

**CERTIFICATO DI ANALISI DESCRIZIONE HABITAT FLUVIALE****IRSA-CNR 1/i-2013 - METODO CARAVAGGIO****Data emissione certificato:** 21/02/2019**MONITORAGGIO AMBIENTALE LINEA FERROVIARIA AV/AC BRESCIA –
VERONA****RICHIEDENTE:**Cepav due
Consorzio ENI per l'Alta Velocità**AMBIENTE:** Fiume Chiese**COMUNE:** Calcinato (BS)**CODICE STAZIONE:** da AV-CA-SU-01**Località:** A monte opera in progetto**Data rilievo:** 31-01-2018**NOTE:**

Il tipo fluviale del corpo idrico è 06SS2;

Software: Version 2.0. December 2013

CARAVAGGIOsoft – Core Assessment of River Habitat Value and Hydromorphological
Condition Database.

Buffagni A., Erba S., Demartini D., Di Pasquale D., 2013.



CARAVAGGIO 2005 - CNR-IRSA, Italy											10 Spot-checks					page 2							
PHYSICAL ATTRIBUTES OF BANKS AND CHANNEL (UK_E)											Transect 1 is at downstream end					within a 10 m wide transect							
Spot-check											10	9	8	7	6		5	4	3	2	1		
BANKS & CHANNEL - Water Sinuosity											R	R	R	R	S		S	S	S	S	S		
CHANNELS - Number of wetted channels											1	1	2	2	1		1	1	1	1	1		
E Erosion/Deposition features											Ring EC, SC or EB if composed of sandy substrate												
Left Bank (and close to)											10	9	8	7	6		5	4	3	2	1		
LEFT BANK - Erosion/Habitat #1											EE	EE	EE	EE	EE		NO	NO	NO	EE	NO		
LEFT BANK - Erosion/Habitat #2											LE			LE									
LEFT BANK - Deposition											BB	NO	NO	NO	NO		NO	CB	NO	NO	NO		
LEFT BANK - Deposition #2 or Deposition possible cause											Right Bank (and close to)												
RIGHT BANK - Erosion/Habitat #1											EE	NO	EE	EE	EE	EB	EE	EE	NO	EB			
RIGHT BANK - Erosion/Habitat #2																							
RIGHT BANK - Deposition											NO	NO	NO	NO	NO	NO	NO	SD	NO	SD			
RIGHT BANK - Deposition #2 or Deposition possible cause											Main Channel (highest discharge)												
MAIN CHANNEL - Deposition, mid-channel											NO	9	8	7	6	5	4	3	2	1			
MAIN CHANNEL - Deposition #2 or Deposition possible cause											NO	NO	NO	NO	NO	RO	NO	NO	NO	NO			
MAIN CHANNEL - Wet channel position: Left, Centre, Right (LCR)											C	C	R	R	CR	LC	L	LC	LC	CR			
MAIN CHANNEL - Water width (m)											22.0	34.0	9.0	16.0	18.0	20.0	8.0	16.0	24.0	9.0			
MAIN CHANNEL - Maximum water depth (m)											>1	0.8	0.3	0.6	0.3	0.3	0.6	0.8	0.4	0.3			
Secondary Channel (most dissimilar from I channel)											10	9	8	7	6	5	4	3	2	1			
SECONDARY CHANNEL - Deposition, mid-channel													NO	BB									
SECONDARY CHANNEL - Deposition #2 or Deposition possible ca																							
SECONDARY CHANNEL - Wet channel position: Left, Centre, Right													L	L									
SECONDARY CHANNEL - Water width (m)													2.0	2.0						0			
SECONDARY CHANNEL - Maximum water depth (m)													0.3	0.1						0			
Total Water Width (m)											22.0	34.0	11.0	18.0	18.0	20.0	8.0	16.0	24.0	9			
Total channel width (including bars; m)											22.0	34.0	40.0	53.0	18.0	20.0	12.0	16.0	24.0	24.0			
F Channel Habitat and Modification											Main Channel (highest discharge)												
MAIN CHANNEL - Artificial Spot Check											10	9	8	7	6	5	4	3	2	1			
MAIN CHANNEL - Mesohabitat											P	P	R	P	P	R	P	P	P	R			
MAIN CHANNEL - Channel substrate #1											CO	BO	CO	CO	CO	CO	CO	CO	CO	CO			
MAIN CHANNEL - Channel substrate #2												CO			GP	GP		GP	GP	GP			
MAIN CHANNEL - Flow type #1											NP	NP	RP	RP	SM	UW	CH	SM	RP	RP			
MAIN CHANNEL - Flow type #2												RP	UW		RP	BW	RP	NP	RP	UW			
MAIN CHANNEL - Channel modification #1											NO	NO	NO	NO	NO	NO	NO	NO	NO	NO			
MAIN CHANNEL - Channel modification #2																							
Artificial/Natural feature Code Position (I channel)																							
Sections C2/G; Pic n°; see Spot-Check key, page 4 (circle Section G feat. if eroded)																							
Secondary Channel											10	9	8	7	6	5	4	3	2	1			
SECONDARY CHANNEL - Backwater(b)/Artificial channel(a)																				b			
SECONDARY CHANNEL - Artificial Spot Check																							
SECONDARY CHANNEL - Channel substrate #1													CO	CO						CO			
SECONDARY CHANNEL - Channel substrate #2													GP										
SECONDARY CHANNEL - Flow type #1													NP	NP						SM			
SECONDARY CHANNEL - Flow type #2																							
SECONDARY CHANNEL - Channel modification #1													NO	NO						NO			
SECONDARY CHANNEL - Channel modification #2																							
Artificial/Natural feature Code Position (I channel)																							
Sections C2/G; Pic n°; see Spot-Check key, page 4 (circle Section G feat. if eroded)																							
G ARTIFICIAL FEATURES (UK_D)											I Channel										II Channel		
(whole site: Sweep-up/Spot-checks)											Major	Intern.	Minor	Major			Intern.	Minor	Major	Intern.	Minor		
B - Bridges											0	0	0	D - Deflectors/groynes/croy			0	0	0	0	0	0	
W - Weirs/slucices/dams											0	0	0	I - Intakes (including pipes)			0	0	0	0	0	0	
F - Fords											0	0	0	O - Outfalls			0	0	0	0	0	0	
C - Culverts											0	0	0	<STATE HERE>									
H Channel vegetation types/Organic debris (UK_G)											10	9	8	7	6	5	4	3	2	1	Sw up		
NONE - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Liverworts/mosses/lichens - MAIN CHANNEL											0	0	0	0	0	0	E	0	0	0	P		
Emergent broad-leaved herbs - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Emergent reeds/sedges/rushes - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Floating-leaved (rooted) - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Free-floating - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Amphibious - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Submerged broad-leaved - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Submerged linear leaved - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	P		
Submerged fine leaved - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	P		
Filamentous algae - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	P		
Living parts of Terrestrial Plants (TP) - MAIN CHANNEL											0	0	E	0	P	P	0	0	P	0	P		
CPOM - MAIN CHANNEL											0	E	E	0	E	E	E	E	W	0	E		
FPOM - MAIN CHANNEL											0	0	0	0	0	0	E	E	0	0	E		
LDD/Xyal (e.g. fallen trees) - MAIN CHANNEL											0	P	P	P	0	P	0	P	P	P	E		
NONE - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Liverworts/mosses/lichens - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Emergent broad-leaved herbs - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Emergent reeds/sedges/rushes - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Floating-leaved (rooted) - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Free-floating - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Amphibious - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Submerged broad-leaved - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Submerged linear leaved - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Submerged fine leaved - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Filamentous algae - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
Living parts of Terrestrial Plants (TP) - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
CPOM - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
FPOM - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		
LDD/Xyal (e.g. fallen trees) - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0		

