SITE VERIFI	CATION	>>>>	»>>>>	·>>>>		>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	>>>>	·>>>>	>>>>>	>>> F	Reviewers	Initials					
Stream Nam	e (with lo	catio	n)														
AN-Code							D	Date			Time		Ge	90		Bio	
Basin				- 1	County						Quad	L					
GPS Type				EPE		Random	#			XY's P	roofed				E	Зy	
Provided/Pro	ev. Lat at	X				I	N	Pro	vided/	Prev. Lo	ong at X						w
Field Lat X-s	site						Ν	Fiel	d Lon	X-site							w
X-site field <u>verified</u> ?	□ Yes □ No	lf ne Why	o, v?		ccess-La	ysical Barr ndowner D	-					-	enced / [] Priv	rate /	□ Saf	ety)
Is site <u>targ</u> and kick sampleabl <u>ANSWER EV</u> IF YOU DID <u>SEE THE SI</u>	e? □` <u>VEN</u> □'	Yes No	lf no, Why?	□ T □ F □ In	oo Deep ïlled (□ <i>I</i> mpounde	(□ Perman (□ Perman Mining / □ d (□ Lake Present ()	ent-l Farn / □ l	Not W n / 🗆 Mining	adeab Urban, g / □ F	le / □ 1 /Reside	Temporar ential / 🗆	y) ⊡ No Road /	Riffle/Ru □ Industr	ın ⊡ V Ƴ)	Netlar	d	ater
Detailed no access, & s			f site.														
				ole Typ		<u> Lab </u>			Habita	it ⊡ Bι							
	<u> </u>	Lab		al 🗆 Ha	abitat 🗆	Bugs Du	p WC	ם בו			Was site	moved	(non-rand	dom)?	? 🗆	Yes [∃ No
Explanation Directions to	-																
Directions to	5 One																
Sketch of As																	end
(DS) of react	h, transec	cts (A∙	-K) and	d ripari	ian plots	(box), bug	sam	ples (I	b), wat	er sam	ple location	on (wq), Ì	X-site lat	and le	ong ()	().	
														_			
Notes													<u>Single</u> W Sample				

	Activities AND DISTURBANCES bocal Watershed Erosion														
													1		
		m Scourir	U					light		Moder	ate		leavy		
	•	Odors (Ra			ontial [Odor D		ovious, ma	anituda	2	□ Slight	□ Mod	erate 🛛 Heavy		
Specify	y Obviou	us or Poter ation/Sedin	ntial NPS	6 (feedlo				710us, me	igintude		Jongin		erate 🗆 Heavy		
		Discharg		Yes □	No	Pt. Source	e(s)								
				turban	ces (Rat	te 1-Low, 2-	-Modera	te, 3-High,	4-Extren	1e in Ead	h Box That	Applies)			
	Residen			ecreation		1	Agricult			Industr			Vanagement		
	Res	idences			arks/ pground			ual Row Crops		Indust	rial Plants		Liming		
	L	awns		Park	ing Lots		Р	asture		Surfa	ace Mine		Rip/Rap or Bank Stabilization		
	Pow	er Lines			: Access/ Dock		Hay P	Production		Dee	ep Mine	Dredging			
	Cons	struction		Sw	imming		Or	chards		Co	al Prep		Channelized		
	Pipe	s/Drains		Fi	shing			oultry		Qı	arries		Fill		
	Bridges/Culverts Pipes/Drains Livestock Railroad								ilroad		Dams/Impounded				
Width	Surf Road Foot Trails Irrigation Logging										ogging	Multi Cou	purpose State or inty Maintained Roads		
					lorse, Bił ſrails	ke	Pipe	es/Drains		Pow	ver lines		Width		
	s for Wi face Ty	dth and pe are		Bridge	s/Culver	ts	Bridge	es/Culverts			odyards/ wmills		A=Single Lane		
Displa		the Right	Width	Surf Type	Road Intensi	W/idth	Surf Type	Road Intensity		Sanita	ry Landfill		B=Double Lane		
Sta	ate or Contained	ounty									ste H2O atment		C=Multi-Lane		
		& Disturba ny of the S			tivities	checked at	pove an	d to the			king H2O atment	S	Surface Type		
right.	Which o	f the above	e is the g	greatest	detrime	ent to the st	ream?			Pipe	s/Drains		A=Dirt		
										Park	ing Lots		B=Rutted Dirt		
										Bridge	s/Culverts		C=Applied Limestone		
										Gas	/Oil Well		D=Applied Non- Limestone		
										Gas/	Oil Lines		E=Asphalt		
									Width	Surf Type	Road Intensity		F=Concrete		
													Road Intensity		
		ivities & D				41-1						Road N	otes:		
								age? Is it active or a							
valley f	ills, etc.	What is t	he predo	ominant	NPS po	Ilution? A	re there	point sour	ces abov	e the re	each?				
Indicat	e if you	used maps	s (GIS) o	r field v	erified c	omments.	<u>DO NO</u>	<u>T LEAVE T</u>	HIS BOX	BLANK	<u>()</u>				

