L'IFF NEL CONFRONTO *ANTE-POST OPERAM*

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Studio Associato OIKOS – LUCCA

Indagini Ambientali in ecosistemi acquatici

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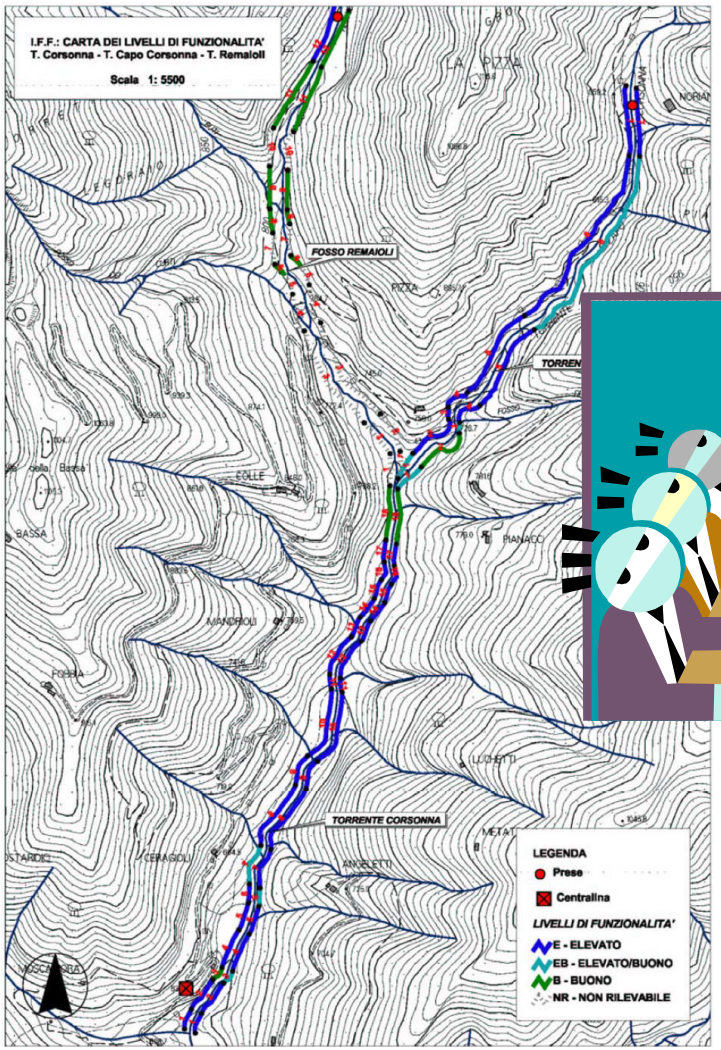
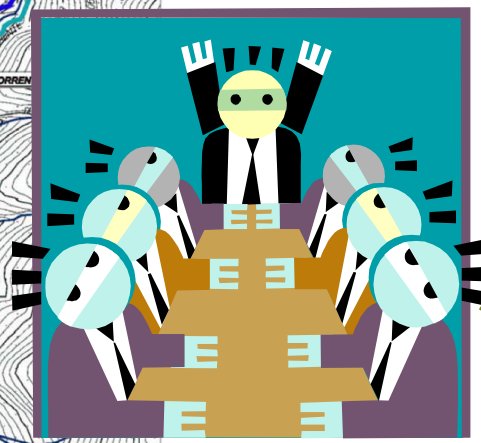
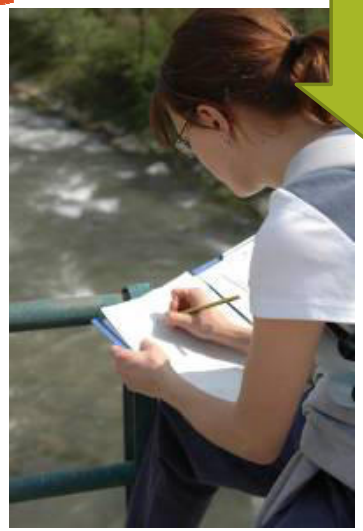
Trento, 12 settembre 2014