within a 1 m wide transect

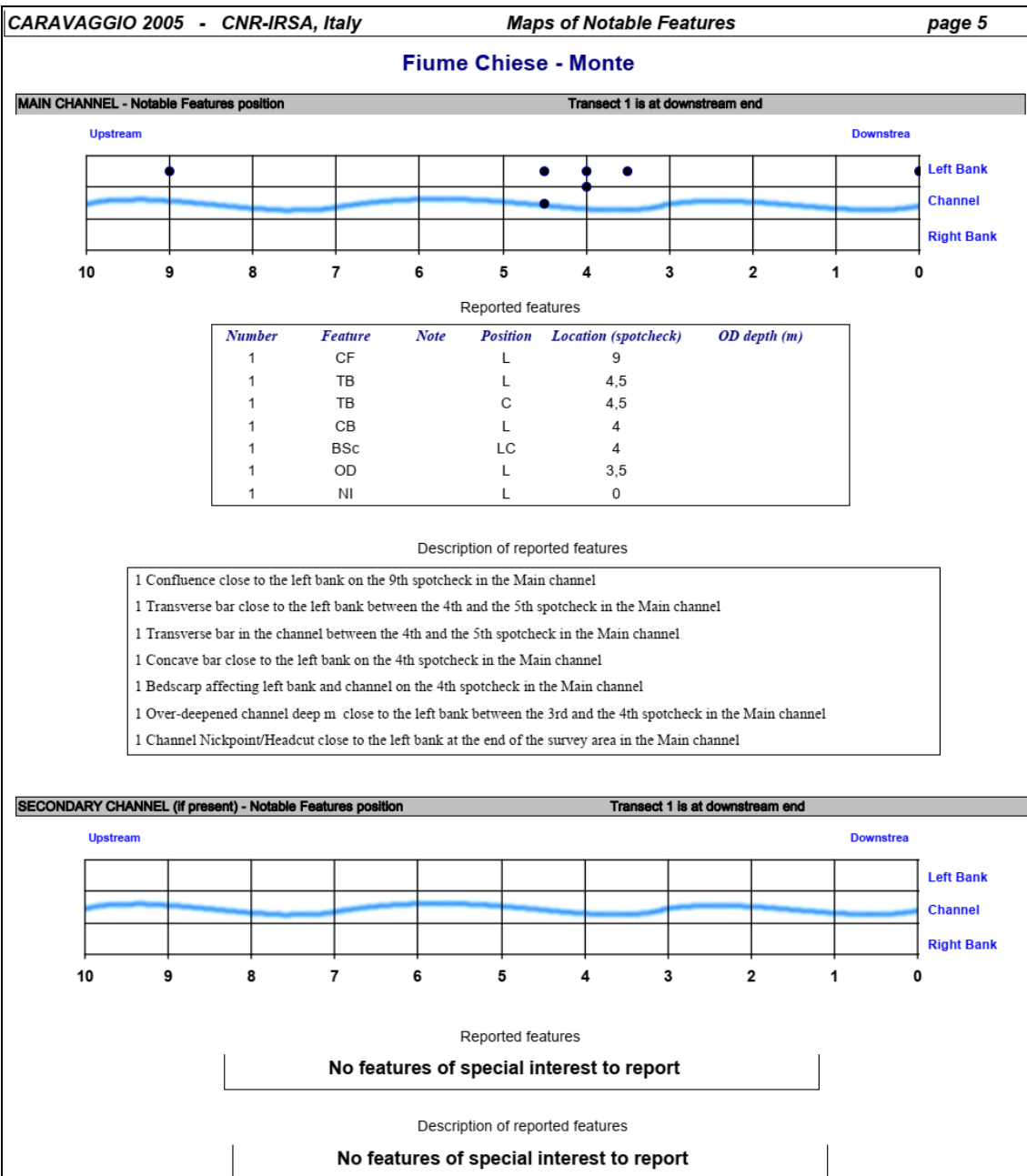
within a 10 m wide transect



CARAVAGGIO 2005 - CNR-IRSA, Italy		500m SWEEP-UP		page 3							
I LAND-USE WITHIN 50m OF BANKTOP AND ON BANKFACE (UK_H) Use P (present), E (> 33% banklength) or W (whole stretch)											
Natural	Left		Right		Natural	Left		Right			
	Top	Face	Face	Top		Top	Face	Face	Top		
Broadleaf/mixed woodland (semi-natural)	0	E	E	0	Natural grassland	0	0	0	0		
Coniferous woodland (semi-natural)	0	0	0	0	Moorland/heath	0	0	0	0		
Dehezza/Montado/Sugherete (semi-natural)	0	0	0	0	Rock, scree or sand dunes	0	0	0	0		
Mediterranean 'macchia'	0	0	0	0	Natural open water	0	0	0	0		
Scrub shrubs	0	E	E	0	Wetland (e.g. bog, marsh, fen)	0	0	0	0		
Tall herb/rank vegetation	0	0	E	0	Other: <STATE HERE (NAT)>	0	0	0	0		
Agriculture		Top	Face	Face	Top	Urban		Top	Face	Face	Top
Broadleaf/mixed plantation/ceduo intensivo	0	0	0	0	0	Urban	0	0	0	0	
Coniferous plantation	0	0	0	0	0	Industry	0	0	0	0	
Eucalyptus plantation	0	0	0	0	0	Sparse houses (Suburban development)	0	0	0	0	
Populus plantation	0	0	0	0	0	Water treatment plan	0	0	0	0	
Orchard	0	0	0	0	0	Main road	0	0	0	0	
Olive trees	0	0	0	0	0	Road	0	0	0	0	
Vineyard	0	0	0	0	0	White road/large footway	W	0	0	E	
Tilled land	0	0	0	0	0	Railway	0	0	0	0	
Grassland/pasture	0	0	0	0	0	Quarrying	0	0	0	0	
Winter water meadows	0	0	0	0	0	Parkland or gardens	0	0	0	E	
Rice fields	0	0	0	0	0	Artificial open water	0	0	0	0	
Farming/Breeding	0	0	0	0	0	Other: 0	0	0	0	0	
Field/land extensively irrigated	0	0	0	0	0	Other: 0	0	0	0	0	
J BANK PROFILES (UK_I) Use P (present), E (> 33% banklength) or W (whole stretch)											
Natural/ Unmodified		Left	Right	Artificial/modified		Left	Right				
Vertical /Undercut		0	P	Resectioned (reprofiled)		E	E				
Vertical with toe		0	0	Reinforced - whole		0	P				
Steep (>35°)		E	E	Reinforced - top only		0	0				
Gentle		P	0	Reinforced - toe only		0	0				
Composite		0	0	Artificial two-stage		0	0				
Natural berm		0	0	Poached bank		0	0				
<SHORT NOTES HERE>				Embanked		0	E				