PHYSIC	AL &	SEDII	MENT	СН/	ARACTE	RIZATIO	\>>>>>	>>>>>>>	·>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	·>>>	·>>>>>	R	evie	wers	Initials			
AN-Code	е										Date							
Stream Width (r							Fotal Habita Coverage f				(% F	Run		%	Pool	%	
	Sed	iment	Odo	rs		Sedim	nent "Oils"				S	edim	ent l	Depos	sits			
No	ormal					А	bsent		Overall S	ilt					Relic Sh	nells		
Se	ewage	;				S	light		Overall Sa	and					Marl (Se	e Note a	t Left)	
Pe	etrole	um				N	loderate		Overall Fi	ine (Gravel				Limesto	ne Chun	ks or Fines	
Cł	hemic	al				Р	rofuse		Coal Chu	nks	and Fin	es			Paper F	iber		
Ar	naero	bic (S	eptic	;)					Red Dog						Sludge			
Oi	ther:						Sediment		Iron (Orai	nge	Hydrox	ide)				🗆 Natura	I 🗆 Other	
Note	e: Mar	l (crun	nbly, <u>c</u>	grayis	sh,	1-Low,	its: 0-None 2-Moderate 4-Extreme	,	Aluminun	n (W	/hite Hy	droxid	de)		<u>obable</u> S Mining		I 🗆 Other	
lightweig Only*** P Under "Ir	Place N	larl in	Prope	er Siz	e Class		lot Rated	,	Mangane	se (I	Black H	ydrox	ide)		<u>obable</u> S Mining		I 🗆 Other	
	norgai	ne eu	Jonat	0 011	l uge e				Other:									
Substra	ate	Parti																
Particle		Cod				Size Cl	ass				Subst	rate F	Part	icle L	ayer Pr	ofile		
Bedrock	k	BF	२				/hardpan han a car)		Location ¹		labitat Type ²		ostra rticl		Sand &	Silt Thick	ness (cm)⁴	
Boulder		Bl	-	Bas	ketball t	o car (>2	50-4000 mr	n)									Тор	
Cobble		CE	3		nis ball 1-250 mr	to basket n)	ball		Special Instructions:									
Coarse Gravel		CC	3	Mar	ble to te	nnis ball	(>16-64 mr	n)	1) The loca middle, or be kept col	righ	t) is to							
Fine Gra	avel	FC	3	Lad	ybug to	marble (:	>2-16 mm)		for each co	onse	cutive							
Sand		SA	4	Grit	ty – up t	o ladybu	g (>0.06-2 r		visit if pos High Flows		e (e.g.,							
Silt & Fi	nes	S	Г	Fine	e – not g	ritty (<0.0	06 mm)		2) Sample I	riffle		Not	es:					
Clay		Cl	-	Slic	k/ hard o	clay or ha	ard-pan cla	y	habitat if a	vaila	able.						Bottom	
Metal Hydroxid	de	Mł	4				Deposits (ayer Profile)		R M RDB		L LDB						Box above is 1cm wide	
Codes) is down to t	s deter the bo	mined ttom.	by re Only o	movi one la	ng one pa ayer profi	article at a le is requi	time (docun red per visit.	nenting ea 4. The th	bitat type (rif ach as a sepa nickness in c Sand or 1-Si	arate m of	e layer) s the san	tarting	j froi	m the u	uppermos	t layer and		
									able Abov			or Su	hst	rate F	Particle	Size Coo	les)	
Reach	La	bitat	Dept		Dom	% age	Dom	% age	Reach			Depth		Dom	% age	1	- rí	
Location (m) ¹		pe ²	(m)		Sub 1 ³	1 ⁴	Sub 2 ³	2 ⁴	Location (m) ¹		/pe ²	(m)		Sub 1 ³	⁷⁰ age	Sub 2	2^3 2^4	
	_															_		
	_			-									-					
	_						+						-				_	
													T					
									,									
	_															_		
	_						$\left \right $						_				_	
													+					
		ion (fro	om d.s	s. end	l), 2. Habi	itat type (r	iffle = rf, run	= rn, pool	i = pl), 3. Dor	n Su	ıbstrate (Size C	lass	Partic	le Codes)	, 4. %age	(estimate in	
the habita	at)																	

