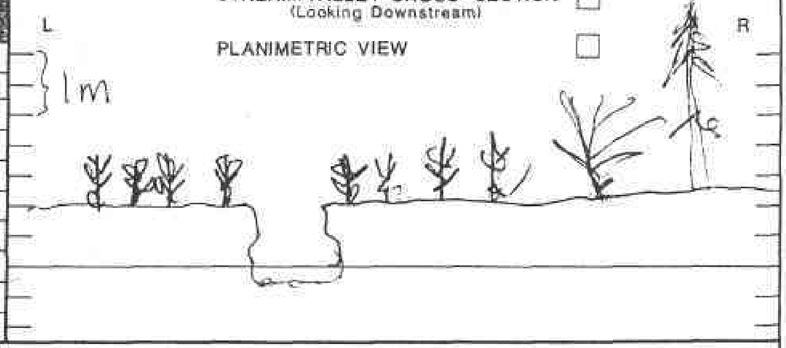
REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method (Eff)

STREAM/VALLEY CROSS-SECTION (Looking Downstream) [ ]

PLANIMETRIC VIEW [ ]



COMMENTS

Channel Stability [ ], Debris [ ], Management Concerns [ ], Obstructions [ ], Riparian Zone [ ], Valley Wall Processes [ ], Etc.

1 Enters a braid of the Moberly not the Moberly itself.
2 Mostly clay, some small + large gravels.
3 Banks undercut most of the length on both sides.
Photos: #2-2 Mouth (where creek enters Moberly braid)
#2-3. Waterfall

Edited by:

Date Y M D:

Site 47; unnamed (View of waterfall)

DFO/MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Unnamed Creek	(local)		Access	V2
Watershed Code	230-7449-03	Reach No.		Length(km)	
Location	from mouth to 20 m upstream ①	Map# 93-0/9	Site No. 48 B	Lth.surv.(m)	20
		U.T.M. 10 535?·6172?	Fish Card Y (N)	C	Field ✓ Hist. ☐
Date Y M D 92 06 11	Time 10:30	Agency F3	Crew HH / GH /	Photos #1 · 23 - 24 - 25	Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA #R-1
	Ave.Chan.Width (m)	5.88	T	4.6, 6.9, 7.0, 5.4, 5.5
	Ave.Wet.Width (m)	3.56	T	2.8, 4.5, 3.7, 3.3, 3.5
	Ave.Max.Riffle Depth (cm)	19	MS	27, 22, 8, 21, 15
	Ave.Max.Pool Depth (cm)	35	MS	29, 33, 30, 32, 49
	Gradient %	10	CL	
	% Pool 5, Riffle 9, Run 5, Other 1		GE	
	Side Chan.% 15 · 0 ☐ 0-10 ☐ 10-40 ☑ >40 ☐		GE	
	Debris Area% · 0 ☐ 0-5 ☐ 5-15 ☑ >15 ☐		GE	
	Debris Stable %	15	GE	
	COVER: Total %	20	GE	
	Crown Closure %	15	Aspect	NW

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	10	40	45	T	5	—

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n
	<5m	C	②
	<.5m	R	③
	.4m	X	15m

C	BED MATERIAL		%
	Fines	clay,silt,sand (<2mm)	T
	Gravels	small (2-16mm)	5
	Gravels	large (16-64mm)	5
	Larges	sm.cobble (64-128mm)	15
	Larges	lge.cobble (128-256mm)	40
	Larges	boulder (>256mm)	35
	Bedrock (R)		
	D_{90}(cm) 70	Compaction	L (M) H

C	BANKS						
	Height(m) .36	%Unstable 15					
	Texture	(F)	G	(C)	R	(3)	
	Confinement	EN	CO	FC	(OC)	UC	N/A
	Valley: Channel Ratio	0-2	2-5	5-10	(10+)	N/A	
	Stage	Dry	L	(M→H)	Flood		
	Flood Signs Ht(m) 1.2	Braided	(Y)	N			
	Bars (%) 15%	pH		O_2(ppm)			
	Water Temp.(°C) 5	Turb.(cm)		Cond.(25°C)			

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	.25	T	.3, .28, .21, .17, .26, .28
Mean Depth (m)	3.26	MS	3.4, 5.7, 3.1, 1.8, 2.3
Mean Velocity (m/s)	1.08 /s	F	10, 7, 8.9, 12, 9.5 5/10m
Discharge (m^3/s)	.66		

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

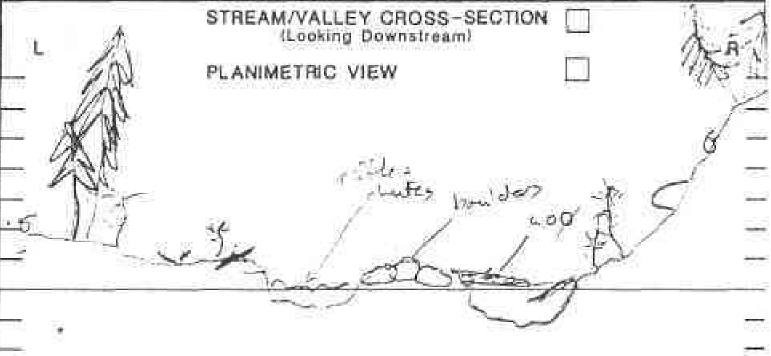
REVISED DEC. 87

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref
		No	ES; too steep + fast flowing			
		O	v. v. little cover for fish.			

STREAM/VALLEY CROSS-SECTION (Looking Downstream) ☐

PLANIMETRIC VIEW ☐



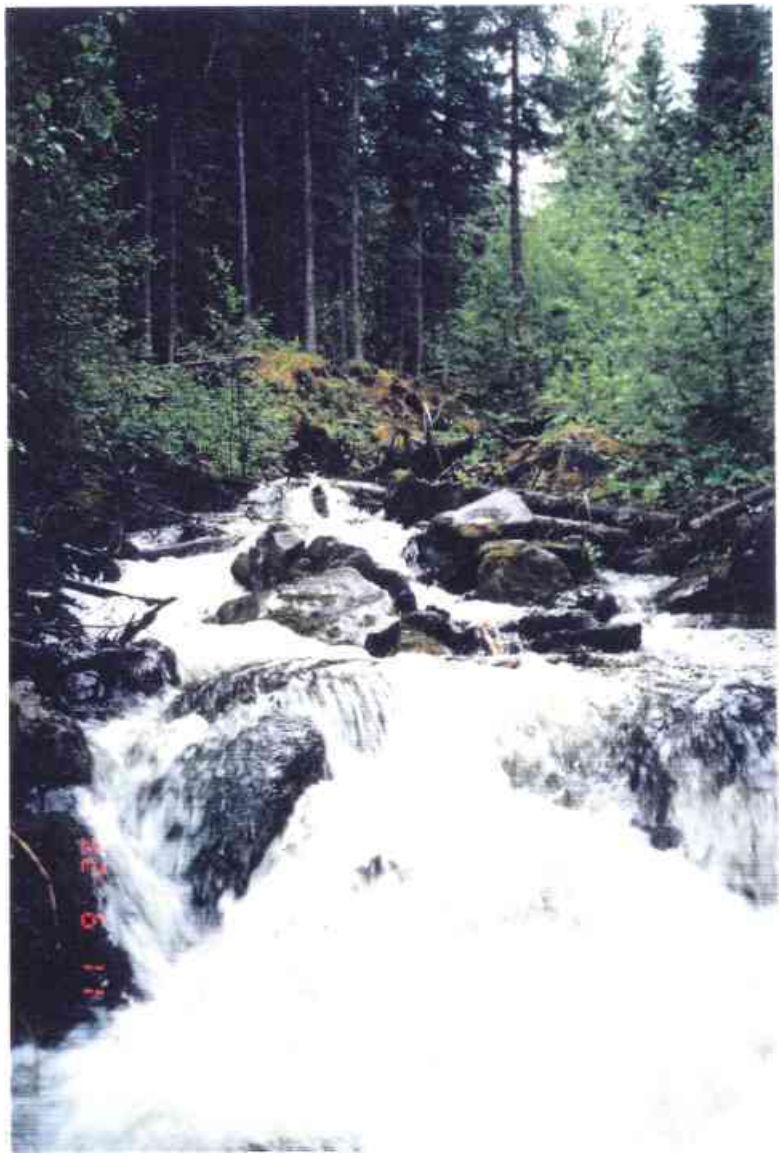
COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