				Set-back embankment		0	0				
K EXTENT OF TREES AND ASSOCIATED FEATURES (UK_J) *record even if <1%											
Trees (tick one box per bank)		Left	Right	Use P (present), E (> 33% banklength) or W (whole stretch)							
None		<input type="checkbox"/>	<input type="checkbox"/>	Shading of channel		E					
Isolated/scattered		<input type="checkbox"/>	<input type="checkbox"/>	*Overhanging boughs		0					
Regularly spaced, single		<input type="checkbox"/>	<input type="checkbox"/>	*Exposed bankside roots		0					
Occasional clumps		<input type="checkbox"/>	<input type="checkbox"/>	Underwater tree roots (TP)		E					
Semi-continuous		<input type="checkbox"/>	<input checked="" type="checkbox"/>	Large woody debris		0					
Continuous		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fallen trees (inside the channel)		P					
Not available		<input type="checkbox"/>	<input type="checkbox"/>	Fallen/leaning trees on the lower bank		0					
L TREE VEGETATION on bankface/banktop (UK_Q) *record even if <1%											
		Top	Face	Use P (present), E (> 33% banklength) or W (whole)		Top	Face				
*Alder (Alnus) (circle if diseased: Phytophthora)		0	P	Ash (Fraxinus)		0	0				
*Elm (Ulmus) (circle if diseased: Ophiostoma)		0	0	Salt cedar (Tamarix)		0	0				
Willow (Salix)		0	E	Oleander (Nerium oleander)		0	0				
None <input checked="" type="checkbox"/>		Poplar (Populus)	P	E	Other	<STATE HERE>	0				
					Other	<STATE HERE>	0				
M NOTABLE NUISANCE PLANT SPECIES (UK_O) Use P or E(> 33% length) or W (whole stretch) *record even if <1%											
Bush/schrub	Amorpha fruticosa	Banktop	Bankface	Channel	Trees	Ailanthus altissima	Banktop	Bankface	Channel		
	Arundo spp.	0	0	0	0	Robinia pseudoacacia	0	0	0		
	Buddleja davidii	0	0	0	0	Aquatic	Azolla caroliniana		0		
	Impatiens spp.	0	0	0	0		Elodea spp.		0		
	Reynoutria japonica	0	0	0	0		Lagarosiphon major		0		
	Rubus spp.	0	E	-9	0	other	<STATE HERE>	0	0		
	Not applied <input checked="" type="checkbox"/>	none <input type="checkbox"/>	(No ticked) <input type="checkbox"/>	0	0	other	<STATE HERE>	0	0		