Re	Reviewers Initials FIELD WATER & RIPARIAN VEGETATION ZONE MEASURES>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>																
	WQ Sample Image: Mid-Stream in Bank (in Left in Right) in Thalweg (in Left in Middle in Right) WQ Image: Single in Profile Location Left Channel in Right Channel in Cross Section Other: Type Image: Other: Sonde Method Image: Grab in Sample Tube in Bucket Lab Water Method Image: Grab in Sample Tube in Bucket Bucket																
So	nde N				-					er N	lethod	arab □	Sampl	le Tuk	be 🗆 B	ucket	
Flag		or a <u>Single</u>		Parameters er Quality	³ Se	asonal Leve			Water C	Ddo	ors	Sur	face "O	ils"		Turbidit	у
			Tem	perature °C		Below	Normal		Normal				None			Clear	
			• •	std. Units)		Norma	ıl		Sewage (Not Septic)				Flecks	;		Slightly	
			Oxy	olved gen (mg/L)		Above	Normal		Petroleum				Sheen			Moderat Turbid	ely
				ductivity nos/cm)		Floodi			Chemical				Globs			Highly T	urbid
	S	onde I.D. #	:			oam I-Soap)	Suds (Soap)		Anaerobic (s	ept	ic)		Slick		Water	color:	
		blems occ any reading		h the Water					Other:			Note	s:				
rec	ord no	otes in the	space	to the right		ate 0-4											
AB	OVE:	Record	readir	ngs in box	for cor	respon			emical parar			√ in the	box fo	r othe	er cate	gories.	
								ast 24	-	113					Major	Rain	
Cu	rrent						Н	ours (I	f						Even	t in	□ Yes □ No
lf i	t is ra	ining or h	as rai	ined recen	tlv. whi	ch of th		nown) ing be	st describes	the	e peak runoff	(flush)	condit		past w f the st		
									on is in respo				se indi	cate a			
N/.	4	< 1 Hour		1 to 4 Hours		4 to 12 Hours		2 to 2 Hours			2 to 4 Days		4 to 7 Days		U	Inknown	
ls	the st	ream leve	l risir	ng, falling,	or at ba	aseflow	at the tir	ne of v	visit?	Ur	nknown 🗌	Base	flow		Rising	🗆 Fa	alling
-	Stream Bank/Riparian Buffer Zone Vegetation/Cover Type																
	 → → What is the dominant vegetation type in the reach? □ Deciduous □ Coniferous (<i>i.e.</i>, Spruce, Pine, Hemlock, Rhododendron) □ Mixed Deciduous (>10-49% Coniferous) □ Mixed Coniferous (>10-49% Deciduous) Score Codes: 0=Absent (0%) 1=Sparse (0-<10%) 2=Moderate (10-40%) 3=Heavy (>40-75%) 4=Very Heavy (>75%) 																
R	ft & ght ank	Determiı Within T	he	Canopy (;	>5 M Hig Feet)	ıh) (>15	Under		0.5 – 5 M High) I5 Feet))	Ground Cove (≈1.5	r (<0.5 M Feet)	/ High)		Bare /	Barren Se	oil
W Fa Do	hile cing own- eam	1 st 18 m Ft) Froi Strean Edge	m n	Sycamore Box Elde		Maples, Birch,	Veget Ala	tation s ler, Kno vil), Rho	and shrubby such as Willow, otweed (blue ododendron,	,	Ferns, Gras Wildfi	ses, Mo owers	sses,	Rea	dily ero	d soil surl odible – n asphalt re	ot rock
L	EFT (1	8 m) (≈60 f	t.)					<u>vviii</u>	gstem								
RI	GHT (1	18 m) (≈60	ft.)														
Sti	eam S	Surface S	hadin	ig (%) In	dicate	% base	d on clou	udless	day in summ	ner	at noon. Pla	ce a √	in box	that a	pplies	•	
		oosed (0-25	,		Partly S	•	,			•	sed (50-75%)			,	ded (75	,	
General Comments (include land cover types outside of 18 m zone on left and right side that may impact water quality at the stream site). Provide your impression of the buffering capacity of the riparian zone in the 100-m reach including width, allochthonous input, topography, and plant composition.																	
Am	Amphibian pool in riparian area? □ Vernal □ Mud Puddle □ Sed. Pond □ Farm Pond □ Ditch □ Lake □ Cattail Wetland □ Other Comments: □ Comment																
	Invasive Trees: Tree-of-Heaven Vines: Kudzu Japan. Honeysuckle Other:																
	ecies i	in the B							pan. Barberry		to						
rea	ach rip area	2							oo □ Mile-A-Mi h □ Purple Lo			c Must	urd				
		3	433/L	<u></u> . 🗆 J							estille 🛛 Galli						

 Page 4
 WVDEP WAB
 Wadeable Stream Assessment Form (8/17/2018)