① creek is v. similar all way up to road ~ steep + riffled
② rocks + chutes + cascade throughout reach NOTE: see photos
③ many lrg rocks surrounded by silt.
photos – 23 → looking upstream from mouth
– 24 → log jam ~ 15 m upstream → 25 → culvert @ road crossing
· culvert under[25] road is full-flow causing stream to run over road. ~ large pool upstream of road but obstructed by culvert (see picture 25)
photo # 2-1 → flooded culvert
· creek is labeled w orange tape @ X-ing → "MOE 48B 11/06/92"

Edited by:

Date Y M D:



Site 48B; unnamed (Upstream view from mouth)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Unnamed creek	(local)			Access	V2
Watershed Code 123017449907			Reach No.	Length(km)	
Location From mouth to 20 m up stream	Map# 93.09		Site No. 48C	Lthsurv(m)	20 ① GE
	U.T.M. 10.5.51.123		Fish Card Y (N)	C	Field ☑ Hist. ☐
Date Y M D 92 06 10	Time 13:30	Agency FS	Crew GH HH /	Photos # 1-18-19 20 21	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	2.49	T	.85, 1.4, 2.5, 2.8, 2.0, 5.4,
	Ave.Wet.Width (m)	1.01	T	.35, .45, 1.5, 1.2, 1.1, .45.
	Ave.Max.Riffle Depth (cm)	12	MS	20, 7, 10, 9
	Ave.Max.Pool Depth (cm)	22	MS	31, 23, 9
	Gradient %	4%	CL	
	% Pool 10 Riffle 15 Run 75 Other		GE	
	Side Chan.% 0 ☐ 0-10 ☐ 10-40 ☑ >40 ☐		GE	
	Debris Area% 0 ☐ 0-5 ☐ 5-15 ☑ >15 ☐		GE	
	Debris Stable % 80		GE	
	COVER: Total % 65		GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	5	5	/	10	40	40

Crown Closure % 10 | Aspect N

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n
③	1.4	BD	20m

BED MATERIAL

C	Bed Material	%
	Fines: clay, silt, sand (<2mm)	85
	Gravels: small (2-16mm)	15
	Gravels: large (16-64mm)	
	Cobbles: sm.cobble (64-128mm)	
	Cobbles: lge. cobble (128-256mm)	
	boulder (>256mm)	
	Bedrock (R)	

D_{90}(cm) .9 | Compaction (L) M H

BANKS

C		
	Height(m) .55	%Unstable 75
	Texture	(F) G L R
	Confinement	EN CO FC OC (UC) N/A
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A
	Stage	Dry L M (H) Flood
	Flood Signs Ht(m) .61	Braided (Y) N
	Bars (%) 0	pH	O_2(ppm)
	Water Temp.(°C) 6°	Turb.(cm) 34	Cond.(25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	0.35	T	.5, .46, .32, .33, .3, .19
Mean Depth (m)	0.24	MS	.21, .21, .24, .29,
Mean Velocity (m/s)	0.96	E	.3, .3, .28, 2.9,
Discharge (m^3/s)	0.08	E	

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

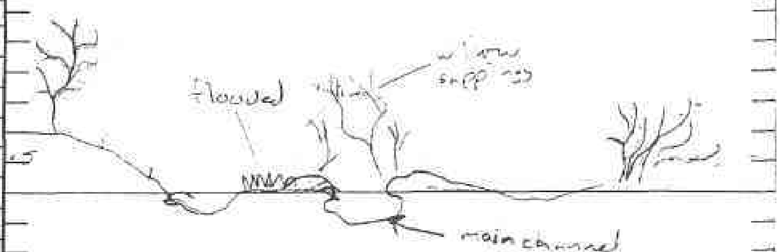
FISH SUMMARY

C	Species	No.	Size Range(mm)	Life Phase	Use	Method Ref

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

① mouth of stream to beaver dam (fish obstruction)
② instream veg consists of grasses + horsetails + saplings that have been flooded
③ beaver dam @ top end of reach
photos #1-18 downstream towards mouth
-19 upstream from mouth
-20 beaver dam
-21 point where stream crosses road

Edited by:
Date Y M D:

Site 48C; unnamed (Looking upstream from mouth)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Frank Roy Creek (local)	Access	UZ
Watershed Code	230-7-4-4-5-9-0-6	Reach No.	
Location	From mouth upstream	Map#	93-0/9
U.T.M.	10 5356.17	Site No.	49
Fish Card	(Y) N	Lth.surv.(m)	100 GE
Field ☑ Hist. ☐		Length (km)	
Date Y M D	12 08 04	Time	14:45
Agency	FI	Crew	FH / GH /
Photos	11–15	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	26.6	T	29.2, 22.9, 21.6, 30.5, 28.6
	Ave.Wet.Width (m)	5.2	T	3.3, 4.9, 5.1, 3.9, 4.6
	Ave.Max.Riffle Depth (cm)	12.	MS	16, 11, 14, 2.9
	Ave.Max.Pool Depth (cm)	32	MS	32, 26, 30, 38, 44
	Gradient %	3	CL	
	% Pool 10 / Riffle 75 / Run 15 / Other		GE	
1	Side Chan.%	0 ☐ 0–10 ☑ 10–40 ☐ >40 ☐	GE	
	Debris Area%	0 ☐ 0–5 ☐ 6–15 ☑ >15 ☐	GE	
	Debris Stable %	10	GE	
	COVER: Total %	15	GE	
(1)	Comp. sum 100%: Dp Pool 35, L.O.D. 5, Boulder 55, In Veg 0, Over Veg 5, Cutbank T			
	Crown Closure %	10		Aspect: S

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n

C	BED MATERIAL		%
	Fines	clay, silt, sand (<2mm)	5
	Gravels	small (2–16mm)	5
	Gravels	large (16–64mm)	10
	Larges	sm. cobble (64–128mm)	20
	Larges	lge. cobble (128–256mm)	25
	Larges	boulder (>256mm)	35
	Bedrock (R)		0
	D_{90}(cm)	65	Compaction: L (M) H

C	BANKS	
	Height(m)	45 %Unstable
	Texture	F G (L) R
	Confinement	EN CO FC OC (UC) N/A
	Valley: Channel Ratio	0–2 2–5 5–10 (10+) N/A
	Stage	Dry (L) M H Flood
	Flood Signs Ht(m)	.6 — Braided: Y (N)
	Bars (%)	45 — pH — O_2(ppm)
	Water Temp.(°C)	17 — Turb.(cm) 44 — Cond.(25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	3.7	T	3.3, 3.9, 4.2, 4.4
Mean Depth (m)	.21	MS	14, 22, 26, 20, 23
Mean Velocity (m/s)	0.22	F (10m)	50, 37, 51, 29, 57
Discharge (m^3/s)	0.13	F	

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

REVISED DEC. 87 SS1.87

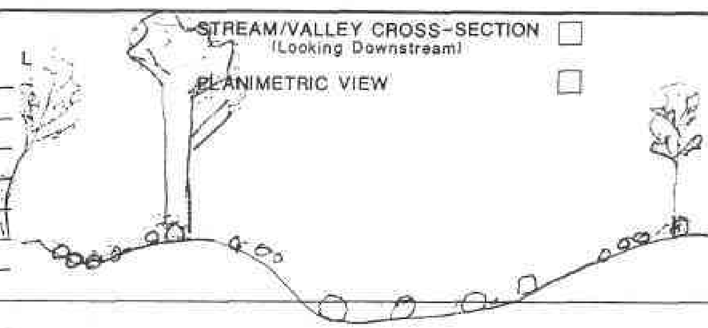
FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref.
3	DV	6	133–146	J	R	EL
	CCG	9	64–104	J, A	R	EL

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

Creek looks v. flashy w/ large boulders stacked up against trees

(C) evidence many old side channels + flooded trees

2 most boulders have pools associated with

photos #11 - 15 - looking upstream @ end of survey site; 16 - dry side channel; 14 - looking towards mouth

3 EL for 100 m; fish have been preserved in 10% formalin

Edited by:

Date Y M D:

Site 49; Frank Roy Crk. (Looking upstream at end of survey site)