CARAVAGGIO 2005 - CNR-IRSA, Italy		page 4	
N FIELD SURVEY DETAILS (UK_A)			
Date:	31/01/2018	Surveyor name:	BELLIO MANUEL
River name:	Fiume Chiese	Institute/Affiliation:	BIOPROGRAMM SC
Site Name:	Monte	Accredited Surveyor code:	16103
Site Number:	1	Data entry by:	BELLIO M.
Region/Prinonice	BRESCIA	Is the site part of a river or an artificial channel? (R=river, A=art.ch.)	R
Site Reference/Code:	AV-CA-SU-01	Are adverse conditions affecting survey? (Y=yes, N=no)	N
Map Reference:	0	If yes, state	
GPS DATA (WGS84):		Is bed of river visible?	E
Spot-check 2:	Elev.: -9	Site surveyed from (L=left bank, R=right bank, C=channel):	LRC
Lat. 45.467316	Long. 10.403831	Was a range-finder used to measure channel/water width, etc.?	YES
Spot-check 10:	Elev.: 127	Number of photographs taken:	99
Lat. 45.470109	Long. 10.406225	Photo references:	
		Application time:	03:30
O PREDOMINANT VALLEY FORM (within the horizon limit) (UK_B) (tick one box only)			
Shallow vee <input type="checkbox"/>		Concave/bowl <input type="checkbox"/>	
Deep vee <input type="checkbox"/>		Asymmetrical valley <input type="checkbox"/>	
Gorge <input type="checkbox"/>		U-shaped valley <input type="checkbox"/>	
		No obvious valley sides <input checked="" type="checkbox"/>	
		(Missing value): <input type="checkbox"/>	
Distinct flat valley bottom?	Y		
Natural terraces	Y		
P CHANNEL FORM (tick one box only)			
Meandering <input checked="" type="checkbox"/>		Sinuuous <input type="checkbox"/>	
Braided <input type="checkbox"/>		Constrained (natural) <input type="checkbox"/>	
Anastomosed <input type="checkbox"/>		Constrained (artificial) <input type="checkbox"/>	
Wandering <input type="checkbox"/>		Other <input type="checkbox"/>	
Q GENERAL FEATURES/DEGRADATION OF SITE Use 0 (No), P (present), E (> 33% banklength) or W (whole stretch)			
Cut face on bar forms	0	Is the channel choked with vegetation?	0
Lobate bars	0	Weed-cutting/Bank mowing	0
Rocks roughened or with sharp edges corners	0	Is channel obviously realigned?	0
Coarse material in riffles embedded	0	Is channel obviously over-deepened?	0
Siltation in pools	E	Is water impounded by weir/dam?	0
Tillage of fields perpendicular to river course	0	Is river affected by hydro-peaking?	No <input checked="" type="checkbox"/> Yes <input type="checkbox"/>
R FEATURES OF SPECIAL INTEREST (UK_M) Use v (present) or E (> 33% banklength) *record even if <1%			
None <input checked="" type="checkbox"/>	Very large boulders(> 1 m) 0	Fen(s) 0	Giant's Cauldrons 0
Braided channels 0	*Leafy debris 0	Bog(s) 0	Petrifying springs 0
Side channel(s) 0	Fringing reed-bank(s) 0	Wet woodland(s) 0	...
*Natural waterfall(s) >5m 0	Quaking bank(s) 0	Marsh(es) 0	...
*Natural waterfall(s) <5m 0	*Sink hole(s) 0	Flush(es) 0	...
Natural cascade(s) 0	Backwater(s) 0	Natural open water 0	...
*Debris dam(s) 0	Water meadow(s) 0	Floodplain boulder deposits 0	...
Notes		
CNR-IRSA Water Research Institute, Brugherio (MI), Italy - e-mail: caravaggio@irsa.cnr.it, tel ++39 039 216941, fax ++39 39 2004692			
CARAVAGGIO 2005 was developed with the collaboration of CNR-ISE (Pallanza, VB, I) and APPA Bolzano (BZ, I) and is based on the River Habitat Survey method proposed by the U.K. Environment Agency			
Method developed and tested within the framework of the STAR and Euro-impacs E.U. projects			



<p><i>Esecuzione analisi di campagna</i></p> <p><i>Elaborazione dati</i></p> <p><i>Responsabile rilievi e valutazione I.F.F.</i></p>	<p><i>Dr. M. Bellio</i></p> <p><i>Dr. M. Bellio</i></p> <p><i>Dr. Biol. P. Turin</i></p>	
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**CERTIFICATO DI ANALISI DESCRIZIONE HABITAT FLUVIALE****IRSA-CNR 1/i-2013 - METODO CARAVAGGIO****Data emissione certificato:** 21/02/2019

MONITORAGGIO AMBIENTALE LINEA FERROVIARIA AV/AC BRESCIA – VERONA	
RICHIEDENTE:	
AMBIENTE: Fiume Chiese	COMUNE: Calcinato (BS)
CODICE STAZIONE: da AV-CA-SU-02	
Località: A valle opera in progetto	
Data rilievo: 31-01-2018	
NOTE: Il tipo fluviale del corpo idrico è 06SS2; Software: Version 2.0.December 2013 CARAVAGGIOsoft – Core Assessment of River Habitat Value and Hydromorphological Condition Database. Buffagni A., Erba S., Demartini D., Di Pasquale D., 2013.	