AN-Code				
			Date	
		CATE	GORY	
PARAMETER	Optimal	Sub-optimal	Marginal	Poor
SUBSTRATE/ AVAILBLE FISH COVER b h fu lo n	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at a stage to allow full colonization potential (i.e., ogs and snags that are not new fall and not transient.)	40 to 70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	20 to 40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed. Consider Benthic Macro and Fish Habitat on Pa	_
SCORE:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
NESS pa 2: su pi si N	Gravel, cobble and boulder particles are between 0 and 25% surrounded by fine sediment ; layering of cobble provides a diversity of niche space. NOTE: Clean Bedrock is not	Gravel, cobble, and boulder particles are between 25 and 50% surrounded by fine sediment. Rate in R Remember to cons		Gravel, cobble and boulder particles are over 75% surrounded by fine sediment.
SCORE:	considered embedded!			
DEPTH do REGIMES si (>	20 19 18 17 16 Slow (<0.3 m/S or \approx 1 FT/S), deep (>0.5 m or \approx 1.5 FT); slow, shallow (<0.5 m); fast (>0.3 m/S), deep; fast, shallow habitats all present.	15 14 13 12 11 Only 3 of 4 habitat types present (if fast-shallow is missing, score lower than if other types are missing).	109876Only 2 of the 4 habitat types are present (if fast-shallow or slow-shallow are missing, score low).	5 4 3 2 1 0 Dominated by one velocity/depth regime (usually slow-deep).
SCORE:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
ALTERATION a	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, (> than past 20 years) may be present, but no evidence of recent channelization.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40% to 80% of the stream reach channelized and disrupted.	Banks shored with gabion or cement ; over 80% of the stream reach is channelized and disrupted. Instream habitat greatly altered or entirely removed.
SCORE:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
DEPOSITION is th ai	Little or no enlargement of sland or point bars and less than 5% of the bottom is affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5 to 30% of the bottom is affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of bottom is affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition in pools prevalent.	Heavy deposits of fine material; increased bar development; more than 50% of bottom is changing frequently; pools almost absent due to substantial sediment deposition.
SCORE:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Reviewers Initials

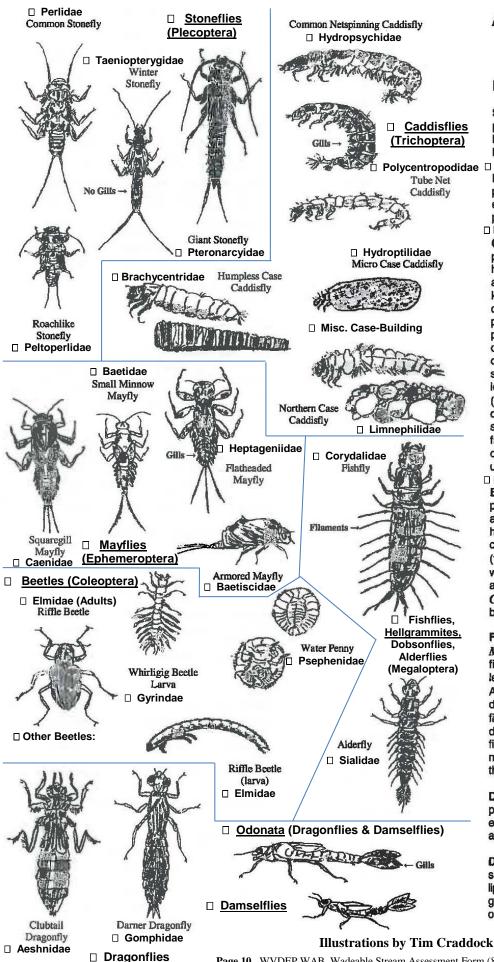
Reviewers Initia		APID HABITA	AT A33E33N			//N >>>>>					·>>>>		
HABITAT PARAMETER 6. RIFFLE					CATE	GORY							
PARAMETER	Optin	nal	Sub	-optim	nal		Margir	nal		Poor			
6. RIFFLE FREQUENCY SCORE:	Occurrence of riff relatively frequent distance between by the width of the <7:1 (generally 5 of habitat is key where riffles are placement of bo other large natur obstruction is in Rate lower in thi accordingly!	;; ratio of riffles divided e stream is to 7); variety in streams continuous; ulders or ral portant.	Occurrence (infrequent; d riffles divideo the stream e	istance b by the	between width of	habitat; d riffles div	ontours p listances ided by th	rovide some	Generally, shallow riff distance b by width of greater th	les; poor etween ri the strea	habitat; ffles divided		
SCORE:	20 19 18	17 16	15 14	13	12 11	10	98	76	54	32	10		
7. CHANNEL FLOW STATUS	Water reaches the both banks and a area of channel s exposed.	minimal	Water fills m the available than 25% of substrate is e	channe the cha	l; or less nnel		channel;	5% of the and/or riffle stly exposed.	Very little w mostly pre pools.		hannel, and t anding		
SCORE:	20 19 18	17 16	15 14	13	12 11	10	98	76	54	32	10		
8. BANK STABILITY	Banks stable; evid erosion or bank fa or minimal ; little future problems (- affected).	ailure absent potential for	Moderately s small areas healed over; reach has ar	of erosio 5-30% of	on mostly of bank in	of bank ir	n reach ha	ole; 30-60% as areas of ential during	Unstable; f "raw" area straight se obvious ba 100% of ba scars.	as frequ e ctions an ank sloug	d bends; hing; 60-		
TOTAL SCORE:	Dete	rmino	e left	rig	jht k	y fa	ncin	ng do	wns	trea	am		
LEFT:	10	9	8	7	6	5	4	3	2	1	0		
RIGHT:	10	9	8	7	6	5	4	3	2	1	0		
9. BANK VEGETATIVE PROTECTION	More than 90% of bank surfaces and riparian zones (cr covered by <u>native</u> including trees, un shrubs, and non-v (herbs, grasses, f mosses); vegetati disruption throug mowing minimal of evident; almost a allowed to grow n	d immediate est-over) vegetation hderstory voody plants erns, ve h grazing or or not Il plants	70-90% of th surfaces are vegetation, plants is no represented evident, but growth poter extent; more the potentia height remai	covered but one t well l; disrup not affectial to an e than or l plant s ning.	by <u>native</u> class of otion cting plant ny great ne-half of stubble	vegetatio obvious; or close vegetatio than one plant stu remaining	are cover on; disru patches y croppe on comm e-half of the bble heig g.	red by <u>native</u> ption of bare soil ed ion; less he potential	of stream i high; vego removed t in averago	ces are c getation; bank veg etation h to 2 inch e stubble	covered by disruption etation very as been es or less e height.		
TOTAL SCORE:	Rate from	1 bottom						of bank			,		
LEFT:	10	9	8	7	6	5	4	3	2	1	0		
RIGHT:	10	9	8	7	6	5	4	3	2	1	0		
10. WIDTH OF UNDISTURBED VEG. ZONE	Width of undisturt vegetative zone is human activities roadbeds, clear c crops) have not in zone	s >18 meters; (parking lots, uts, lawns, or	Zone width is 18 meters ; h have only m i this zone.	numan a	ctivities		s; human bacted the	veen 6 and n activities e zone a	Width of zo meters; lit disturbed man-induc	tle or no	o un- on due to		
TOTAL	Rate from												
SCORE:	Undistu				Ø			<u>-wood</u>	1	<u>10-bl</u>			
LEFT:	10	9	8	7	6	5	4	3	2	1	0		
RIGHT:	10	9	8	7	6	5	4	3	2	1	0		
TOTAL:	Optimal=1						arginal=6		Poor=0-59				