Site 49; Frank Roy Crk. (Downstream view towards mouth)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Unnamed Creek (local)
Access V2 | **Method**
Watershed Code 2 3 0 7 4 4 6 9 2 1 | **Reach No.** | **Length(km)**
Location From mouth to 100 m up-stream | **Map#** 93-O/9 | **Site No.** 5B | **Lthsurv.(m)** 100 | GE
U.T.M. 10.5332.6171B | **Fish Card** (Y) N | C | **Field** ✓ **Hist.** ☐
Date Y M D 92 08 05 | **Time** 13.55 | **Agency** FJ | **Crew** GH/MH/ | **Photos** H-19-20 | **Air Photos**

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	27.5	T	23.1, 16.1, 27.2, 25.2, 40.7
	Ave.Wet.Width (m)	6.8	T	4.4, 5.6, 6.3, 12.7, 4.8
	Ave.Max.Riffle Depth (cm)	21	MS	16, 26, 16, 20, 25
	Ave.Max.Pool Depth (cm)	40	MS	32, 33, 61, 37, 39
	Gradient %	3	CL	
	% Pool 10 Riffle 55 Run 35 Other		GE	
1	Side Chan.% 5% 0☐ 0-10☐ 10-40☐ >40☐		GE	
	Debris Area% 1 0☐ 0-5☐ 5-15☐ ≥15☐		GE	
	Debris Stable %	40	GE	
	COVER: Total %	20	GE	

C	Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
2		30	10	50	5	T	5

Crown Closure % 5 | C | Aspect N

C	BED MATERIAL	%
	Fines: clay, silt, sand (<2mm)	5
	Gravels: small (2-16mm)	5
	Gravels: large (16-64mm)	10
	sm. cobble (64-128mm)	20
	Larger: lge. cobble (128-256mm)	35
	boulder (>256mm)	25
	Bedrock (R)	—

D_{90}(cm) 65 | C | Compaction L (M) H

C	BANKS	
	Height(m) .75	%Unstable 20
	Texture F G (L) R	
4	Confinement	EN CO FC OC (UC) N/A
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A
	Stage	Dry (L) M H Flood
3	Flood Signs Ht(m) .5	Braided Y (N)
	Bars (%) 40	pH	O₂(ppm)
	Water Temp.(°C) 17	Turb.(cm) 61	Cond.(25°C)

OBSTRUCTIONS			
C	Ht(m)	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	4.2	T	4.7, 3.9, 4.1, 4.1, 4.4
Mean Depth (m)	0.24	MS	.20, .25, .32, .19, .25
Mean Velocity (m/s)	0.45	F	19s/10, 15s/10, 18s/10, 29s/10, 31s/10
Discharge (m³/s)	0.24	F	

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

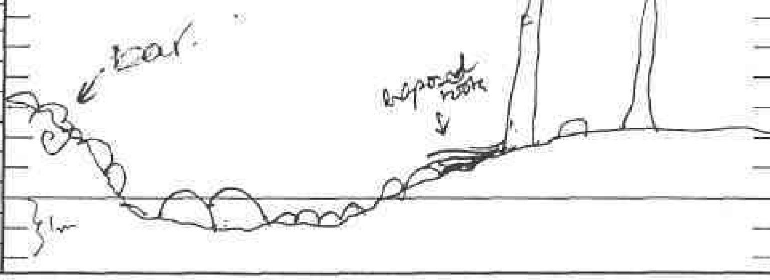
REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Stage	Use	Method
5	DV	3	143-168	J	R	EL
	CCG	12	41-107	J, A	R	EL

STREAM/VALLEY CROSS-SECTION ☑ (Looking Downstream)
PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 More sidechannels upstream of site
" in higher water
3 Braided upstream of site / Braided @ mouth
4 Confined upstream of bridge
Photos: H-19: View of upstream end of site
20 " " area near mouth
5 EL for 150m; both DV + CCG have been preserved in 10% formalin

Edited by:
Date Y M D:

Site 58; unnamed (Looking upstream at end of site)

Site **58;** unnamed (Downstream view of end of site **+** mouth)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Unnamed Creek (local)		Access	V2
Watershed Code 230-7448-934	Reach No.	Length(km)	Method
Location 34 meters from where creek joins Moberly	Maps 93-O-9	Site No. 63	Lthsurv(m) 15 GE
	U.T.M. 10.531761716	Fish Card Y (N) C	Field [✓] Hist. [ ]
Date Y M D 92 06 10	Time 12:20	Agency FJ	Crew GH/HH/
Photos #1-16-17	Air Photos		

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	1.15	T	1.9, 0.9, 1.1, 0.7
	Ave.Wet.Width (m)	1.15	T	1.9, 0.9, 1.1, 0.7
	Ave.Max.Riffle Depth (cm)	10	MS	10, 7, 11, 11, 12
	Ave.Max.Pool Depth (cm)	26	MS	39, 35, 14, 16
	Gradient %	12	CL	
	% Pool / Riffle / Run / Other			
	Side Chan.% 0 / 0-20 / 20-40 / >40			
	Debris Area% 0 / 0-5 / 5-15 / >15			
	Debris Stable %			
	COVER: Total %			
	Comp. sum 100%: Dp Pool, L.O.D., Boulder, In Veg, Over Veg, Cutbank			
	Crown Closure %	80	C Aspect	N

OBSTRUCTIONS — C, Ht(m), Type, Loc'n

C	BED MATERIAL	%
	Fines: clay, silt, sand (<2mm)	
	Gravels: small (2-16mm)	
	Gravels: large (16-64mm)	
	sm.cobble (64-128mm)	
	lge.cobble (128-256mm)	
	boulder (>256mm)	
	Bedrock (R)	
	D_{90}(cm)	C Compaction L M H

C	BANKS	
	Height(m)	%Unstable
	Texture	F G L R
	Confinement	EN CO FC OC UC N/A
	Valley: Channel Ratio	0-2 2-5 5-10 10+ N/A
	Stage	Dry L M H Flood
	Flood Signs Ht(m)	Braided Y N
	Bars (%)	pH	O_2(ppm)
	Water Temp.(°C) 7	Turb.(cm)	Cond.(25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)			
Mean Depth (m)			
Mean Velocity (m/s)			
Discharge (m^3/s)			

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method Ref

(Reconstruct from photographs) STREAM/VALLEY CROSS-SECTION [✓] (Looking Downstream) L R

PLANIMETRIC VIEW [ ]

COMMENTS

Channel Stability [ ], Debris [ ], Management Concerns [ ], Obstructions [ ], Riparian Zone [ ], Valley Wall Processes [ ], Etc.

Stream follows alongside road for ~50m before crossing it
Stream braids a fair amount & somewhat swamp-like with
vegetation
Photo #16 → looking downstream
#17 → by road crossing
Note: Didn't carry out full stream survey since creek was
very small (not much potential for holding fish)

Edited by:
Date Y M D:

Site 63; unnamed (Downstream view of survey site)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Unnamed Creek	(local)		Access	V2
Watershed Code	2.3.07.4.4 89.3.8		Reach No.		Length(km)
Location	from road crossing to mouth	Maps	93-0/10	Site No. 64	Lth.surv(m) 150
		U.T.M.	10.5306.61727	Fish Card Y (N)	03 Field ✓ Hist. ☐
Date Y M D 92 06 02	Time 14:30	Agency FJ	Crew HH/GH/RH	Photos# 1-9/10	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	44.8	T	48.4, 42.5, 45.3, 37.8, 50.1
	Ave.Wet.Width (m)	41.3	T	6.6, 8.1, 12.1, 6.3, 8.2,
	Ave.Max.Riffle Depth (cm)	51	S	42, 40, 43, 73, 50, 67, 50, 37,
	Ave.Max.Pool Depth (cm)		?	NA
	Gradient %	6%	CL	
1	% Pool / Riffle / Run / Other			
	Side Chan.%	0 ✓ 0-10 ☐ 10-40 ☐ >40 ☐		
	Debris Area%	0 ☐ 0-5 ✓ 5-15 ☐ >15 ☐		
	Debris Stable %	0		
	COVER: Total %	<5%		
	Comp. sum 100%: Dp Pool / L.O.D. / Boulder / In Veg / Over Veg / Cutbank	Boulder 100		
	Crown Closure %	<5%		Aspect SE

C	BED MATERIAL	%
	Fines - clay,silt,sand (<2mm)	–
	Gravels small (2-16mm)	1
	Gravels large (16-64mm)	5
	sm.cobble (64-128mm)	10
	lge.cobble (128-256mm)	25
	boulder (>256mm)	60
	Bedrock (R)	
	D_{90}(cm) 55	Compaction L (M) H