CARAVAGGIO 2006 - CNR-IRSA, Italy, Core Assessment of River hAbitat VAalue and hydro-morpholoGical cOndition																			
River name		Fiume Chiese		Site		Valle		Date		31/01/2018									
Transect 1 is at downstream end		10 SPOT-CHECKS																	
Spot-Check		GPS 10	9	8	7	6	5	4	3	GPS 2	1								
		Invertebrates sampling																	
Left Bank	A Banktop land-use and veget. structure (UK_F)	10	9	8	7	6	5	4	3	2	1	within a 10 m wide transect							
	BANKTOP - Left banktop criteria	bs	bs	bs	bs	bs	bs	b	bs	bs	bs								
	BANKTOP - Left banktop height	3.0	2.5	2.0	2.0	2.5	2.5	2.5	3.0	3.5	3.5								
		10	9	8	7	6	5	4	3	2	1								
	BANKTOP - Land use within 5m of left banktop	TL	TL	TL	TL	TL	TL	TL	TL	TL	TL								
	BANKTOP - Left banktop (structure within 1m)	U	U	U	U	U	U	U	U	U	U								
	BANKTOP - Width of the Left banktop Vegetation strip (m)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100								
	BANKTOP - Left bank face (structure)	S	C	C	S	S	S	S	C	C	C								
	BANKTOP - Left bank face extension	12.0	13.0	14.0	14.0	12.0	18.0	11.0	17.0	10.0	10.0								
	BI Physical attributes - Left Bank (UK_E)	10	9	8	7	6	5	4	3	2	1								
	LEFT BANK - Bank Slope	S	S	S	S	G	G	G	G	S	G								
	LEFT BANK - Marginal & Bank features	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO								
	LEFT BANK - Berm width (m)	0	0	0	0	0	0	0	0	0	0								
	LEFT BANK - Berm height (m)	0	0	0	0	0	0	0	0	0	0								
	LEFT BANK - Bank modification #1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO								
LEFT BANK - Bank modification #2																			
LEFT BANK - Material #1	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO									
LEFT BANK - Material #2	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA									
Right Bank	A Banktop land-use and veget. structure (UK_F)	10	9	8	7	6	5	4	3	2	1	within a 10 m wide transect							
	BANKTOP - Right banktop criteria	bs	bs	bs	bs	bs	bs	bs	bs	bs	bs								
	BANKTOP - Right banktop height	6.0	5.0	5.0	5.0	4.0	4.0	5.0	5.0	6.0	6.0								
		10	9	8	7	6	5	4	3	2	1								
	BANKTOP - Land use within 5m of right banktop	UR	UR	UR	UR	UR	UR	SU	SU	TL	TL								
	BANKTOP - Right banktop (structure within 1m)	B	B	B	B	B	B	B	B	U	U								
	BANKTOP - Width of the Right banktop Vegetation strip (m)	0	0	0	0	0	0	0	0	>100	>100								
	BANKTOP - Right bank face (structure)	U	U	S	S	(S)	(S)	(S)	(S)	S	S								
	BANKTOP - Right bank face extension	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	9.0	9.0								
	BI Physical attributes - Right Bank (UK_E)	10	9	8	7	6	5	4	3	2	1								
	RIGHT BANK - Bank Slope	V	V	V	V	V	V	V	V	V	V								
	RIGHT BANK - Marginal & Bank features	NO	NO	NO	NO	AB	AB	NO	NO	NO	NO								
	RIGHT BANK - Berm width (m)	0	0	0	0	0	0	0	0	0	0								
	RIGHT BANK - Berm height (m)	0	0	0	0	0	0	0	0	0	0								
	RIGHT BANK - Bank modification #1	RI	RI	RI	RI	RI	RI	RI	RI	EM	EM								
RIGHT BANK - Bank modification #2									RI	RI									
RIGHT BANK - Material #1	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR									
RIGHT BANK - Material #2	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA									
Whole site	C Number of selected channel features (UK_C/K)		chann		E>33%		li chann		(Use /A if due to the presence of artificial manufactures)				chann		E>33%		li chann		
	C1 - always count		nat	art	nat	art	C2 - always count position in Page 2				nat	art	nat	art					
	Riffle(s)	2	0	0	0	0	NF - No flow (dry)	0	0	0	0	0	0	0	0				
	Pool(s)	7	0	0	0	0	CF - Confluence(s)	0	0	0	0	0	0	0	0				
	Mature island(s)	2	0	0	0	0	CB - Concave bar(s)	0	0	0	0	0	0	0	0				
	Unvegetated point bar(s)	3	0	0	0	0	AB - Alternate bars (pairs)	0	0	0	0	0	0	0	0				
	Vegetated point bar(s)	0	0	0	0	0	TB - Transverse bar(s)	2	0	0	0	0	0	0	0				
	Unvegetated side bar(s)	3	0	0	0	0	BS - Bedscarp(s)	0	0	0	0	0	0	0	0				
	Vegetated side bar(s)	2	0	0	0	0	NI - Channel Nickpoint/Headcut	1	0	0	0	0	0	0	0				
	<NOTES HERE>						ED - Eroded alluvial deposits	0	0	0	0	0	0	0	0				
							ER - Exposed roots in the channel (not along the bank)	0	0	0	0	0	0	0	0				
							OD - Over-deepened channel	5	0	0	0	0	0	0	0				
							LE - Local erosion	1	0	0	0	0	0	0	0				
	Notes	D Extent of channel and bank features (count if planned) (UK_K)		chann		E>33%		li chann		(Use /A if of artificial origin)				chann		E>33%		li chann	
				nat	art	nat	art					nat	art	nat	art				
Free fal		0	0	0	0	0	Exposed bedrock	2	0	0	0	0	0	0	0				
Chute flow		0	0	0	0	0	Vegetated bedrock/boulders	1	0	0	0	0	0	0	0				
Broken standing waves		1	0	0	0	0	Discrete unvegetated gravel deposit(s)	0	0	0	0	0	0	0	0				
Unbroken standing waves		2	0	0	0	0	Discrete unvegetated sand deposit(s)	1	0	0	0	0	0	0	0				
Rippled flow		4	0	E	0	0	Unvegetated silt deposit(s)	0	0	0	0	0	0	0	0				
Upwelling		0	0	0	0	0	Eroding cliff(s)	0	0	0	0	0	0	0	0				
Smooth flow		6	0	E	0	0	Stable cliff(s)	0	0	0	0	0	0	0	0				
No perceptible flow		3	0	E	0	0	Unvegetated mid-channel bar(s)	0	0	0	0	0	0	0	0				
Marginal deadwater		2	0	0	0	0	Vegetated mid-channel bar(s)	0	0	0	0	0	0	0	0				
Exposed boulders		0	0	0	0	0													
<NOTES HERE>																			