	I HABITAT, AESTH	ETIC, & RI	EMOTENE	ESS RA	TINGS	5 & EX	TRA SP	PACE	:>>> 	R	eviewe	ers Initials	\$			
AN-Code								Dat	te							
PARAMETER	Optimal		ŝ	Sub-op	timal			M	largin	al			F	Poor		
BENTHIC MACRO- INVERTEBRATE SUBSTRATE	Preferred substrate a stable, & at full color potential (riffles well & dominated by col substrate not new o transient).	nization developed b ble ;	Substrate maintena abundan coarse gr common &/or tran particles may be p	ince of p ice of co ravel &/o i; small a sient su (sand ar	opulatic obble w or bould areas of bstrate	ith ers new	Preferr uncom presen boulde transie be free Rem	nmon at but ers & b ent su quent	; some gravel bedrock ubstrate	e cobb or larg k prev e areas	e alent ; s may	Preferre absent; boulders transier domina	grave & be it are nt.	el or la edrock as ma	arge a dom ay be	inant;
	Rate for enti	re reach			reac	h is i	ot re	pre	sen	lativ	e of	benthi	c s	amp	le a	area
SCORE:	20 19 18	17 16	15 1	14 13	12	11	10) 9	8	7	6	5	4 :	32	1	0
FISH HABITAT	Variety of stable fisi is available in ≥ 75% reach: boulders, un- banks, woody debris submerged roots an- macrophytes, overha veg. (<1m from wate filamentous algae, a	o of the dercut d trees, anging er surface), ad artificial	Fish habi 75% of re maintena small, un areas pre	each; add ince of p istable c esent	equate opulation or trans	for ons; ient @		ble in featu featu ble ar on	10 to 4 ireless eas mo	10% of and/o ore	ina	Less that stable, u dominat and/or tr	sable ansio	e habit y feat ent ar	at; urele eas	SS
SCORE:	structures 20 19 18			11 CE 111 14 13		ාම	19 al 4 10			111 U 7	6		4 3			0
TRASH INDEX	Little or no evidenc human refuse prese		Human re amounts		esent in	small	Humar Moder		•			Human I unsight		e abu	ndant	and
SCORE:	20 19 18	17 16	15 14 13 12 11 10 9 8 7 6							6	5	4 3	32	1	0	
REMOTENESS RATING	Stream assessment than ¼ mile from ne Road; access difficu or no evidence of hu disturbance.	earest It and little	1/4 mile of	am assessment site within ile of roadside; site with erately wild character. Stream within ¼ mile of roadside; development activities evident.						Segment immediately adjacent to roadside access; visual, olfactory, and/or auditory displeasure experienced.						
SCORE:	20 19 18	17 16	15 1	14 13	12	11	10) 9	8	7	6	5	4 3	32	1	0
Is Site a Potentia	al Reference?	□Yes □										Disturba Conditio			atior	n (<i>i.</i> e.,
	Reference, why?	alv and	□ Sedim	ont			Jutrion					J _ C	fata			
	Check all that ap t are definite stre	-	🗆 Seaim 🗆 Condi				Nutrien	its		etais	⊔рг	ı ⊔ Sul	rate	•		
miles downs lakes, agric control da ford/bridge dau structures. Be	k Other if the site tream of any imp culture, or mining ams, beaver dam ms) or a valley fil e sure to include	oundmen y ponds, f s, low wa I (mining type of st	t (<i>e.g.</i> , lood ter or road) ructure	In	npoun	dmen Fill: 🗆	□ Flo □ Co t Relea Mining	ood (ncre ise T J	Contr ete Lo Type:	ol (ow W □ Bo	∃ Beav ater F ottom	Mining F ver □ Ins ord/Brid □ Spill hway co	strea Ige ove	am P r		
	impoundment re he structure, nur											Structur				
tributaries in chemistry (incl	between that ma uding dilution ef poundment in m	y alter the fects), and	water				oundn				ucture	and Sa	mpi	e Sit	e	
EXTRA SPACE FOR SPILL-OVER COMMENTS AND NOTES BELOW. When using this space, please indicate from which section of the form this is a continuation. For example, "More Sediment Notes" or "More Stream Reach Activities & Disturbances Notes" will allow the data entry person to associate this to the appropriate subform in the database. Also, be sure to indicate that there are additional notes here under the appropriate section (e.g., "More Notes on Page 7").																
	Page 7 WVDEP WAB Wadeable Stream Assessment Form (8/17/2018)															