IFF: opportunità «spesso» persa

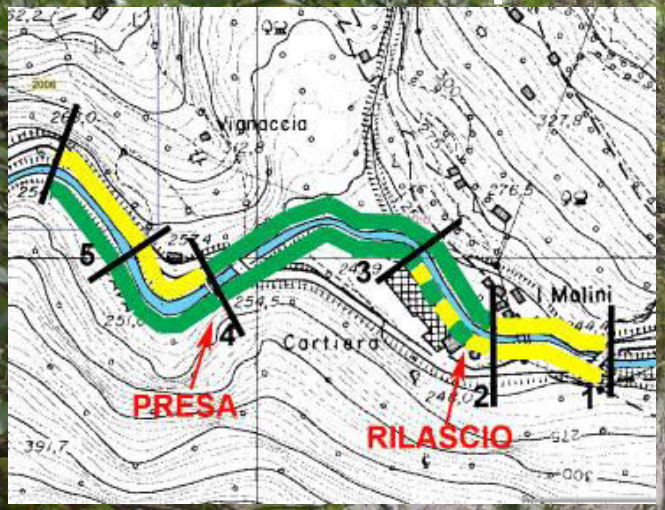




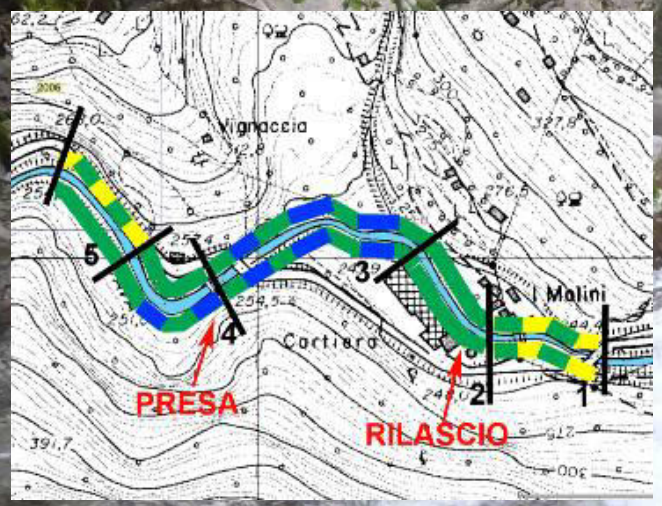


L'IFF può fare la differenza

Funzionalità Reale



Funzionalità Potenziale



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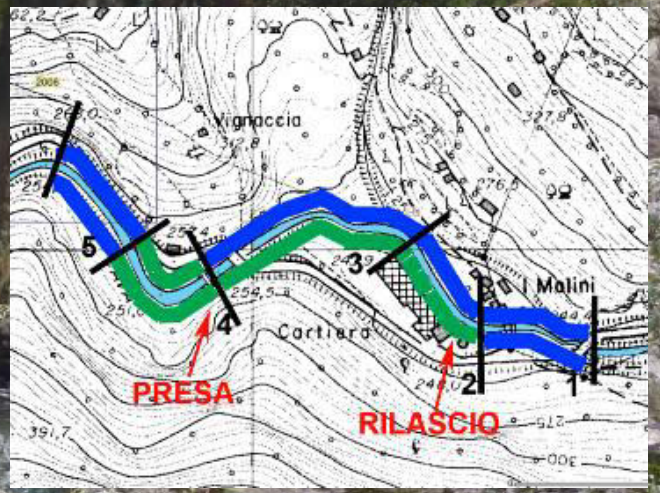
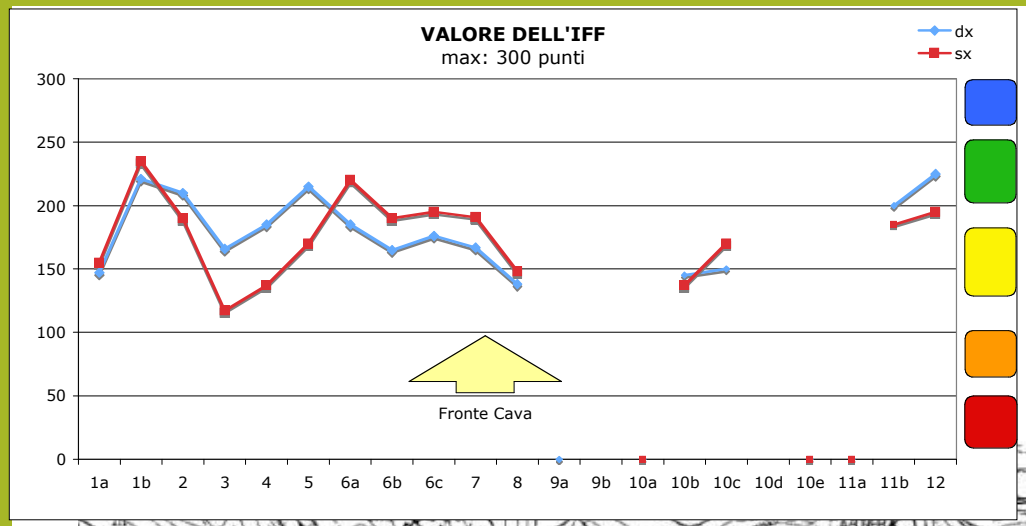
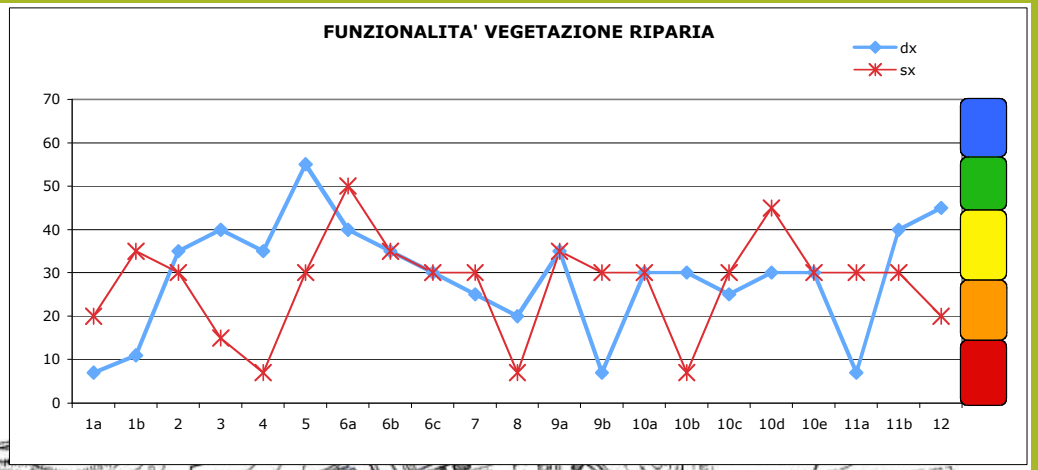
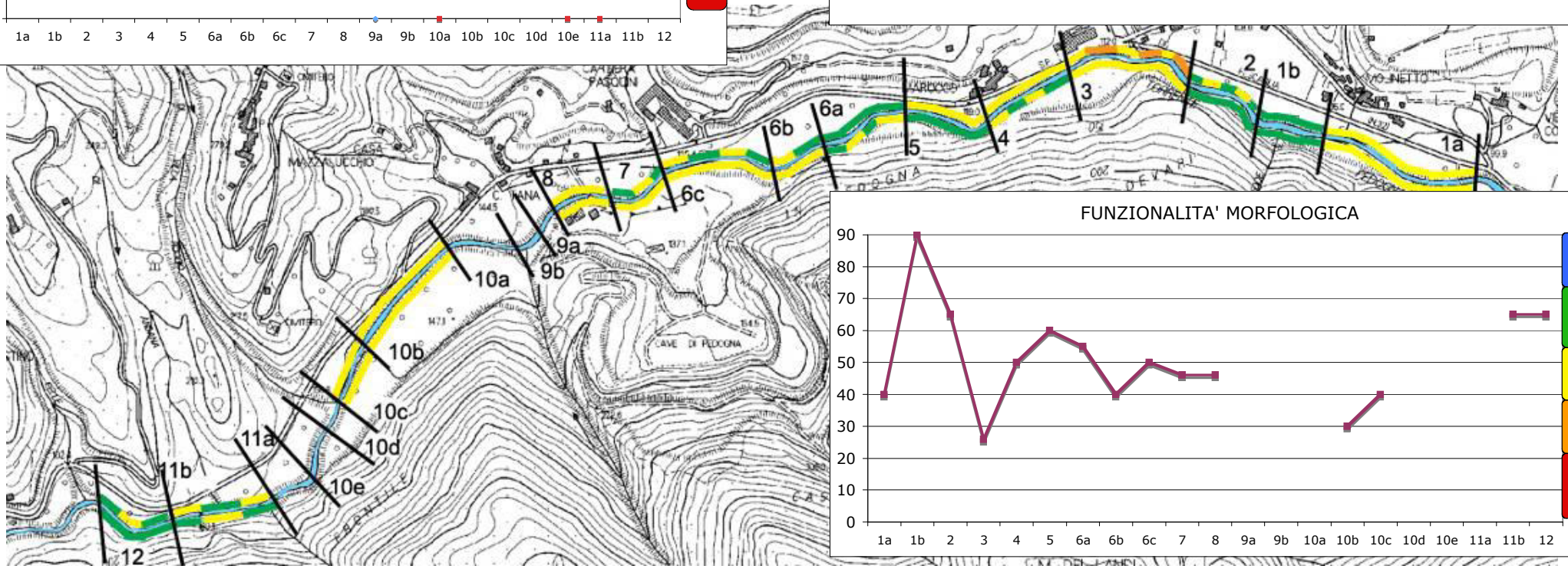


