

Module 10 contains specific information about increasing community awareness and working with the media.

References:

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- Anon 1994. *Stream Inventory Manual (Draft Version)*. Prepared for Fisheries Branch, B. C. Ministry of Environment, Lands, and Parks and Department Fisheries and Oceans, Canada.
- Harrelson, C., C. Rawlins, and J. Potyondy. 1994. *Stream Channel Reference Sites: An Illustrated Guide to Field Technique*. Gen. Tech. Rep. RM-245. Fort Collins CO, US Dept. Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 61pp.
- Newbury, R. W. and M. N. Gaboury. 1994. *Stream analysis and Fish Habitat Design*. Published by Newbury Hydraulics Ltd., Gibsons, B.C. 256 pp.
- Plafkin J., et al. 1989. *Rapid Bioassessment Protocols for Use in Streams and Rivers*. U.S. Environmental Protection Agency / 444 / 4-89-001. Washington, DC.
- Rabe, F. W. 1992. *Streamwalk II: Learning How to Monitor our Streams*. Idaho Water Resources Research Institute, Univ. Of Idaho. 61 pp.
- Schuett-Hames, D., A. Plues, L. Bullchild, and S. Hall. 1994. *Timer-Fish-Wildlife Ambient Monitoring Program Manual*. Northwest Indian Fisheries Commission, Washington State.

Advanced Stream Habitat Survey Field Data Sheet

(use a new data sheet for each reference site surveyed)

Module 2

Stream Name/Nearest Town:		Date
		Watershed code
Organization Name:		
Contact Name:		Phone #
Crew Names:		Stream Segment #
		Stream Section #
		Length Surveyed

Upstream End Point

Mapsheet number _____	Type _____	Scale _____
Location (distance from known stream landmark, directions to benchmark)		
Time: _____ Weather ' clear ' shower (1-2.5 cm in 24 hr) ' snow ' overcast ' storm (<2.5 cm in 24 hr) ' rain on snow		
Water turbidity (cm visibility) _____	Temperature °C (leave thermometer 2 min.) air _____ water _____	
Measurements taken every _____ m		
Bankfull Channel width _____ (m)	Average depth _____ (m)	
Wetted Channel width _____ (m)	Average depth _____ (m)	

Downstream End Point

Mapsheet number _____	Type _____	Scale _____
Location (distance from known stream landmark, directions to benchmark)		
Time: _____ Weather ' clear ' shower (1-2.5 cm in 24 hr) ' snow ' overcast ' storm (<2.5 cm in 24 hr) ' rain on snow		
Water turbidity (cm visibility) _____	Temperature °C (leave thermometer 2 min.) air _____ water _____	
Measurements taken every _____ m		
Bankfull Channel width _____ (m)	Average depth _____ (m)	
Wetted Channel width _____ (m)	Average depth _____ (m)	

(Upstream) First and Last Measurements taken .1 m from streambank edge (Downstream)

Left Bank											Right Bank
Wetted Depth											Wetted Depth
Bankfull Depth											Bankfull Depth

Left Bank											Right Bank
Wetted Depth											Wetted Depth
Bankfull Depth											Bankfull Depth

Take measurements every 0.5m in streams less than 5m wide, every 1m in streams 5 to 15m

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Module 2

Stream Name	Date	
Organization Name	Stream Segment #	Section #
	Map Sheet #	

STEP 1. BENCHMARK LOCATION

Directions to benchmark

STEP 2. CROSS-SECTIONAL SURVEY

Location relative to benchmark	Photos taken: (yes or no)
Bankfull channel width (m)	Average bankfull depth (m)
Wetted channel width (m)	Average wetted depth (m)
Measurements taken every _____ metres	
Cross-sectional plot	

Left Bank											Right Bank
Wetted Depth											Wetted Depth
Bankfull Depth											Bankfull Depth

STEP 3. STREAM DISCHARGE

Cross-sectional area of wetted stream (m ²)	_____ x _____ = _____ (m ²)	
	wetted width	average wetted depth
Average Time (sec)	[_____ + _____ + _____ + _____ + _____] = _____ , 5 = _____	
	trial 1	trial 2 trial 3 trial 4 trial 5 total trials Average Time (sec)
Average Velocity (m/sec)	_____ , _____ = _____	
	length (m)	average time (sec) Average Velocity (m/sec)
Average Stream Discharge (m ³ /sec)	_____ x _____ x <u>0.8</u> = _____	
	cross sectional area (m ²)	average velocity (m/sec) correction factor Discharge (m ³ /sec)

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Module 2

Stream Name	Date
Organization Name	Stream Seg # Section#
	Map Sheet #

STEP 4.1 LONGITUDINAL SURVEY, MEASUREMENTS

Length of survey site (minimum 12 times the bankfull width)	Minimum _____ (m)	Actual _____ (m)	Photos (yes, no)
Upstream survey boundary (m upstream of benchmark)	Minimum _____ (m)	Actual _____ (m)	
Downstream boundary (m downstream of benchmark)	Minimum _____ (m)	Actual _____ (m)	