C	BANKS	
	Height(m) .5	%Unstable 75
	Texture	F G (L) R
	Confinement	EN CO FC OC (UC) N/A
	Valley: Channel Ratio	0-2 2-5 5-10 (10-) N/A
	Stage	Dry L (M) H Flood
	Flood Signs Ht(m) 1	Braided Y (N)
	Bars (%) 0	pH	O_2(ppm)
2	Water Temp.(°C) 6	Turb.(cm)	Cond.(25°C)

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n
	—	—	—

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	6.2	T	7.1, 5.6, 6.2, 5.9,
Mean Depth (m)	.52	MS	.52, .50, 0.60, 0.45, 0.55
Mean Velocity (m/s)	1.91	F	6.1/10, 5.9/10, 6.8/10, 4.2/10, 4.2/10
Discharge (m^3/s)	4.62		

REACH SYMBOL (Fish)

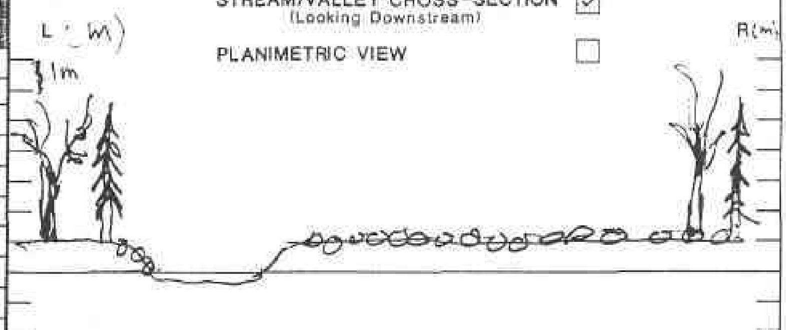
(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87 SS187

C	FISH SUMMARY Species	No.	Size Range(mm)		Use	

STREAM/VALLEY CROSS-SECTION ☑ (Looking Downstream)

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 Whole section very fast flowing w/ lots of surface breaks (riffles)
2 Hard to tell visibility since water was flowing at high velocity.
3 No electroshocking attempted - flows were too rapid.
Pictures - Downstream views of creek

Edited by:

Date Y M D:

Site 64; unnamed (Downstream view from road crossing)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Unnamed Creek (local)	Access	V2
Watershed Code	230-7-44-89-45	Reach No.	
Location	Downstream of road-crossing	Length (km)	
Map#	93-G/10	Site No.	66
U.T.M.	10.5295.61717	Lth surv (m)	100
Method	GE	Fish Card	Y (N)
C	5	Field ☑	Hist. ☐
Date Y M D	91 2 0 6 0 0 2	Time	11:10
Agency	FJ	Crew	GH/HH/KEK
Photos	#1/6-8	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave. Chan. Width (m)	5.78	BT	3.3, 5.5, 10.2, 4.1, (Riffle)
	Ave. Wet Width (m)	5.48	BT	3.3, 5.5, ~~12~~ 9, 4.1, ~~36, 16, 33, 53, 17, 6, 4~~
	Ave. Max. ~~Riffle~~ Depth (cm)	69. ~~49~~	MS	(R) 72, 74, 60 (cm) ~~46, 32~~
	Ave. Max. Pool Depth (cm)	47. ~~43~~	MS	(P) 28, 38, 50, 55, 60, 50 (cm) ~~40, 43, 33, 47~~
	Gradient %	0.5	CL	
	% Pool 5, Riffle 15, Run 80, Other		GE	
	Side Chan. %	5	0 ☑ <20 ☐ 20-40 ☐ >40 ☐	
	Debris Area %		0 ☐ 0-5 ☐ 5-15 ☑ >15 ☐	
	Stable %	70%		
	COVER: Total %	40%		

C	Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
3		45	35	0	5	5	10

C				
4	Crown Closure %	50	Aspect	E X

OBSTRUCTIONS

C	Ht(m)	Type	Loc'n
	—	—	—

BED MATERIAL

C	Class	Size	%
	Fines	clay, silt, sand (<2mm)	65
	Gravels	small (2-16mm)	30
		large (16-64mm)	5
	Cobbles	sm. cobble (64-128mm)	0
		lge. cobble (128-256mm)	0
		boulder (>256mm)	0
	Bedrock (R)		0
	D_{90} (cm)	4	
	Compaction	(L) M H	

BANKS

C				
	Height (m)	0.65	% Unstable	<5
	Texture	(F) G L R		
	Confinement	EN CO FC OC (UC) N/A		
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A		
1	Stage	Dry L (M → H) Flood		
2	Flood Signs Ht (m)	1.10	Braided	Y (N)
	Bars (%)	0	pH	
	O₂ (ppm)			
6	Water Temp. (°C)	5	Turb. (cm)	60
	Cond. (25°C)			

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	4.3	T	4.4, 4.0, 4.2, 4.1
Mean Depth (m)	.41	T	.44, .43, .47, .44, .31, .47, .41, .32, .37
Mean Velocity (m/s)	.444 m/s	F	20.15/10m, 26.0/10, 28./10, 18.0/10,
Discharge (m³/s)	.59		

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

REVISED DEC. 87 SS187

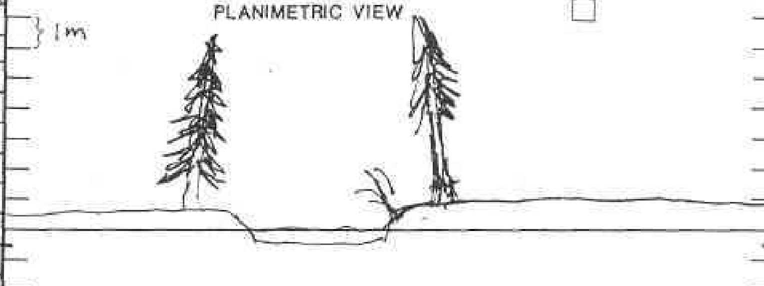
FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref
E	None but	No Fish		Caught		

STREAM/VALLEY CROSS-SECTION ☑ (Looking Downstream)

PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1. Flow was mod - high, well w/in banks, but into vegetation
2. No; but a few small islands due to high water level
3. Deep pool habitat really run habitat
4. Largely Conifers
5. 20 min of electroshocking - no fish (∴ no fish summary)
6. Could see to bottom even in deepest pools.

Pictures looking upstream from near mouth of creek

Edited by

Date Y M D

Site 66; unnamed (Looking upstream from survey site)

Site 66; unnamed (Looking downstream from survey site)

DFO/MCEP
STREAM SURVEY FORM

Stream Name (gaz.) unnamed	(local)	Access	U 4	Method
Watershed Code		Reach No.	Length(km)
Location From ford downstream for 100 m	Maps 93-O/13	Site No. 68	Lth.surv.(m) 100	GE
	U.T.M. 10.5266.61727	Fish Card Y (N)	C	Field Hist.
Date Y.M.D. 92 08 06	Time 1:20	Agency FT	Crew HL/GH/	Photos A1-24 35	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	13.2	T	15.1, 16.2, 15.5, 11.6, 7.6
	Ave.Wet.Width (m)	6.6	T	8, 6.3, 7.9, 6.6, 4.8
	Ave.Max.Riffle Depth (cm)	42	MS	55, 48, 33, 29, 47
	Ave.Max.Pool Depth (cm)	16	MS	15, 17, 18, 13, 21
	Gradient %	6	CL	
	% Pool 10 Riffle 80 Run 10 Other		GE	
	Side Chan.% 0 / 0-10 / 10-40 / ≥40	0-10	GE	
	Debris Area% 0 / 0-5 / 5-15 / ≥15	5-15	GE	
	Debris Stable %	25	GE	
	COVER: Total %	20	GE	

C	Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
(1)		25	5	60	T	5	5

Crown Closure %	T	C	Aspect	E

C	BED MATERIAL	%
	Fines: clay, silt, sand (<2mm)	
	Gravels: small (2-16mm)	
	Gravels: large (16-64mm)	
	Cobble: sm.cobble (64-128mm)	
	Cobble: lge.cobble (128-256mm)	
	boulder (>256mm)	
	Bedrock (R)	
	D_{90}(cm) 69 C	Compaction L (M) H