Funzionalità Relativa

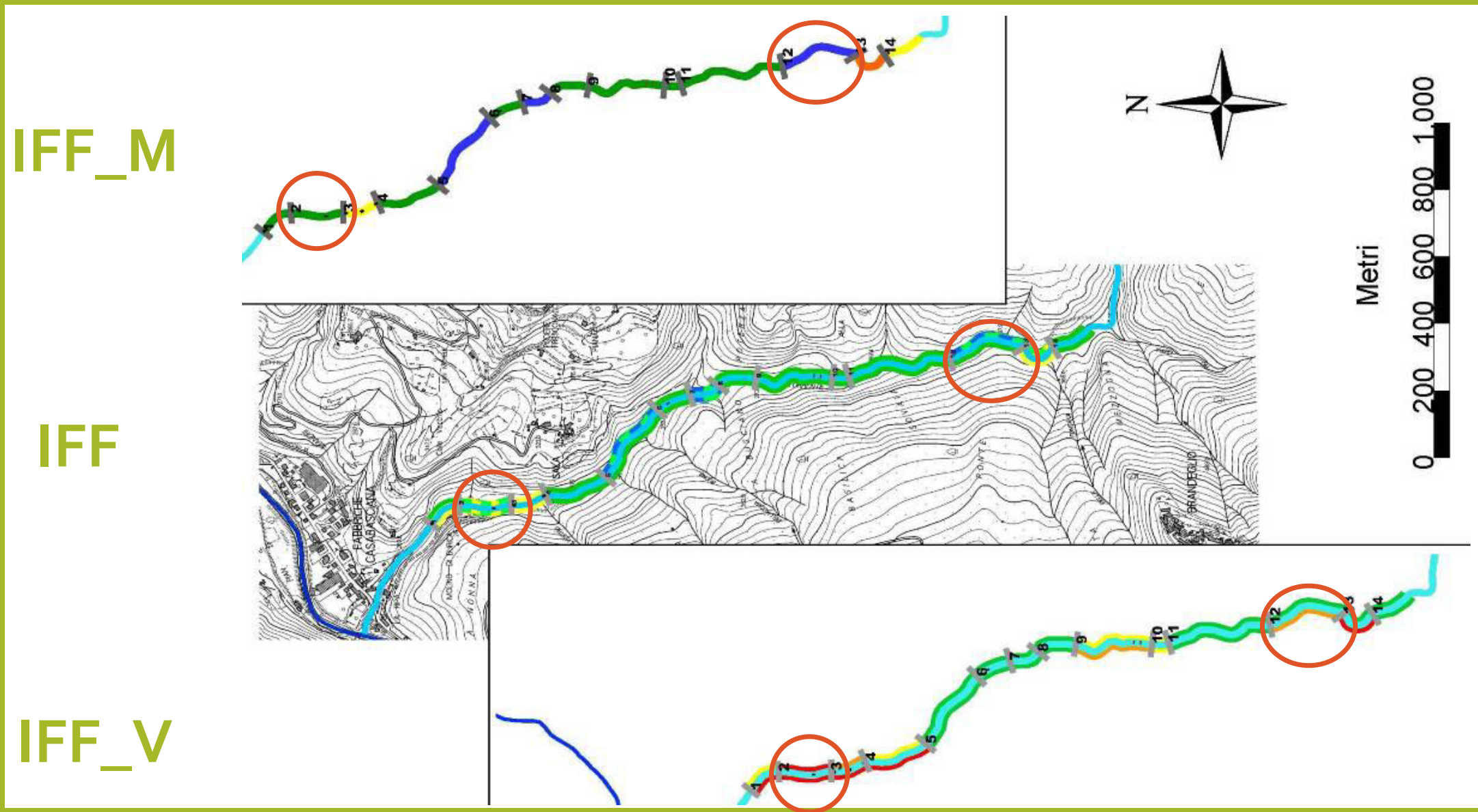
2013/10/02


VALORE DELL'IFF
max: 300 punti
dx
sx
300
250
200
150
100
50
0
1a 1b 2 3 4 5 6a 6b 6c 7 8 9a 9b 10a 10b 10c 10d 10e 11a 11b 12
Fronte Cava


FUNZIONALITA' VEGETAZIONE RIPARIA
dx
sx
70
60
50
40
30
20
10
0
1a 1b 2 3 4 5 6a 6b 6c 7 8 9a 9b 10a 10b 10c 10d 10e 11a 11b 12