Reviewers Initials	List organisms/wildlife that you observed at the sample site. Any organisms observed and put into the Benthic												
Sample Jar should I SALAMANDERS REL <u>SECTION BELOW</u> !	be noted on p EASED FRO INVASIVE PL	bage 9 under Bent M THE BENTHIC S	hic San AMPLE OULD E	nple Note E HERE! BE NOTE	es. PL <u>ALL T</u> D ON I	EASE ROUT PAGE	NOTE ANY N <u>SHOULD BE</u> 4 IN THE RIP	NON-TRO	OUT <u>) ON</u> VEGI	FISH OR <u>LY IN THE</u> ETATION			
Common Name		enus Species		Comm			Number Observed	Invasi		Observer			
Did you see freshwater	r mussels?	🗆 Yes 🗆 No		ive 🛛 Dea	ad	Did you	u collect dead	shells?] Yes 🛛 No			
Т	rout Observa	tions (For Sites th	at are <u>r</u>	not active	ely bei	ng san	n <mark>pled</mark> for Fis	h!)					
-	🗆 Yes 🗆 No	Comments											
Observation Method (<i>i.e.</i> , Benthic Net, Free Swimming, Rod & Reel)	(<i>i.e</i> ., Brook Tr	Species ID rout, Brown Trout, or R Trout)	ainbow	Count	Size (cm)		Notes (e.g., Y DELTs)	OY,	Pho	to #'S (Enter to Details on Page 10)			