C	BANKS	
	Height(m) 20	%Unstable 10
	Texture F G (L) (R)	
	Confinement	EN CO (FC) OC UC N/A
(3)	Valley: Channel Ratio	0-2 2-5 (5-10) 10+ N/A
	Stage	Dry (L → M) H Flood
	Flood Signs Ht(m) .5	Braided Y (N)
	Bars (%) 25	pH	O_2(ppm)
	Water Temp.(°C) 15	Turb.(cm)	Cond.(25°C)

C	OBSTRUCTIONS		
C	Num.	Type	Loc'n
(2)			

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	3.5	T	4.4, 3.1, 2.8, 2.8, 3.7
Mean Depth (m)	0.38	MS	21, 47, 19, 62, 42
Mean Velocity (m/s)	0.23	F (10m)	35, 35, 34, 56, 54
Discharge (m^3/s)	0.23	F	

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

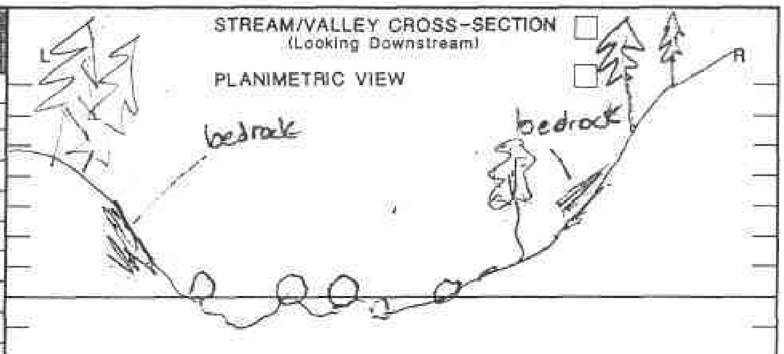
REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref.
	EL, but no fish caught (~100 m)					

STREAM/VALLEY CROSS-SECTION (Looking Downstream)

PLANIMETRIC VIEW



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

Photos # 24 - looking upstream to end of survey site
25 - downstream " " " " "

(1) more cover (ie cutbank etc) in higher water ; boulders & pools closely associated

(2) ES but no fish caught (low cond) ; maybe obstruction downst.

(3) UC @ upper end but FC @ lower end

Edited by:
Date Y M D:

Site 68; unnamed (Upstream view of site with ford)

Site 68; unnamed (View of downstream end of site)

DFO/MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Moberly L.	(local)	Access	VC
Watershed Code 2,3,0,7,4,8,8	Reach No.	Length(km)	Method
Location	Maps 93 0/9	Site No. 87	Lthsurv(m) 500	50
	U.T.M. 10.5321.61116	Fish Card Y (N)	C1	Field ✓ Hist. ☐
Date Y M D 97 08 04	Time 1540	Agency FJ	Crew GH/HH	Photos #H-20	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)			
	Ave.Wet.Width (m)			
	Ave.Max.Riffle Depth (cm)			
	Ave.Max.Pool Depth (cm)			
	Gradient %			
	% Pool ☐ Riffle ☐ Run ☐ Other ☐			
	Side Chan.% 0☐ 0-10☐ 10-40☐ >40☐			
	Debris Area% 0☐ 0-5☐ 5-15☐ ≥15☐			
	Debris Stable %			
	COVER: Total %			
	Comp. sum 100%: Dp Pool / L.O.D. / Boulder / In Veg / Over Veg / Cutbank			
	Crown Closure %	C	Aspect	

C	BED MATERIAL		%
	Fines	clay, silt, sand (<2mm)	
	Gravels	small (2-16mm)	
	Gravels	large (16-64mm)	
	Larges	sm. cobble (64-128mm)	
	Larges	lge. cobble (128-256mm)	
	Larges	boulder (>256mm)	
	Bedrock (R)		
	D_{90}(cm)	C	Compaction L M H

C	BANKS			
	Height(m)		%Unstable	
	Texture	F G L R		
	Confinement	EN CO FC OC UC N/A		
	Valley: Channel Ratio	0-2 2-5 5-10 10+ N/A		
	Stage	Dry L M H Flood		
	Flood Signs: Ht(m)		Braided	Y N
	Bars (%)		pH	O_2(ppm)
	Water Temp.(°C) 15		Turb.(cm)	Cond.(25°C)

OBSTRUCTIONS			
C	Ht(m)	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)			
Mean Depth (m)			
Mean Velocity (m/s)			
Discharge (m^3/s)			

REACH SYMBOL (Fish)

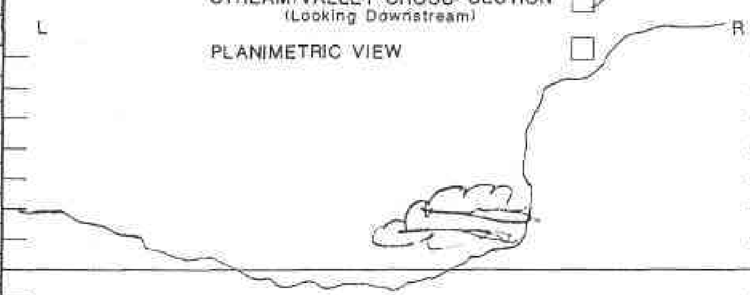
(Width, Valley:Channel, Slope) (Bed Material)

REVISED DEC. 87 58187

FISH SUMMARY						
C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref.

STREAM/VALLEY CROSS-SECTION ✓ (Looking Downstream)

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 Stream consists of inter connected pools only (v. low flow
* Saw 1 # DV (~30 cm) in one of pools & 1 DV (10-15 cm)
Photo #H-20 View of pools in low flow
[illegible] & dried bed

- there appears to be underground seepage connecting pools

Edited by:
Date Y M D:

Site 87; Moberly R. (View of occasionally interconnected pools)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.)	Moberly	(local)	
Access	UZ	Method	
Watershed Code		Reach No.	
Length (km)			
Location	From bridge downstream for 100 m	Map#	92- 0/9
Site No.	88	Lthsurv.(m)	60
			3.5
U.T.M.	10.5321.61715	Fish Card	(Y) N
C		Field ☑	Hist. ☐
Date Y M D	92 08 06	Time	13:20
Agency		Crew	HH/GH/
Photos	#22 23	Air Photos	

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	22.2	T	23.9, 21.4 22.6 17.4 25.4
	Ave.Wet.Width (m)	8.6	T	8.5, 6.8, 6.9, 13.1, 7.8
	Ave.Max.Riffle Depth (cm)	18	MS	16 15, 22 13 22
	Ave.Max.Pool Depth (cm)	60	MS	76, 33, 61, 36, 94
	Gradient %	.5	CL	
	% Pool 5 Riffle 40 Run 45 Other		GE	
2	Side Chan.% 0 ☑0-10 ☐10-40 ☐>40 ☐		GE	
	Debris Area% 10: 0 ☐ 0-5 ☐ 5-15 ☑ >15 ☐		GE	
	Debris Stable %	35	GE	
	COVER: Total %	15	GE	
	Comp. sum 100%: Dp Pool 45, L.O.D. 10, Boulder 25, In Veg 5, Over Veg 10, Cutbank 5			
	Crown Closure %	T		Aspect E

OBSTRUCTIONS C	Ht(m)	Type	Loc'n

C	BED MATERIAL		%
	Fines	clay,silt,sand (<2mm)	10
	Gravels	small (2-16mm)	10
	Gravels	large (16-64mm)	20
	Larges	sm.cobble (64-128mm)	25
	Larges	lge. cobble (128-256mm)	20
	Larges	boulder (>256mm)	10
	Bedrock (R)		5
	D_{90}(cm) 43	C Compaction	L (M) H

C	BANKS		
	Height(m) .70	%Unstable 10	
	Texture	F G (L) R	
1	Confinement	EN CO FC OC (UC) N/A	
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A	
	Stage	Dry (L) M H Flood	
	Flood Signs Ht(m) .5	Braided	Y (N)
	Bars (%) 35	pH	O_2(ppm)
	Water Temp.(°C) 10	Turb.(cm) 94	Cond.(25°C)

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	7.3	T	6.9 7.3 7.3 6.9 7.9
Mean Depth (m)	0.17	MS	12.15, 17, 20, 22
Mean Velocity (m/s)	0.5	FC (cm)	24, 18, 18, 20, 20
Discharge (m^3/s)	0.46	F	