1a
1b
2
3
4
5
6a
6b
6c
7
8
9a
9b
10a
10b
10c
10d
10e
11a
11b
12

FUNZIONALITA' MORFOLOGICA
90
80
70
60
50
40
30
20
10
0
1a 1b 2 3 4 5 6a 6b 6c 7 8 9a 9b 10a 10b 10c 10d 10e 11a 11b 12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IFF_V
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800
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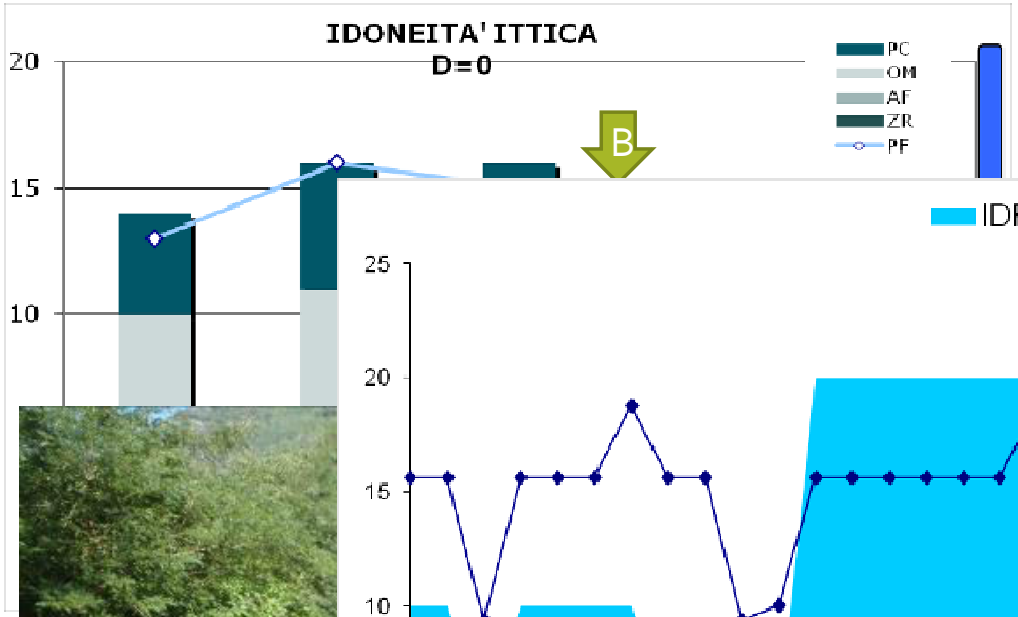