BENTHIC MACROIN	VERTEE	BRATE & F	PERIPH	1YION/Al	.GAE/AQ.	PLANT IN	IFU>>:	>>>>>	<u>>>>>></u>	Rev	lewers	Initials		
AN-Code								Date						
] Yes] No	lf no, why?												
Benthic collection d			net 🗆	D-net 🗆	Hand	Benthic I	habita	at type	e & #	Riff	les		Runs	
Benthic sample com	nparabili	ty Was	benthi	c sample	comparat	ole with re	spect	to riffl	e/run d	depth a	nd velo	ocity?	□ Yes	□ No
Is there evidence that	at the st	ream char	nnel wa	as scoure	d by recei	nt flooding	or high	gh flov	NS?	-		_	□ Yes	□ No
Is it possible that sa										ple was	taken	?	□ Yes	□ No
Is there evidence that	at the st	ream is "w	vet-wea	ather" and	d flowing	only in res	ponse	e to re	cent ra	ainfall?			□ Yes	□ No
Benthic kick area de	epths			m			m				m			m
Use the space belo PLEASE NO Comment on the	OTE AN	THE B Y FISH, TR	ENTHI ROUT, O	C MÁCRO OR SALA	DINVERTE MANDER	BRATES I S RELEAS	Founi Ed Fr	D IN T ROM T	HE SA HE BE	MPLE!	!! Sampi	LE ON P	AGE 8!!!!	
		Class C	odes				Size C	lass					% Compo	sition
Inorganic Substrate (1 m² Of Kicked Substrate)Class CodesSize Class% CompositionBedrockBRSmooth surface rock/hardpan (>4000 mm – bigger than a car)%														
									m – bi	gger th	an a ca	ar)		
Boulder (BL)		BL				(>250-4000								% %
Cobble (CB)	CB Tennis ball to basketball (>64-250 mm) CG) CG Marble to tennis ball (>16-64 mm)													
Coarse Gravel (CG)							,							%
Fine Gravel (FG)		FG		,		le (>2-16 m	- /							%
Sand (SA)	SA Gritty – up to ladybug (>0.06-2 mm) s (ST) ST Fine – not gritty (<0.06 mm)									%				
Silt & Fines (ST)		-				;								% %
Clay (CL) Enter estimated % c	omnosit	CL				r hard-pan		etimat	o ovor	ontiro	100-mc	tor stro	am reach.**	
Describe the benthi shapes (globular vs embeddedness (em substrate that was s	c sampl s. flat v bedded	ling subst s. angula by pea gr	rate qu r), <u>text</u> ravel v	uality in t ture (e.g. s. sand/s	erms of <u>r</u> , rough v ilt). Also	elative siz vs. smooth , mention	<u>es</u> (e. h bedi any u	g., sm rock), inusua	all-siz <u>layeri</u> al sub:	ed vs. <u>nq</u> (i.e strate f	large-s ., was eature:	ized co the col s (e.g., t	bble or bo ble stacke	ulders), d) and
	Bor	nhuton (8		1 1	Filame	entous		ВІ	ue-Gre	een Alg	ae		Aquatia	
Indicate abundance of each: 0=None,		phyton (<i>B</i> lick; Diatol			Algae	(Green;	1	(Blueis	sh-Gree	n		Aquatic Mosses	
1=Low, 2=Moderate	, <u>Cub</u>	-	-			ng) t Aquatic	─			Not Lon				
3=High, 4=Extreme,	Sub	merged Ac Plants (<i>e.g</i>				t Aquatic .g., Water	1	F P	loating	g Aquat (e.g., Li	lic Iy		Total Aquatic	
NR=Not Rated	Star	rgrass, Hy	drilla)			low)				uckwee			Plants	
Periphyton/Algae/Aqua	atic Plant	s & Mosses	s Notes:	:										

Reviewers Initials



A Visual Guide to Stream Macroinvertebrates

Insect Groups

Stoneflies (order Plecoptera) "very sensitive": Two pairs of legs (6); 2 hooked claws at the end of each leg; no gills on the abdomen but many gills on the legs and thorax; 2 tails and 2 long antennae.

- Polycentropodidae

 Perlodidae
 Chloroperlidae
 Other: Mayflies (order Ephemeroptera) "sensitive": Two pairs of legs (6); one hooked claw at the end of each leg; gills on the abdomen (may be covered by plates); 2 or 3 tails and 2 short antennae.
 - □ Isonychiidae □ Ephemeridae □ Other: Caddisfiles (order Trichoptera) "sensitive": Two pairs of legs (6); segmented grub-like body; may have gills along lower and upper portions of the abdomen; small hair-like tails or hooks. Some kinds may be enclosed in a case that they construct using stream bottom materials such as pebbles, sand grains, woody debris, pieces of plant material or some combination; others construct nets, and others do neither (free-living caddisfly). The case builders often construct a specific case that can sometimes be used in their identification. The common netspinning caddisfly (family Hydropsychidae) is more tolerant than most of the group so they are placed into the less sensitive category on the stream survey. The family Hydropsychidae can be distinguished from other caddisflies by the abundant gills on the underside of their body.
 - □ Rhyacophilidae □ Philopotamidae □ Other: Beetles (order Coleoptera) "less sensitive": Two pairs of legs (6); mainly rounded or oval shape as adults; a few kinds have tails hooks or filaments. hard bodies and visible wing-pads. The most commonly encountered beetles are the riffle beetle (family Elmidae), which is a small dark beetle and water penny (family Psephenidae), which looks like a penny. The whirligig beetle larva (family Gyrinidae) may have many filaments along their bodies similar to fishflies.

Fishflies, Dobsonfiles and Alderflies (order Megaloptera) "less sensitive": Two pairs of legs (6); filaments along the body starting just below the legs; variable tails at the end of the abdomen. Alderflies (family Sialidae) have a long tapered tail; dobsonflies "also called hellgrammites" and fishflies have hooked-tails (family Corydalidae); dobsonflies have gill-tufts under each of their filaments, fishflies and alderflies do not. All members of the group have large pinching jaws on the head.