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87 SS187

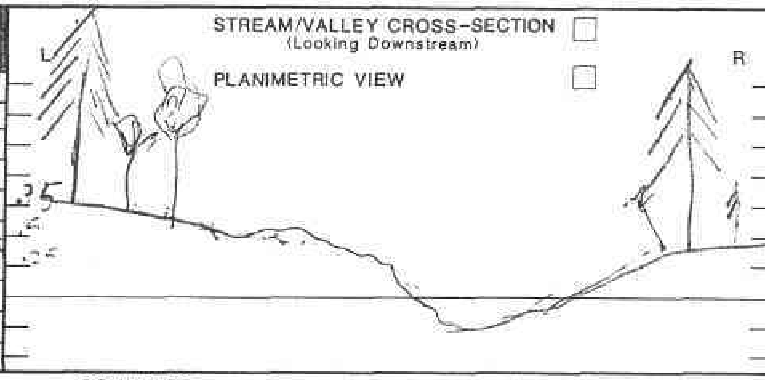
FISH SUMMARY

C	[illegible]	No.	Size Range (mm)	[illegible]	Use	[illegible]
	CCG	1	106	A	R	EL

EL for 100 m had only 1 CCG caught (good conductivity) - saw one more sculpin @ ~ 80 mm

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

photos # 23 - looking @ downstream end of site.
22 - " " upstream " "

(1) more confined above bridge

(2) evidence of old side channels (maybe more in higher water)

Edited by:

Date Y M D:

Site 88; Moberly R. (Upstream view of site with bridge)

Site 88; Moberly R. (View of downstream end of site)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Moberly	(local)	Access V2	Method
Watershed Code 2,3,07 4 4 8	Reach No.	Length(km)	
Location Starting @ confluence w/ Frank Ray to 100m upstream	Map# 93-O/9	Site No. 89	Lth surv.(m) 100 GE
	U.T.M. 10.5355.6774	Fish Card (Y)	N C Field ☑ Hist. ☐
Date Y.M.D. 92 08 05 Time 10.10	Agency FS Crew GH MH /	Photos # 17-18	Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	26.1	T	24.2, 25.5, 26.8, 20.8, 33.3
	Ave.Wet.Width (m)	13.4	T	7.6, 9.2, 9.0, 10.9, 30.4
	Ave.Max.Riffle Depth (cm)	24.8	MS	19, 14, 26, 32, 33
	Ave.Max.Pool Depth (cm)	73.6	MS	45, 68, 59, 102, 94
	Gradient %	0.5	CL	
	% Pool 20 Riffle 30 Run 50 Other		GE	
	Side Chan.% 0 ☐ 0-10 ☐ 10-40 ☑ 40-80 ☐ >80 ☐		GE	
	Debris Area% 5-10		GE	
	Stable %	10	GE	
	COVER: Total %	25	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	55	5	35	T	5	T

Crown Closure % T | Aspect NE

C	BED MATERIAL	%
	Fines: clay, silt, sand (<2mm)	10
	Gravels: small (2-16mm)	10
	Gravels: large (16-64mm)	25
	sm. cobble (64-128mm)	25
	Larges: lge. cobble (128-256mm)	20
	boulder (>256mm)	10
	Bedrock (R)	–
	D_{90} (cm) 40	Compaction L (M) H

C	BANKS	
	Height(m) .78	%Unstable
	Texture F G (L) R	
	Confinement	EN CO FC (OC) UC N/A
	Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A
	Stage	Dry (L) M H Flood
	Flood Signs Ht(m) .47	Braided (Y) N
	Bars (%) 15	pH O₂(ppm)
	Water Temp.(°C) 10	Turb.(cm) 102 Cond.(25°C)

OBSTRUCTIONS C	Ht(m)	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	7.4	T	6.5, 6.4, 7.4, 7.9, 8.6
Mean Depth (m)	0.25	MS	.24, .38, .15, .26, .24
Mean Velocity (m/s)	1.0	F (10m)	95/10, 83/10, 85/10, 134/10, 124/10
Discharge (m^3/s)	1.7	F	

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

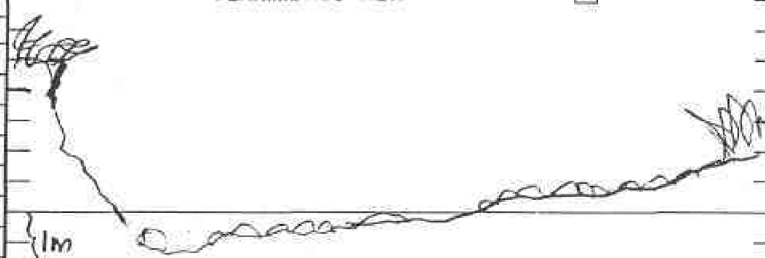
REVISED DEC. 87 SS187

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Stage	Use	Method/Ref
1	DV	1	143	J	R	EL
	CCG	25	28-109	J, A	R	EL

STREAM/VALLEY CROSS-SECTION ☑ (Looking Downstream)

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☑, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 EL for 100m; fish have been preserved in 10% formalin
Photographs. # - 18. looking towards upper end of site
- 17. View of downstream end of survey site (mouth of Frank Ray)

Man. concerns. lots of quality rearing habitat, runs (deep) pools, small cobbles + gravels.

Edited by:
Date Y M D:

Site 89; Moberly R. (View of upstream end of site)

Site 89; Moberly R. (Downstream view of site with confluence of Frank Roy Crk.)

DFO / MOEP
STREAM SURVEY FORM

[illegible] (gaz.) Moberly R (local) — Access: V2 — Method

[illegible]: 2,3,0,7,4,4,9,8 — Length (km)

[illegible]: 50 m upstream from bridge (upstream of large pool) — [illegible]: 93-0/9 — [illegible]: 92 — [illegible]: 100m. GE

U.T.M. 10.5383.61732 — [illegible]: (Y) N — [illegible] ☑ [illegible] ☐

[illegible]: 920730 — [illegible]: 14:00 — [illegible]: FJ — [illegible]: GH/AH / — Photos 4-12-13 — Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	[illegible]	28.3	T	32.9, 34.3, 25.4, 33.7, 23.6
	[illegible]	17.8	T	13.9, 20.6, 20.9, 19.3, 14.2
	Ave.Max.Riffle Depth (cm)	28	MS	32, 29, 29, 34, 16
	Ave.Max.Pool Depth (cm)	69	MS	69, 70, 72, 65, 68
	[illegible]	1	CL	
	[illegible] 15 [illegible] 30 [illegible] 55		GE	
	[illegible] ☑		GE	
	[illegible] 5%		GE	
	Stable %	~10	GE	
	COVER: Total %	~25	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	35	5	15	T	25	20

Crown Closure % 10 — Aspect N

C	[illegible]		%
	[illegible]	clay,silt,sand (<2mm)	15
	[illegible]	small (2-16mm)	5
		large (16-64mm)	10
		sm.cobble (64-128mm)	20
	[illegible]	lge.cobble (128-256mm)	30
		boulder (>256mm)	15
	[illegible]		5

D_{90}(cm) 45 — Compaction L (M) H

C	BANKS					
	Height(m) .70	%Unstable 20				
	Texture	F	G	(L)	R	
	Confinement	EN	CO	FC	OC	(UC) N/A
	Valley: Channel Ratio	0-2	2-5	5-10	(10+)	N/A
	[illegible]	Dry	L	(M)	H	Flood
	Flood Signs Ht(m) .50	Braided	Y	(N)		
	Bars (%) 5	pH		O₂(ppm)		
	Water Temp.(°C) 12	Turb.(cm) 72	Cond.(25°C)			

C	[illegible]	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	15.0	T	12.9, 14.3, 14.9, 15.6, 17.5
Mean Depth (m)	0.37	MS	.41, .43, .35, .36, .31
Mean Velocity (m/s)	0.67	F (10m)	15s/10, 13s/10, 18s/10, 14s/10, 15s/10
Discharge (m^3/s)	1.79	F	

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

REVISED DEC. 87 SS187

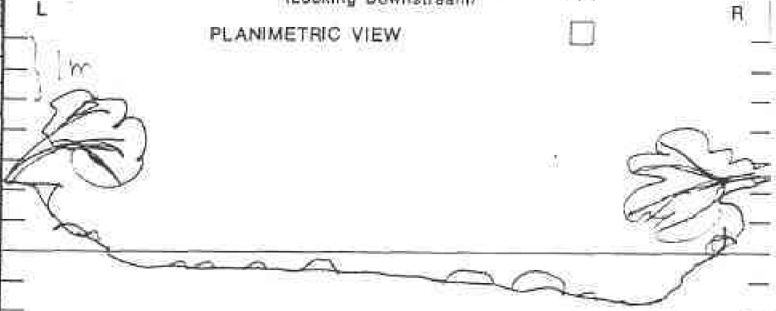
FISH SUMMARY

C	[illegible]	No.	Size Range (mm)	[illegible]	Use	[illegible]
1	CCG	7	32-82	J, A	R	EL
	MW	2	240-242	J, A	R	AG

STREAM/VALLEY CROSS-SECTION (Looking Downstream) ☑

PLANIMETRIC VIEW ☐

L R



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

Photos:

#4-13 Looking towards upstream end of site.