IDONEITA' ITTICA
D=0
PC
OM
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ZR
PF
B
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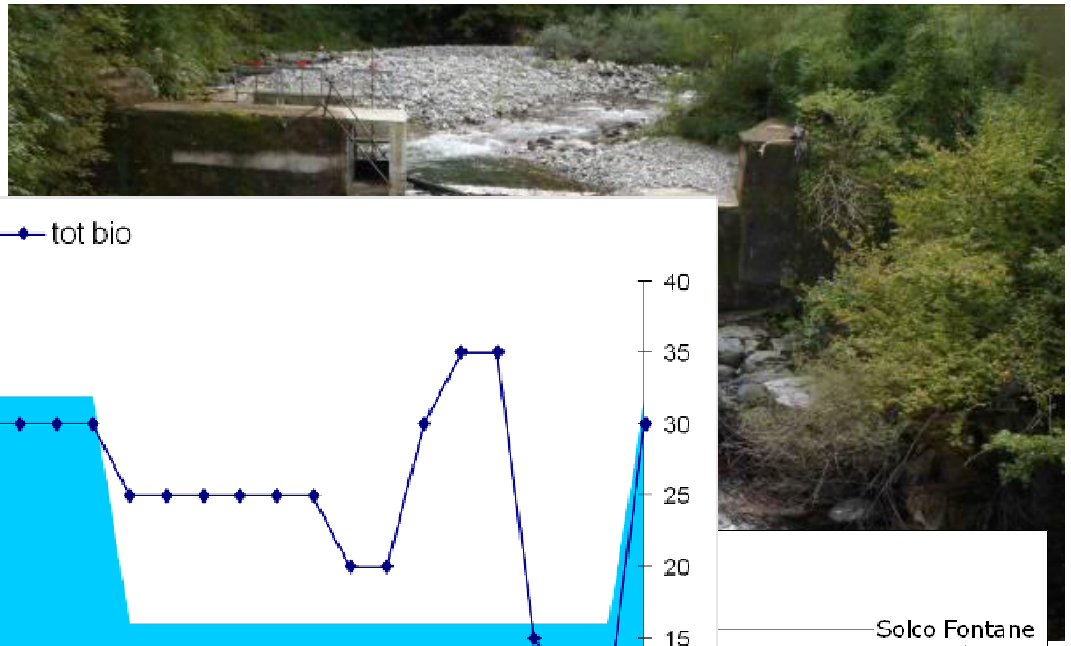
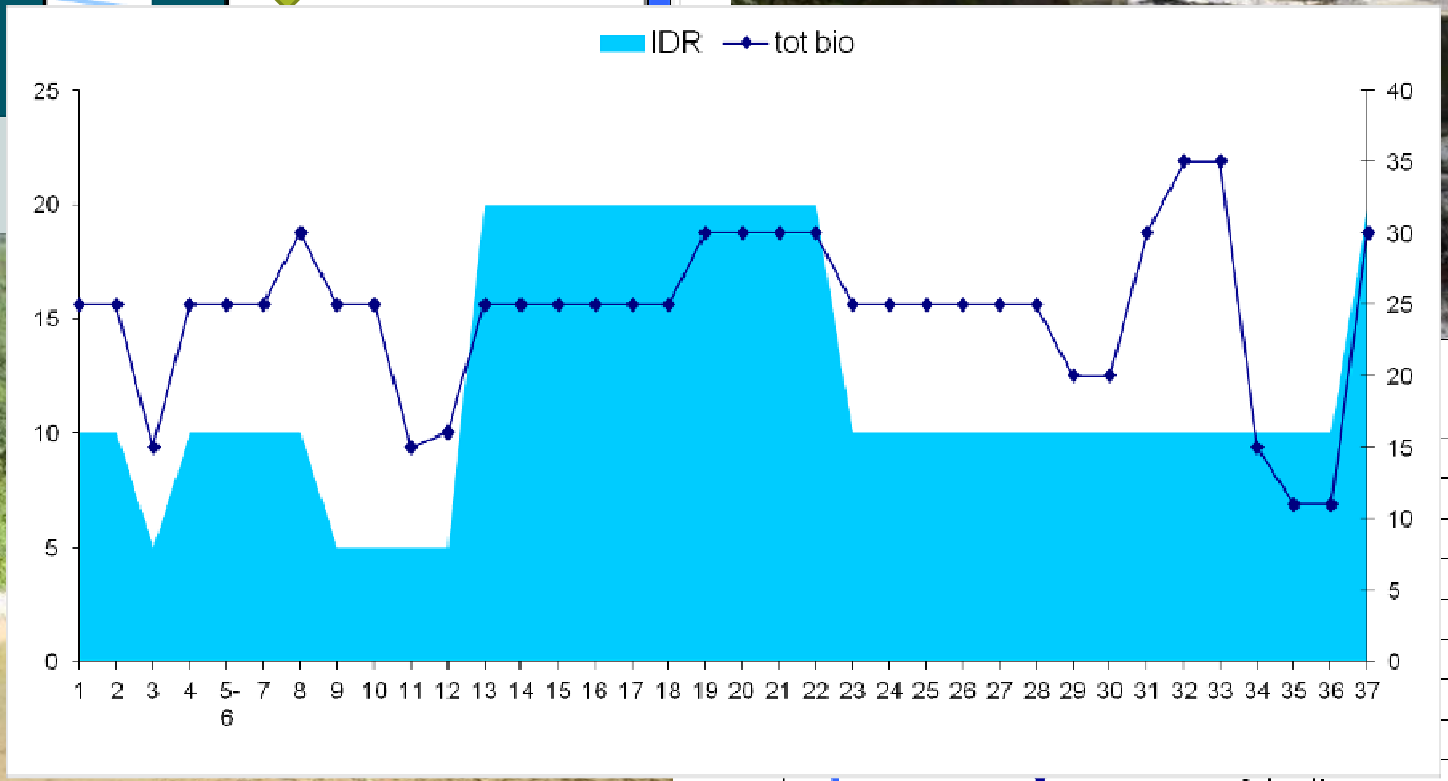
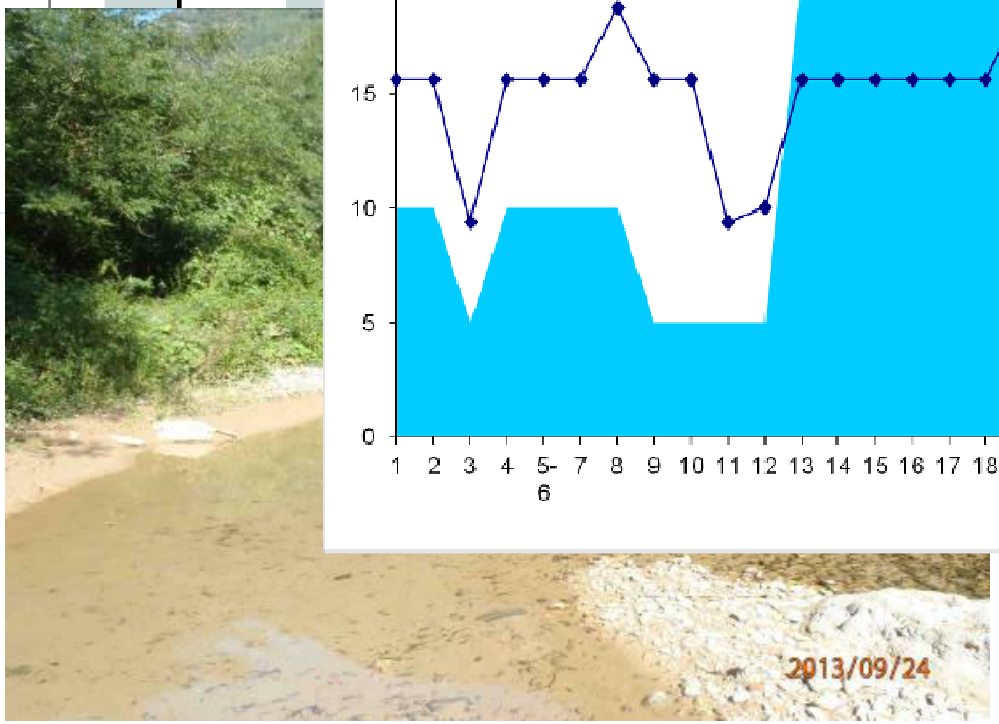
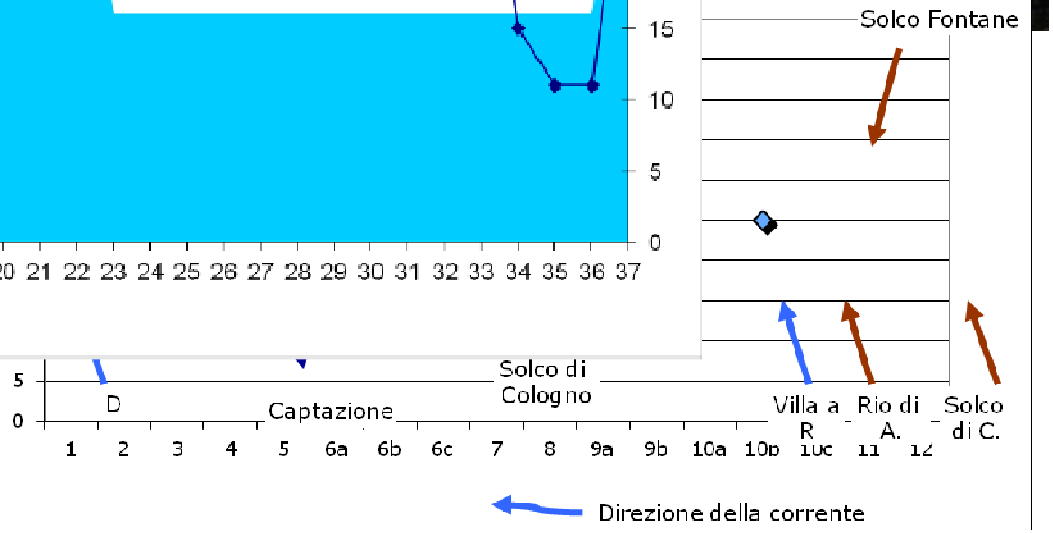
15
10