CARAVAGGIO 2005 - CNR-IRSA, Italy											10 Spot-checks											page 2																					
PHYSICAL ATTRIBUTES OF BANKS AND CHANNEL (UK_E)											Transect 1 is at downstream end											within a 10 m wide transect																					
Spot-check											10	9	8	7	6	5	4	3	2	1	within a 1 m wide transect																						
BANKS & CHANNEL - Water Sinuosity											L	L	L	L	L	L	L	L	L	L																							
CHANNELS - Number of wetted channels											1	1	1	1	1	1	1	2	1	1																							
E Erosion/Deposition features											Ring EC, SC or EB if composed of sandy substrate																																
Left Bank (and close to)											10	9	8	7	6	5	4	3	2	1																							
LEFT BANK - Erosion/Habitat #1											LE	LE	NO	NO	NO	NO	NO	EB	EB	EB																							
LEFT BANK - Erosion/Habitat #2																																											
LEFT BANK - Deposition											NO	NO	PB	PB	PB	PB	VP	SP	NO	NO																							
LEFT BANK - Deposition #2 or Deposition possible cause																	SP																										
Right Bank (and close to)											10	9	8	7	6	5	4	3	2	1																							
RIGHT BANK - Erosion/Habitat #1											EE	EE	EE	EE	EE	EE	NO	NO	EE	EE																							
RIGHT BANK - Erosion/Habitat #2																																											
RIGHT BANK - Deposition											NO	NO	NO	NO	NO	NO	NO	NO	NO	NO																							
RIGHT BANK - Deposition #2 or Deposition possible cause																																											
Main Channel (highest discharge)											10	9	8	7	6	5	4	3	2	1																							
MAIN CHANNEL - Deposition, mid-channel											NO	NO	NO	NO	NO	NO	NO	SP	RO	EB																							
MAIN CHANNEL - Deposition #2 or Deposition possible cause																				RO																							
MAIN CHANNEL - Wet channel position: Left, Centre, Right (LCR)											C	CR	CR	CR	CR	CR	CR	CR	C	LC																							
MAIN CHANNEL - Water width (m)											17.0	15.0	10.0	10.0	14.0	17.0	20.0	19.0	25.0	16.0																							
MAIN CHANNEL - Maximum water depth (m)											1.0	1.0	>1.0	>1.0	>1.0	>1.0	>1.0	0.5	0.6	0.8																							
Secondary Channel (most dissimilar from I channel)											10	9	8	7	6	5	4	3	2	1																							
SECONDARY CHANNEL - Deposition, mid-channel																			NO																								
SECONDARY CHANNEL - Deposition #2 or Deposition possible cause																																											
SECONDARY CHANNEL - Wet channel position: Left, Centre, Right																			L																								
SECONDARY CHANNEL - Water width (m)																			8.0																								
SECONDARY CHANNEL - Maximum water depth (m)																			0.4																								
Total Water Width (m)											17.0	15.0	10.0	10.0	14.0	17.0	20.0	27.0	25.0	16.0																							
Total channel width (including bars; m)											19.0	17.0	20.0	28.0	23.0	23.0	23.0	33.0	38.0	27.0																							
F Channel Habitat and Modification											Main Channel (highest discharge)																																
MAIN CHANNEL - Artificial Spot Check																																											
MAIN CHANNEL - Mesohabitat											P	P	P	P	P	P	P	P	R	P																							
MAIN CHANNEL - Channel substrate #1											CO	CO	BO	BO	CO	CO	CO	CO	CO	CO																							
MAIN CHANNEL - Channel substrate #2											BO	BO	CO	CO	BO	BO	BO	BO	GP	BO																							
MAIN CHANNEL - Flow type #1											NP	NP	NP	NP	NP	NP	NP	SM	RP	RP																							
MAIN CHANNEL - Flow type #2															SM	SM		NP	UW	SM																							
MAIN CHANNEL - Channel modification #1											NO	NO	NO	NO	NO	NO	NO	NO	NO	NO																							
MAIN CHANNEL - Channel modification #2																																											
Artificial/Natural feature Code Position (I channel)																																											
Sections C2/G; Pic n°; see Spot-Check key, page 4 (circle Section G feat. if eroded)																																											
Secondary Channel											10	9	8	7	6	5	4	3	2	1																							
SECONDARY CHANNEL - Backwater(b)/Artificial channel(a)																																											
SECONDARY CHANNEL - Artificial Spot Check																																											
SECONDARY CHANNEL - Channel substrate #1																			CO																								
SECONDARY CHANNEL - Channel substrate #2																			GP																								
SECONDARY CHANNEL - Flow type #1																			UW																								
SECONDARY CHANNEL - Flow type #2																			BW																								
SECONDARY CHANNEL - Channel modification #1																			NO																								
SECONDARY CHANNEL - Channel modification #2																																											
Artificial/Natural feature Code Position (I channel)																																											
Sections C2/G; Pic n°; see Spot-Check key, page 4 (circle Section G feat. if eroded)																																											
G ARTIFICIAL FEATURES (UK_D)											I Channel											II Channel																					
(whole site: Sweep-up/Spot-checks)											Major Intern. Minor			Major Intern. Minor			Major Intern. Minor			Major Intern. Minor																							
B - Bridges											0	0	0	D - Deflectors/groyne/croy			0	0	0	0			0	0																			
W - Weirs/sluices/dams											0	0	0	I - Intakes (including pipes)			0	0	0	0			0	0																			
F - Fords											0	0	0	O - Outfalls			0	0	0	0			0	0																			
C - Culverts											0	0	0	<STATE HERE>			0	0	0	0			0	0																			
H Channel vegetation types/Organic debris (UK_G)											10	9	8	7	6	5	4	3	2	1	Sw up	within a 10 m wide transect																					
NONE - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Liverworts/mosses/lichens - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Emergent broad-leaved herbs - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Emergent reeds/sedges/rushes - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Floating-leaved (rooted) - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Free-floating - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Amphibious - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Submerged broad-leaved - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Submerged linear leaved - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Submerged fine leaved - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Filamentous algae - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Living parts of Terrestrial Plants (TP) - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	P	P																						
CPOM - MAIN CHANNEL											E	E	E	E	E	E	E	E	E	E	E																						
FPOM - MAIN CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
LOD/Xylal (e.g. fallen trees) - MAIN CHANNEL											P	P	P	P	P	P	P	P	E	P	E																						
NONE - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Liverworts/mosses/lichens - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Emergent broad-leaved herbs - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Emergent reeds/sedges/rushes - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Floating-leaved (rooted) - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Free-floating - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Amphibious - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Submerged broad-leaved - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Submerged linear leaved - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Submerged fine leaved - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Filamentous algae - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
Living parts of Terrestrial Plants (TP) - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
CPOM - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						
FPOM - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	E	0	0																						
LOD/Xylal (e.g. fallen trees) - SECONDARY CHANNEL											0	0	0	0	0	0	0	0	0	0	0																						

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 31024 Ormelle (TV) - via Gen. C. A. Dalla Chiesa 1/a - Tel. e Fax 0422.809171
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 Albo Società Cooperative N. A131069
 SOCIETÀ CERTIFICATA UNI EN ISO 9001:2015 - UNI EN ISO 14001:2015
 ENTE CERTIFICATORE: ANCCP Certification Agency
 Sito: www.bioprogramm.it