* distance **upstream** (Up) of benchmark

habitat unit type (pool or riffle)	bottom of habitat unit*	top of habitat unit*	length of habitat unit (m)	% slope	Photo Frame #
	Up	Up			
	Up	Up			
	Up	Up			
	Up	Up			
	Up	Up			
	Up	Up			
	Up	Up			

* distance **downstream** (Dn) of benchmark in metres

habitat unit type (pool or riffle)	top of habitat unit*	bottom of habitat unit*	length of habitat unit (m)	% slope	Photo Frame #
	Dn	Dn			
	Dn	Dn			
	Dn	Dn			
	Dn	Dn			
	Dn	Dn			
	Dn	Dn			
	Dn	Dn			

Advanced Stream Habitat Survey Field Data Sheet

(use a new data sheet for each reference site surveyed)

Module 2: (con't)

Stream Name	Date
Stream segment and section #'s	

STEP 4.2 LONGITUDINAL SURVEY, HABITAT QUALITY

1. Streambed material Collect 25 samples 1 8 15 22 2 9 16 23 3 10 17 24 4 11 18 25 5 12 19 6 13 20 7 14 21	% fines (<0-2cm) - ladybug size and smaller % gravel(0.2-5 cm) - ladybug to tennis ball % cobble (5-25cm) - tennis ball to basketball % boulder (>25cm) – bigger then a basketball with definable edges % bedrock - slab of rock	Fines = _____% Gravel = _____% Cobble = _____% Boulder = _____% Bedrock = _____% Cobble + Boulder = _____% Total = _____%
2. % embeddedness - cover of gravel and cobble by fine sediment _____%		
3. Instream cover <u>LWD</u> _____ <u>Rooted cutbank</u> _____	_____ # pieces LWD + _____ # rooted cutbanks = _____ ÷ _____ = _____ total cover (length of reference site +bankfull width) instream cover	
4. Percent pool habitat survey site slope total length of reference site (m)	total length of pools (m) % pool habitat	
5. Off channel habitat (if present, describe habitat type, size, and whether it is seasonal or year-round)	description	PRESENT ABSENT
6. Bank stability (left or right bank facing downstream) # active bank erosion bank stabilization # slides reaching the channel	# of sites and length of bank affected (m) LEFT BANK RIGHT BANK _____ _____ _____ _____ _____ _____	
7. Length of bank with no vegetation (m)	LEFT BANK _____	RIGHT BANK _____
8. Overhead canopy	% bankfull channel covered by overhanging branches	
9. Riparian zone type and amount of vegetation	# of channel widths coniferous trees deciduous trees shrubs grasses	_____ none <input type="checkbox"/> few <input type="checkbox"/> many <input type="checkbox"/> none <input type="checkbox"/> few <input type="checkbox"/> many <input type="checkbox"/> none <input type="checkbox"/> few <input type="checkbox"/> many <input type="checkbox"/> none <input type="checkbox"/> few <input type="checkbox"/> many <input type="checkbox"/>
Adjacent land use and impacts		

Advanced Stream Habitat Survey Field Data Sheet

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Module 2 (con't)

Stream Name	Date
Stream segment and section #'s	

STEP 5 HABITAT ASSESSMENT *(the score in bold, estimate a value within the range listed)*

Characteristic	Results	Good	Acceptable	Marginal	Poor	Score
1: Streambed material: % boulder and cobble		15 - 20 50%	10 - 15 30-50%	5 - 10 10-30%	0 - 5 <10%	
2: Embeddedness:		15 - 20 25-0%	10 - 15 50-25%	5 - 10 75-50%	0 - 5 >75%	
3: Instream cover:		15 - 20 >3	10 - 15 2 to 3	5 - 10 1 to 2	0 - 5 <1	
4: % Pool Habitat <2% stream slope 2-5% stream slope >5% stream slope		11 - 15 >60% pool >50% pool >40% pool	7 - 11 50-60% 40-50% 30-40%	3 - 7 40-50% 30-40% 20-30%	0 - 3 <40% <30% <20%	
5: Off-channel habitat: ponds, side channels with protection from flood flows		11 - 15 year round, good protection	7 - 11 seasonal, good protection	3 - 7 seasonal, minimal protection	0 - 3 little or none, no protection	
6: Bank stability stability evidence of erosion or bank failure <i>(see note 1)</i>		11 - 15 stable none	7 - 11 moderately stable some	3 - 7 moderately unstable some	0 - 3 unstable lots	
7. Bank vegetation: % stream bank covered by vegetation		8 - 10 >90%	5 - 8 70-90%	2 - 5 50-70%	0 - 2 and <50%	
8. Overhead canopy: % bankfull channel overhung by trees and shrubs		8 - 10 >30%	5 - 8 20-30%	2 - 5 10-20%	0 - 2 0-10%	
9. Riparian zone: # bankfull channels wide trees and shrubs		8 - 10 2 or more abundant on whole floodplain	5 - 8 1 to 2 good species mix	2 - 5 <1 common, few species	0 - 2 0 sparse or absent	
TOTAL SCORE		102 - 135	66 - 102	30 - 66	0 - 30	

Note 1: The evidence of erosion or bank failure changes from **Good** (intact banks) to **Acceptable** (healed or banks stabilized) to **Marginal** (active erosion or extensive bank stabilization) to **Poor** (many actively eroding areas or upslope slides reaching channel).