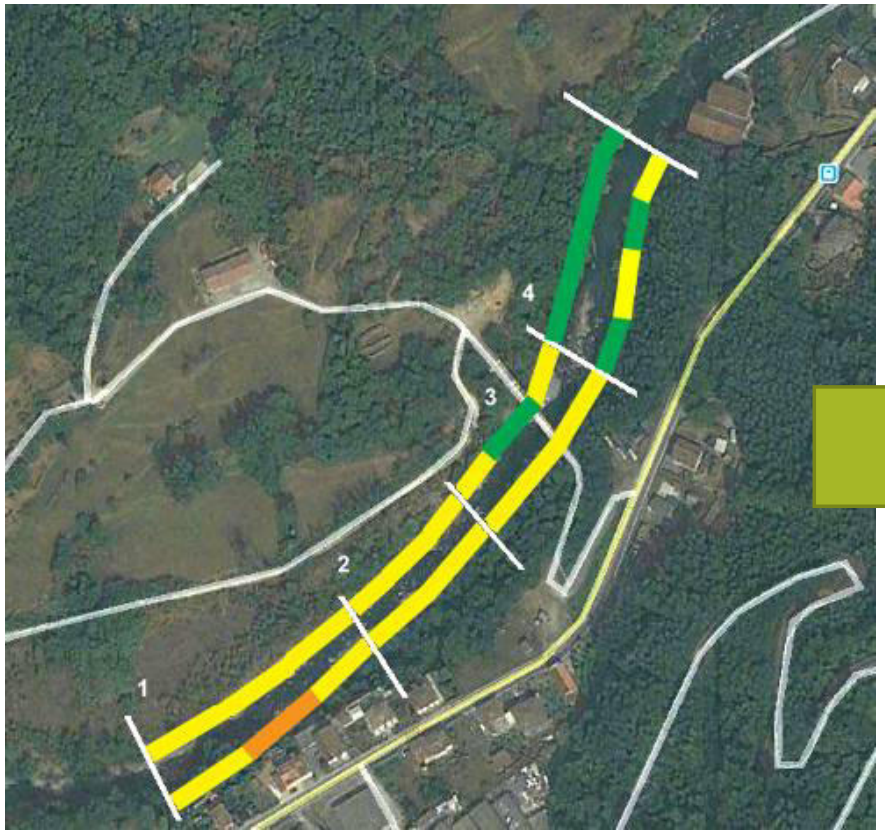

IDR
tot bio
25
20
15
10
5
0
40
35
30
25
20
15
10
5
0
1 2 3 4 5-6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