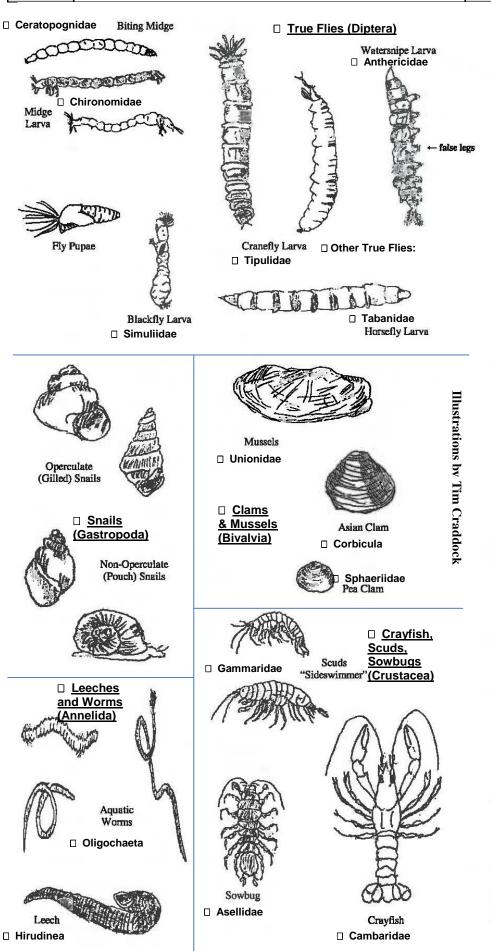
Damselfiles (sub order Zygoptera) "tolerant": Two pairs of legs (6); long, thin abdomen; large eyes; extended lower lip; 3 fan like structures, which are actually their gills, at the end of the abdomen.

Dragonflies (sub order Anisoptera) "less sensitive": Two pairs of legs (6); extended lower lip; large eyes; rounded or extended abdomen; no gills on the abdomen; no tails but may have knobs or points on the abdomen that resemble tails.

> West Virginia Save Our Streams WV DEP Division of Water Resources

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Insect Groups Continued

True Flies (order Diptera) "less sensitive to tolerant": No legs or may have structures that look like legs (false-legs); mainly segmented grub-like or worm-like bodies; tiny hair-like tails, lobes, tentacles or other structures at the end of their abdomen (or no tails); often a distinct head can be seen, but on others no head is visible. Many different kinds of flies are encountered, the more common kinds include the cranefiles (family Tipulidae), which have no legs, a plump segmented body and numerous tentacles; watersnipes (family Athericidae) have false legs and look like a caterpillar with a forked tail; midge fly larva (family Chironomidae) are very small with a thread-like body (some are red in color) and a very erratic wriggling motion; blackfly larva (family Simuliidae) have a bowling pin shape and fan-like structure on their head. There are many other kinds of Diptera larva that are sometimes collected, but only a few more examples are illustrated here.

Non-Insect Groups

Operculate Snails (class *Gastropoda*) "less sensitive": Single coiled shell that mostly opens to the right when the point is held facing towards you. These snails have an operculum "a door that shuts the shell" and are commonly known as gilled snails.

Non-Operculate Snails (class *Gastropoda*) "tolerant": Single shell that on some kinds opens to the left when the point is held facing towards you; shells also may be rounded flat or coiled. These snails do not have an operculum and are commonly known as pouch or pond snails.

Clams and Mussels "less sensitive" (class Pelecypoda): Two cup-shaped shells connected by a hinged structure; the shell is made of calcium carbonate and is usually very strong and hard to open. Mussels (family Uenoidae) have an oblong rough, often dark color shell. Most clams are smaller and have a rounded shell. The Asian clam can be distinguished from the native pea clam (family Sphaeriidae) by the raised ridges; pea clams are often smaller and its shell feels smooth to the touch.

Crustaceans "less sensitive to tolerant": More than two pairs (more than 6) of legs; claws on the first several pairs of legs may be enlarged; long antenna. This group includes the crayfish (family *Cambaridae*), which looks like a small lobster, scuds "also called sideswimmer" (order *Amphipoda*) resemble a shrimp, and the aquatic sowbugs (order *Isopoda*) resemble a pill bug. Freshwater shrimp (family *Palaemonidae*) are rarely encountered.

Annelids "tolerant": Worm-like appearance; no legs and many segments along the entire length of the body. This group includes the aquatic worms (class *Oligochaeta*) and leeches (class *Hirudinea*). The suckers on both ends of their body distinguish the leeches from other annelids.

Rev	viewers Initi	als	LAND	OWNER/STA	KEHOLDER			N, & PHOTO)S >>>	·>>>>>>>>>	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
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