CARAVAGGIO 2005 - CNR-IRSA, Italy		500m SWEEP-UP				page 3			
I LAND-USE WITHIN 50m OF BANKTOP AND ON BANKFACE (UK_H) Use P (present), E (> 33% banklength) or W (whole stretch)									
Natural	Left		Right		Natural	Left		Right	
	Top	Face	Face	Top		Top	Face	Face	Top
Broadleaf/mixed woodland (semi-natural)	0	E	E	0	Natural grassland	0	0	0	0
Coniferous woodland (semi-natural)	0	0	0	0	Moorland/heat	0	0	0	0
Dehezza/Montado/Sugherete (semi-natural)	0	0	0	0	Rock, scree or sand dunes	0	0	0	0
Mediterranean 'macchia'	0	0	0	0	Natural open water	0	0	0	0
Scrub shrubs	0	E	E	0	Wetland (e.g. bog, marsh, fen)	0	0	0	0
Tall herb/rank vegetation	0	0	E	0	Other: <STATE HERE (NAT)>	0	0	0	0
Agriculture	Top	Face	Face	Top	Urban	Top	Face	Face	Top
Broadleaf/mixed plantation/ceduo intensivo	0	0	0	0	Urban	0	0	0	E
Coniferous plantation	0	0	0	0	Industry	0	0	0	0
Eucaliptus plantation	0	0	0	0	Sparse houses (Suburban development)	0	0	0	0
Populus plantation	0	0	0	0	Water treatment plan	0	0	0	0
Orchard	0	0	0	0	Main road	0	0	0	0
Olive trees	0	0	0	0	Road	0	0	0	0
Vineyard	0	0	0	0	White road/large footway	0	0	0	0
Tilled land	W	0	0	E	Railway	0	0	0	0
Grassland/pasture	0	0	0	0	Quarrying	0	0	0	0
Winter water meadows	0	0	0	0	Parkland or gardens	0	0	0	P
Rice fields	0	0	0	0	Artificial open water	0	0	0	0
Farming/Breeding	0	0	0	0	Other: 0	0	0	0	0
Field/land extensively irrigated	0	0	0	0	Other: 0	0	0	0	0
J BANK PROFILES (UK_I) Use P (present), E (> 33% banklength) or W (whole stretch)									
Natural/ Unmodified	Left	Right	Artificial/modified		Left	Right			
Vertical /Undercut	0	0	Resectioned (reprofiled)		0	0			
Vertical with toe	0	0	Reinforced - whole		0	W			
Steep (>35°)	0	0	Reinforced - top only		0	0			
Gentle	W	0	Reinforced - toe only		0	0			
Composite	0	0	Artificial two-stage		0	0			
Natural berm	0	0	Poached bank		0	0			
<SHORT NOTES HERE>			Embanked		0	0			
			Set-back embankment		0	0			
K EXTENT OF TREES AND ASSOCIATED FEATURES (UK_J) *record even if <1%									
Trees (tick one box per bank)	Left	Right	Use P (present), E (> 33% banklength) or W (whole stretch)						
None	<input type="checkbox"/>	<input type="checkbox"/>	Shading of channel 0						
Isolated/scattered	<input type="checkbox"/>	<input type="checkbox"/>	*Overhanging boughs 0						
Regularly spaced, single	<input type="checkbox"/>	<input type="checkbox"/>	*Exposed bankside roots 0						
Occasional clumps	<input type="checkbox"/>	<input type="checkbox"/>	Underwater tree roots (TP) 0						
Semi-continuous	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Large woody debris 0						
Continuous	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fallen trees (inside the channel) 0						
Not available	<input type="checkbox"/>	<input type="checkbox"/>	Fallen/leaning trees on the lower bank 0						
L TREE VEGETATION on bankface/banktop (UK_Q) *record even if <1%									
	Top	Face	Use P (present), E (> 33% banklength) or W (whole)			Top	Face		
*Alder (Alnus) (circle if diseased: Phytophthora)	P	E	Ash (Fraxinus)			0	0		
*Elm (Ulmus) (circle if diseased: Ophiostoma)	0	0	Salt cedar (Tamarix)			0	0		
Willow (Salix)	0	0	Oleander (Nerium oleander)			0	0		
Poplar (Populus)	0	E	Other <STATE HERE>			0	0		
None <input checked="" type="checkbox"/>			Other <STATE HERE>			0	0		
M NOTABLE NUISANCE PLANT SPECIES (UK_O) Use P or E (> 33% length) or W (whole stretch) *record even if <1%									
Bush/schrub	Banktop	Bankface	Channel	Trees	Banktop	Bankface	Channel		
Amorpha fruticosa	0	0	0	Ailanthus altissima	0	0			
Arundo spp.	0	0	0	Robinia pseudoacacia	P	E			
Buddleja davidii	0	0	0	Aquatic			0		
Impatiens spp.	0	0	0	Azolla caroliniana			0		
Reynoutria japonica	0	0	0	Elodea spp.			0		
Rubus spp.	0	0	-9	Lagarosiphon major			0		
Not applied <input checked="" type="checkbox"/>	none <input type="checkbox"/>	(No ticked) <input type="checkbox"/>	other		0	0	0		
			other		0	0	0		