#4-12 - " " downstream " " "

1 EL for 100 m / Fly-fished deep pool downstream of site ? Estimated ~30-40

2 (no fish kept) / → caught 2 MW → took lengths, scales) . MW in pool

2 Most deep pool actually slow deep runs of size range 20-30 cm

Edited by:

Date Y M D

Site 92; Moberly R. (Upstream view of site)

Site 92; Moberly R. (Downstream view of site with large pool)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) Mclean? Cr.	(local)	Access: 2	Method
Watershed Code [illegible]	Reach No.	Length(km)	
Location: On ford; to 100m downstream from ford	Map# 93-O/9	Site No. 43	Lthsurv.(m) 100 / 3E
	U.T.M. 10.5396.61742	Fish Card: (Y) N	C / Field ☑ Hist. ☐
Date Y M D: 1990/07/30	Time 1515	Agency [illegible]	Crew G-1/HH/
Photos H-10-11	Air Photos		

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	29.9	4	31.6, 33.4, 32.7, 27.0, 25.0
	Ave.Wet.Width (m)	16.3	4	18.6, 11.7, 15.9, 18.7, 17.4
	Ave.Max.Riffle Depth (cm)	21	MG	27, 11, 19, 20, 29
2	Ave.Max.Pool Depth (cm)	71	MG	41, 57, 61, 79, 96, 92
	Gradient %	1	CL	
	%Pool 10 / Riffle 30 / Run 60 / Other		GE	
	Side Chan.%	0 ☑ 0–10 ☐ 10–40 ☐ >40 ☐	GE	
	Debris Area%	0 ☐ 0–5 ☐ 5–15 ☐ >15 ☐	GE	
	Debris Stable %	20	GE	
	COVER: Total %	20	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	30	20	10	T	15	25

Crown Closure %	5	C / Aspect	N

C	BED MATERIAL		%
	Fines	clay,silt,sand (<2mm)	10
	Gravels	small (2–16mm)	10
	Gravels	large (16–64mm)	20
	Larges	sm.cobble (64–128mm)	30
	Larges	lge.cobble (128–256mm)	25
	Larges	boulder (>256mm)	5
	Bedrock (B)		—
	D_{90}(cm) 25	C / Compaction	L (M) H

C	BANKS			
	Height(m) 1.95	%Unstable 30		
	Texture	F G (L) R		
	Confinement	EN CO FC (OC) UC N/A		
	Valley: Channel Ratio	0–2 2–5 5–10 (10+) N/A		
	Stage	Dry (L) M H Flood		
	Flood Signs Ht(m) 1.42	Braided	Y (N)	
	Bars (%) 15	pH	O_2(ppm)	
	Water Temp.(°C) 11	Turb.(cm) 96	Cond.(25°C)	

OBSTRUCTIONS			
C	Ht(m)	Type	Loc'n

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	15.4	T	12.6, 14.4, 16.5, 16.5, 16.9
Mean Depth (m)	0.25	MS	.25, .16, .30, .26, .29
Mean Velocity (m/s)	0.91	F (10m)	75/10, 95/10, 125/10, 115/10, 155/10
Discharge (m^3/s)	2.63	F	

REACH SYMBOL (Fish)

(Width,Valley:Channel,Slope) (Bed Material)

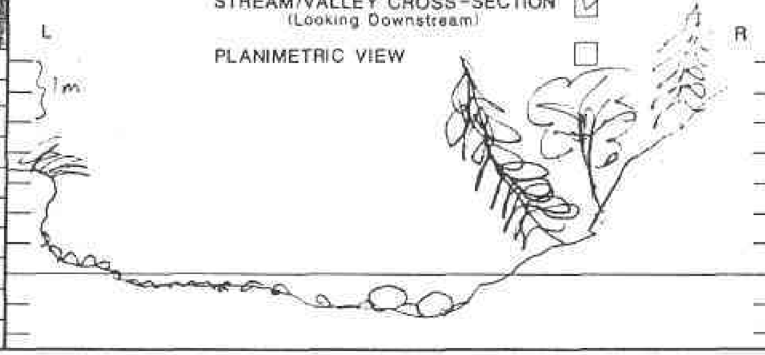
REVISED DEC 87 SS1 87

FISH SUMMARY

C	Species	No.	Size Range(mm)	Life Phase	Use	Method/Ref.
1	CCG	16	41–87	J, A	R	EL

STREAM/VALLEY CROSS-SECTION (Looking Downstream) ☑

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐ Debris ☐ Management Concerns ☐ Obstructions ☐ Riparian Zone ☐ Valley Wall Processes ☐ Etc.

Photos: H-11 looking towards downstream end of site
-12 • upstream from site @ ford.

1 Electroshocked for 100m (FSL have been preserved)

2 2/3 of these are actually just deep runs (not v. many pools present)

Edited by:

Date Y M D:

Site 93; Moberly R. (Upstream view of site with ford)

Site 93; Moberly R. (Downstream view of site)

DFO / MOEP
STREAM SURVEY FORM

Stream Name (gaz.) M'[illegible]ly	(local)	Access	V[illegible]
Watershed Code 230-444	Reach No.	Length(km)	Method
Location: starting from clearing around for 100 m.	Map: 93-0/9	Site No.: 45	Lth surv(m): 100
	U.T.M. 10·5413·61737	Fish Card: (Y) N	Field ✓ Hist. ☐
Date Y M D: 97 07 24	Time: 15 30	Agency: F3	Crew: [illegible] / Photos: [illegible] / Air Photos

C	PARAMETER	VALUE	METH.	SPECIFIC DATA
	Ave.Chan.Width (m)	39.1	T	48.1, 40.2, 34.5, 38.8, 34.1
	Ave.Wet.Width (m)	14.2	T	16.0, 10.8, 15.7, 13.7, 14.4
	Ave.Max.Riffle Depth (cm)	23	MS	18, 35, 16, 23, 25
	Ave.Max.Pool Depth (cm)	86	MS	79, 117, 42, 104, 87
	Gradient %	.5	CL	
	% Pool 20 / Riffle 10 / Run 70 / Other		GE	
	Side Chan. %	0☐ 0-10☐ 10-40✓ >40☐	GE	
	Area %	5 — 0☐ 0-5☐ 5-15✓ >15☐	GE	
	Stable %	20	GE	
	COVER: Total %	40	GE	

Comp. sum 100%	Dp Pool	L.O.D.	Boulder	In Veg	Over Veg	Cutbank
	50	35	0	T	T	15

Crown Closure %: 0 | Aspect: E

C	BED MATERIAL		%
	Fines	clay, silt, sand (<2mm)	
	Gravels	small (2-16mm)	
		large (16-64mm)	
	Larges	sm.cobble (64-128mm)	
		lge.cobble (128-256mm)	
		boulder (>256mm)	
	Bedrock (R)		

D_{90}(cm): 15 | Compaction: (L) M H

C	BANKS		
	Height(m) 1.5	%Unstable 70	
	Texture: (F) (G) L R		

Confinement	EN CO FC (OC) UC N/A
Valley: Channel Ratio	0-2 2-5 5-10 (10+) N/A
Stage	Dry (L) M H Flood
Flood Signs Ht(m) .59	Braided Y (N)
Bars (%) 30	pH / O_2(ppm)
Water Temp.(°C) 16	Turb.(cm) 12 / Cond.(25°C)