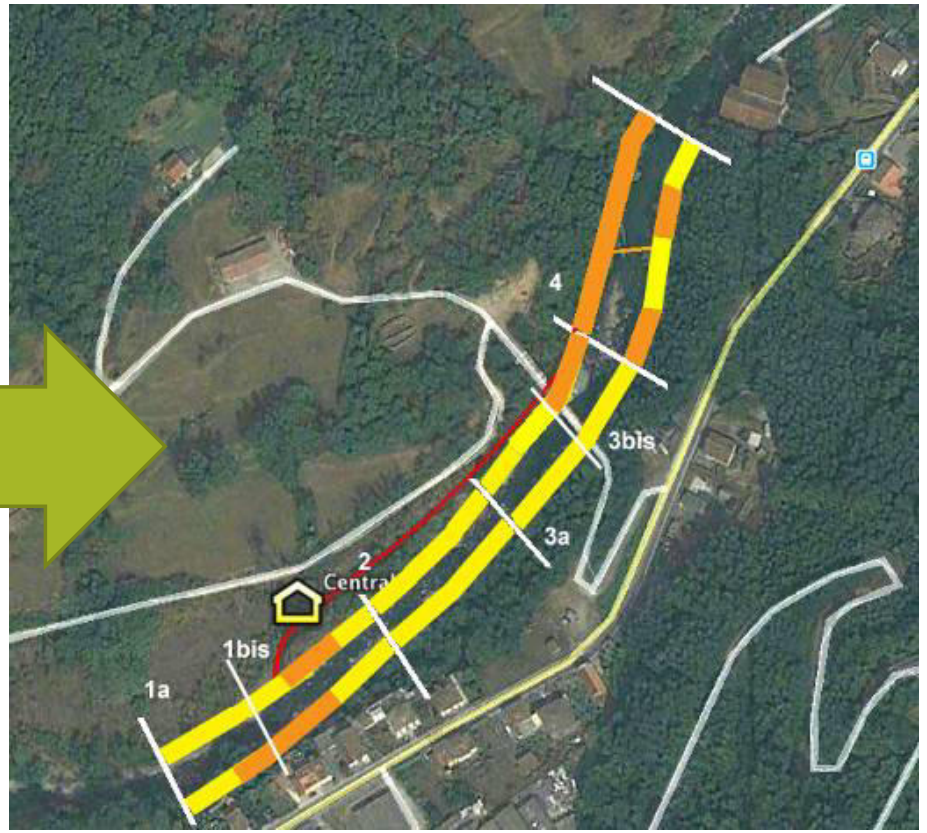

2013/09/24


Solco Fontane
Solco di Cologno
D
Captazione
Villa a R
Rio di A.
Solco di C.
5
0
1 2 3 4 5 6a 6b 6c 7 8 9a 9b 10a 10b 10c 11 12
Direzione della corrente