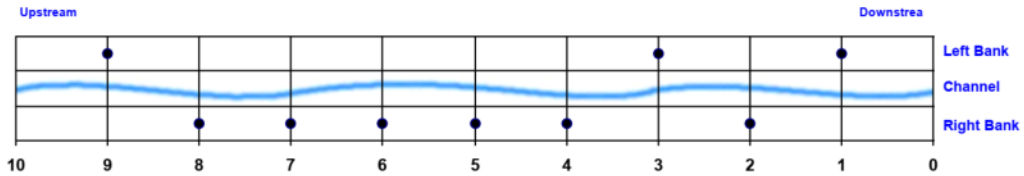


CARAVAGGIO 2005 - CNR-IRSA, Italy		page 4	
N FIELD SURVEY DETAILS (UK_A)			
Date:	31/01/2018	Surveyor name:	BELLIO MANUEL
River name:	Fiume Chiese	Institute/Affiliation:	BIOPROGRAMM SC
Site Name:	Valle	Accredited Surveyor code:	16103
Site Number:	2	Data entry by:	BELLIO MANUEL
Region/Province:	BRESCIA	Is the site part of a river or an artificial channel? (R=river, A=art.ch.)	R
Site Reference/Code:	AV-CA-SU-02	Are adverse conditions affecting survey? (Y=yes, N=no)	N
Map Reference:	0	If yes, state	
GPS DATA (WGS84):		Is bed of river visible?	E
Spot-check 2:	Elev.: -9	Site surveyed from (L=left bank, R=right bank, C=channel):	LRC
Lat. 10.403081	Long. 45.460735	Was a range-finder used to measure channel/water width, etc.?	YES
Spot-check 10:	Elev.: 125	Number of photographs taken:	99
Lat. 10.399479	Long. 45.461643	Photo references:	
Application time:		03:00	
O PREDOMINANT VALLEY FORM (within the horizon limit) (UK_B)			
(tick one box only)			
Shallow vee <input type="checkbox"/>		Concave/bowl <input type="checkbox"/>	
Deep vee <input type="checkbox"/>		Asymmetrical valley <input type="checkbox"/>	
Gorge <input type="checkbox"/>		U-shaped valley <input type="checkbox"/>	
		No obvious valley sides <input checked="" type="checkbox"/>	
		(Missing value): <input type="checkbox"/>	
Distinct flat valley bottom?	Y		
Natural terraces	Y		
P CHANNEL FORM (tick one box only)			
Meandering <input checked="" type="checkbox"/>		Sinuuous <input type="checkbox"/>	
Braided <input type="checkbox"/>		Constrained (natural) <input type="checkbox"/>	
Anastomosed <input type="checkbox"/>		Constrained (artificial) <input type="checkbox"/>	
Wandering <input type="checkbox"/>		Other <input type="checkbox"/>	
Q GENERAL FEATURES/DEGRADATION OF SITE			
Use 0 (No), P (present), E (> 33% banklength) or W (whole stretch)			
Cut face on bar forms	0	Is the channel choked with vegetation?	0
Lobate bars	0	Weed-cutting/Bank mowing	0
Rocks roughened or with sharp edges corners	0	Is channel obviously realigned?	0
Coarse material in riffles embedded	0	Is channel obviously over-deepened?	E
Siltation in pools	0	Is water impounded by weir/dam?	0
Tillage of fields perpendicular to river course	0	Is river affected by hydro-peaking?	No <input checked="" type="checkbox"/> Yes <input type="checkbox"/>
R FEATURES OF SPECIAL INTEREST (UK_M)			
Use v (present) or E (> 33% banklength) *record even if <1%			
None <input checked="" type="checkbox"/>	Very large boulders(>1 m) 0	Fen(s) 0	Giant's Cauldrons 0
Braided channels 0	*Leafy debris 0	Bog(s) 0	Petrifying springs 0
Side channel(s) 0	Fringing reed-bank(s) 0	Wet woodland(s) 0	...
*Natural waterfall(s) >5m 0	Quaking bank(s) 0	Marsh(es) 0	...
*Natural waterfall(s) <5m 0	*Sink hole(s) 0	Flush(es) 0	...
Natural cascade(s) 0	Backwater(s) 0	Natural open water 0	...
*Debris dam(s) 0	Water meadow(s) 0	Floodplain boulder deposits 0	...
Notes	...		
CNR-IRSA Water Research Institute, Brugherio (MI), Italy - e-mail: caravaggio@irsa.cnr.it, tel ++39 039 216941, fax ++39 39 2004692 CARAVAGGIO 2005 was developed with the collaboration of CNR-ISE (Pallanza, VB, I) and APPA Bolzano (BZ, I) and is based on the River Habitat Survey method proposed by the U.K. Environment Agency			
Method developed and tested within the framework of the STAR and Euro-impacs E.U. projects			



Fiume Chiese - Valle

MAIN CHANNEL - Notable Features position Transect 1 is at downstream end



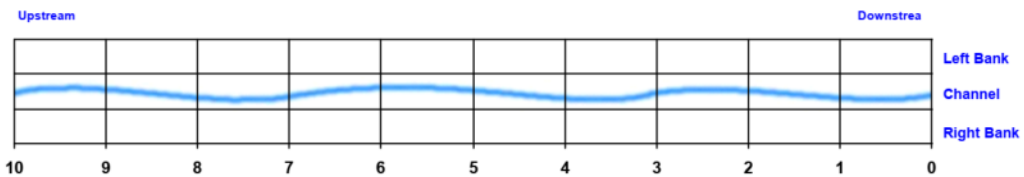
Reported features

Number	Feature	Note	Position	Location (spotcheck)	OD depth (m)
1	LE		L	9	
1	OD		R	8	
1	OD		R	7	
1	OD		R	6	
1	OD		R	5	
1	OD		R	4	
1	TB		L	3	
1	TB		R	2	
1	NI		L	1	

Description of reported features

- 1 Local erosion close to the left bank on the 9th spotcheck in the Main channel
- 1 Over-deepened channel deep m close to the right bank on the 8th spotcheck in the Main channel
- 1 Over-deepened channel deep m close to the right bank on the 7th spotcheck in the Main channel
- 1 Over-deepened channel deep m close to the right bank on the 6th spotcheck in the Main channel
- 1 Over-deepened channel deep m close to the right bank on the 5th spotcheck in the Main channel
- 1 Over-deepened channel deep m close to the right bank on the 4th spotcheck in the Main channel
- 1 Transverse bar close to the left bank on the 3rd spotcheck in the Main channel
- 1 Transverse bar close to the right bank on the 2nd spotcheck in the Main channel
- 1 Channel Nickpoint/Headcut close to the left bank on the 1st spotcheck in the Main channel

SECONDARY CHANNEL (if present) - Notable Features position Transect 1 is at downstream end



Reported features

No features of special interest to report

Description of reported features

No features of special interest to report

<p>Esecuzione analisi di campagna Elaborazione dati Responsabile rilievi e valutazione I.F.F.</p>	<p>Dr. M. Bellio Dr. M. Bellio Dr. Biol. P. Turin</p>	
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