OBSTRUCTIONS		
C Ht(m)	Type	Loc'n
none		

DISCHARGE

Parameter	Value	Method	Specific Data
Wetted Width (m)	13.2	T	12.6, 12.7, 13.1, 13.3, 13.7
Mean Depth (m)	.51	MS	22, 37, 32, 34, 45
Mean Velocity (m/s)	0.43	F (10m)	21, 26, 27, 20, 24
Discharge (m^3/s)	3.2	F	

REACH SYMBOL (Fish)

(Width, Valley:Channel, Slope) (Bed Material)

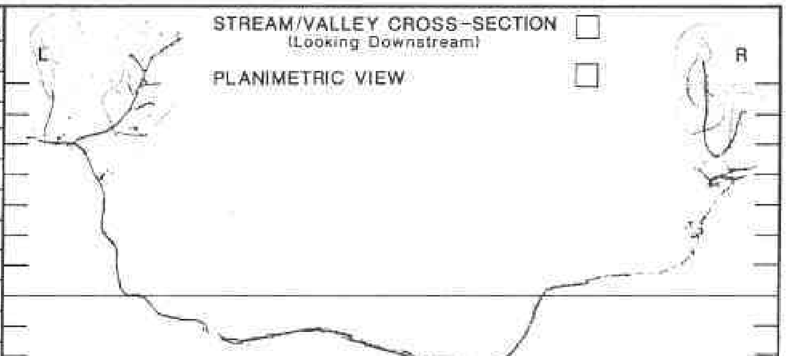
REVISED DEC. 87 SS1 87

FISH SUMMARY

C	Species	No.	Size Range (mm)	Life Phase	Use	Method/Ref.
	CCG	6	28-47		R	EL

STREAM/VALLEY CROSS-SECTION ☐ (Looking Downstream)

PLANIMETRIC VIEW ☐



COMMENTS

Channel Stability ☐, Debris ☐, Management Concerns ☐, Obstructions ☐, Riparian Zone ☐, Valley Wall Processes ☐, Etc.

1 side channel @ top end of reach (just out of)
2 Cut bank significantly more in high water
signs of beaver activity

Photos — 7 looking downstream to end of site
8 " upstream (note high sluffing banks)

Edited by:
Date Y M D:

Site 95; Moberly R. (Upstream view of site; note sluffing banks)

Site 95; Moberly R. (Downstream view of site)

APPENDIX B

West Moberly River Fish Data

APPENDIX B - WEST MOBERLY RIVER FISH DATA

SITE # 1		Date: 19-Jun-92
No.	Species	Fork length (mm)
1	DV	254
2	CAS	254
3	CAS	254
4	CAS	254
5	CAS	254
6	CAS	254
7	CCG	44
8	CCG	80
9	CAS	81
10	CCG	89
11	DV	114
12	CAS	86
13	CAS	77
14	CCG	66
15	CAS	42
16	CAS	54
17	CAS	49
18	CAS	74
19	CCG	44
20	CAS	79
21	CAS	81
22	CAS	69
23	CAS	43
24	CAS	51
25	CAS	41
26	CAS	72
27	CAS	45
28	CAS	50
29	CAS	36
30	CAS	41
31	CAS	44
32	CAS	53
33	CCG	41

SITE # 1		Date: 19-Jun-92
No.	Species	Fork length (mm)
34	CAS	50
35	CAS	51
36	CCG	32
37	CAS	44
38	CAS	39
39	CAS	56
40	CCG	50
41	CCG	41
42	CAS	64
43	CAS	44
44	CAS	54
45	CCG	45
46	CAS	41
47	CAS	44
48	CCG	51
49	CAS	43
50	CAS	38
51	CAS	42
52	CAS	52
53	CAS	31
54	CCG	45
55	CAS	44
56	CCG	36
57	CCG	34
58	CAS	37
59	CCG	36
60	CAS	39
61	CAS	41
62	CCG	36
63	CCG	37
64	CAS	37
65	CCG	31
66	CAS	41

APPENDIX B - WEST MOBERLY RIVER FISH DATA

SITE # 6	Date:	17-Jun-92
No.	Species	Fork length (mm)
1	LNC	100
2	LNC	113
3	CCG	59
4	CCG	65
5	CCG	36
6	CCG	70
7	CCG	52
8	CCG	52
9	CCG	46
10	CCG	49
11	CCG	49
12	CCG	51
13	CCG	54
14	CCG	63
15	CCG	57
16	CCG	64
17	CCG	63

SITE # 6A	Date:	18-Jun-92
No.	Species	Fork length (mm)
1	RB	89
2	CCG	104
3	RB	103
4	RB	211
5	RB	92
6	CAS	74
7	RB	103
8	RB	92
9	CCG	108
10	CCG	104
11	CCG	110
12	CCG	74
13	CAS	101
14	CCG	82
15	CCG	54
16	CCG	51
17	CCG	56
18	CCG	51

SITE # 9	Date:	17-Jun-92
No.	Species	Fork length (mm)
1	LNC	87
2	MW	138
3	MW	278
4	MW	169
5	CCG	88
6	MW	161
7	MW	109
8	RB	120

SITE # 38	Date:	3-Jun-92
No.	Species	Fork length (mm)
1	CCG	110
2	CCG	90
3	CCG	80
4	CCG	85
5	CCG	100
6	CCG	80
7	CCG	70
8	CCG	78
9	CCG	60
10	CCG	75
11	CCG	70
12	CCG	80
13	CCG	60
14	CCG	65
15	CCG	71
16	CCG	70
17	CCG	65
18	CCG	56
19	CCG	50

APPENDIX B - WEST MOBERLY RIVER FISH DATA

SITE # 49		Date: 4-Aug-92
No.	Species	Fork length (mm)
1	DV	139
2	CCG	102
3	DV	133
4	DV	141
5	DV	140
6	DV	145
7	DV	148
8	CCG	92
9	CCG	104
10	CCG	81
11	CCG	94
12	CCG	96
13	CCG	72
14	CCG	69
15	CCG	64

SITE # 58		Date: 5-Aug-92
No.	Species	Fork length (mm)
1	DV	128
2	CCG	83
3	CCG	107
4	DV	168
5	DV	143
6	CCG'	81
7	CCG	71
8	CCG	57
9	CCG	63
10	CCG	76
11	CCG	64
12	CCG	76
13	CCG	63
14	CCG	70

SITE #89		Date: 5-Aug-92
No.	Species	Fork length (mm)
1	DV	143
2	CCG	109
3	CCG	105
4	CCG	94
5	CCG	86
6	CCG	72
7	CCG	81
8	CCG	77
9	CCG	79
10	CCG	76
11	CCG	74
12	CCG	69
13	CCG	66

SITE #89		Date: 5-Aug-92
No.	Species	Fork length (mm)
14	CCG	76
15	CCG	53
16	CCG	67
17	CCG	58
18	CCG	42
19	CCG	55
20	CCG	46
21	CCG	44
22	CCG	49
23	CCG	46
24	CCG	34
25	CCG	32
26	CCG	28

APPENDIX B - WEST MOBERLY RIVER FISH DATA

SITE # 92		Date: 30-Jul-92
No.	Species	Fork length (mm)
1	CCG	82
2	CCG	72
3	CCG	66
4	CCG	56
5	CCG	53
6	CCG	56
7	CCG	32
8	MW	242
9	MW	240

SITE # 93		Date: 30-Jul-92
No.	Species	Fork length (mm)
1	CCG	74
2	CCG	87
3	CCG	67
4	CCG	84
5	CCG	69
6	CCG'	68
7	CCG	64
8	CCG	76
9	CCG	64
10	CCG	67
11	CCG	56
12	CCG	49
13	CCG	53
14	CCG	54
15	CCG	41
16	CCG	46

SITE # 95		Date: 29-Jul-92
No.	Species	Fork length (mm)
1	CCG	46
2	CCG	47
3	CCG	39
4	CCG	29
5	CCG	30
6	CCG	28

Species codes:

CAS - prickly sculpin
CCG - slimy sculpin
DV - bull trout
LKC - lake chubb
LNC - longnose dace
LSU - longnose sucker
MW - mountain whitefish
RB - rainbow trout

APPENDIX C

Location of Survey Sites for the West Moberly River Stream Surveys

Note: Appendix 'C' consists of four 1:50,000 NTS maps. These are only available in the original copy of the report which is located in the BC Environment library in Fort St. John.