ANALISI PREVISIONALE

Situazione attuale

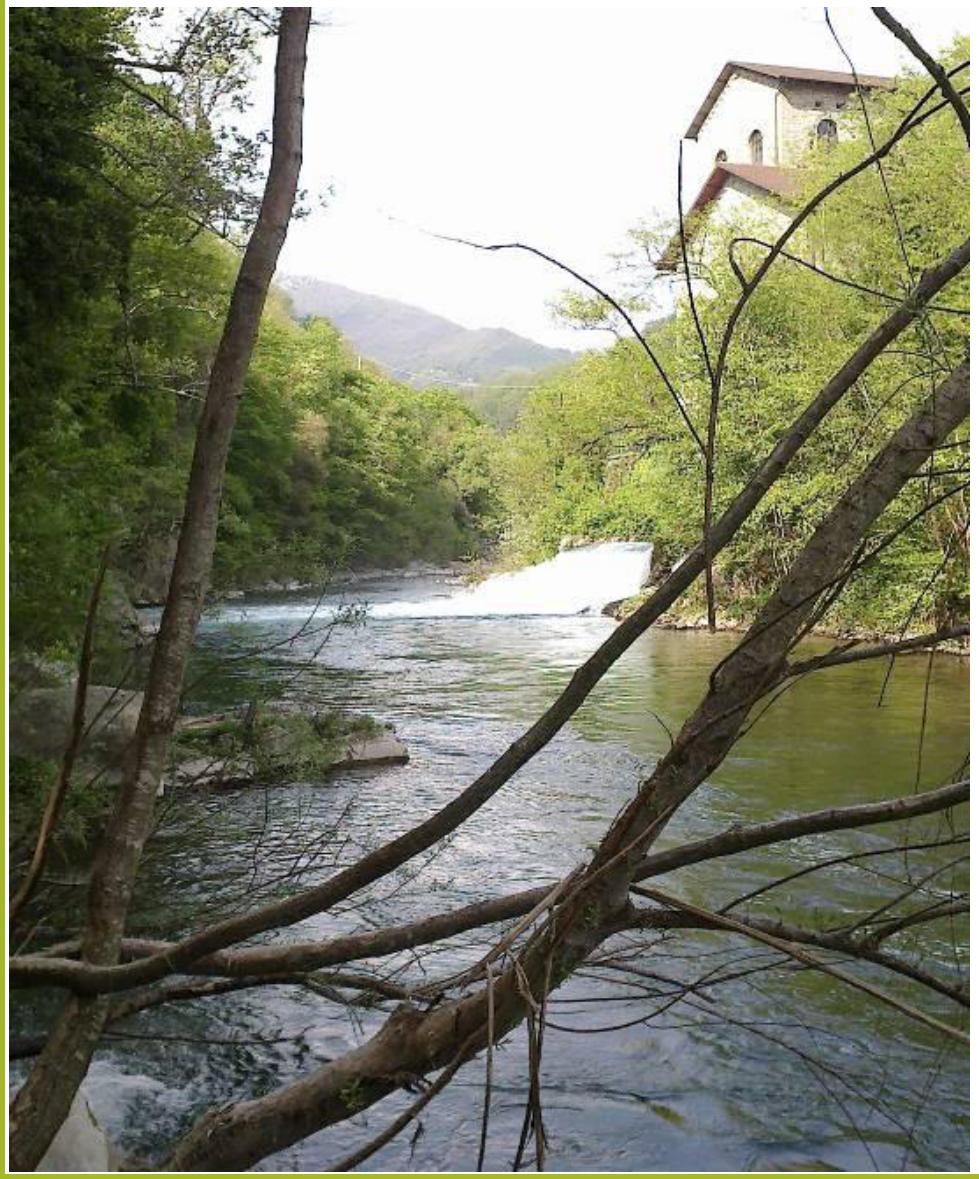




Previsione post intervento

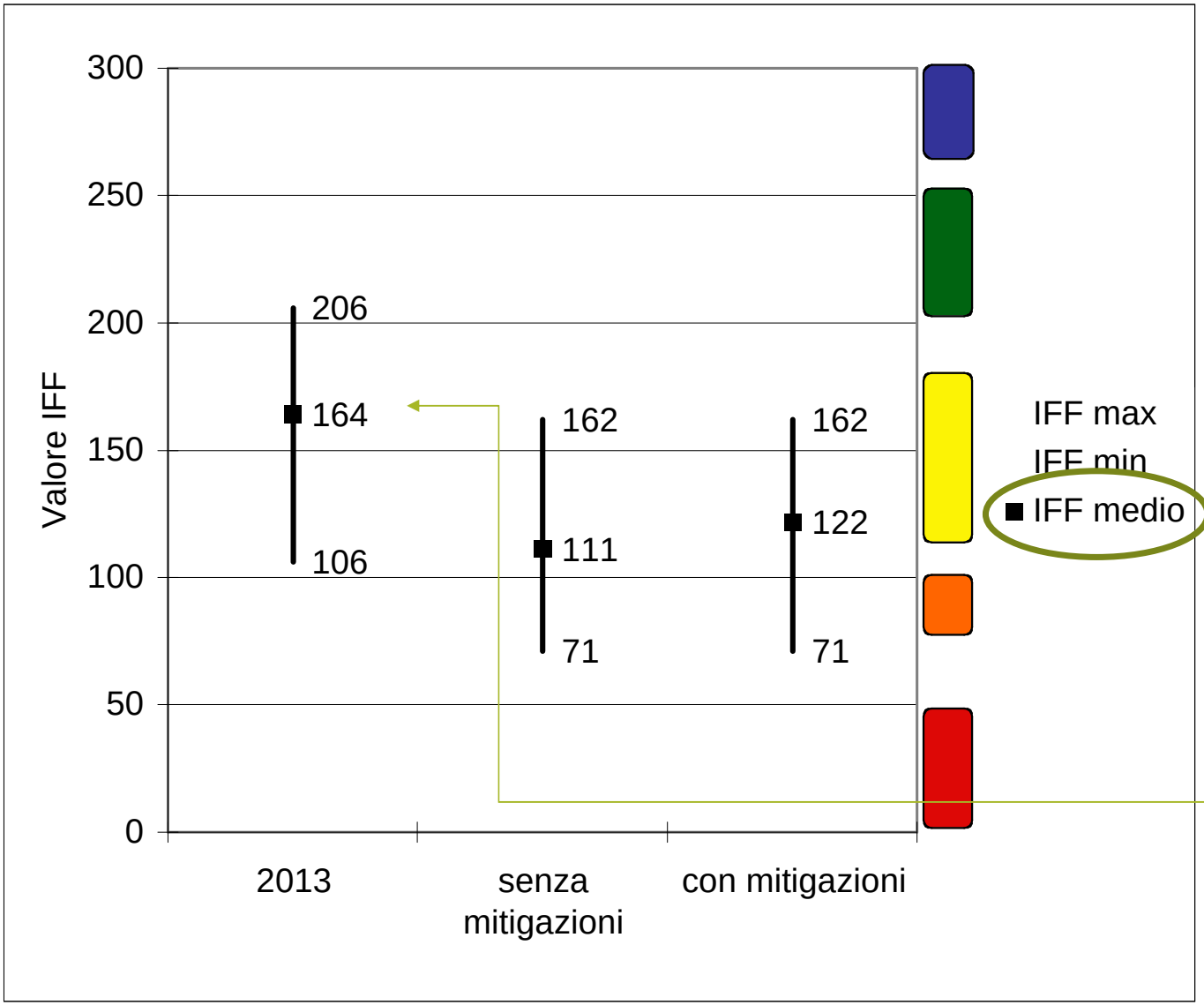
Tratto 3bis - Sponda dx – lunghezza 50 m	Ante operam	Previsione :
Situazione	Primaria F3+F7 con amp complessiva di circa 15 m ed interr <25%	Secondaria a suolo nudo
Dom 2. Vegetazione	25	1
Dom 3. Ampiezza	10	1
Dom 4. Continuità	10	1
Indice Funzionalità Vegetazionale	45 - II	3 - V

Tratto 2 - Sponda dx – lungh 90m	Ante operam	Prev 1: condotta in sponda	Prev 2: condotta vicino allo stradello	2 Con mitigazione :
Situazione	Primaria F10+F9 con amp tra 25 e 10 m ed int >25%	Secondaria suolo nudo	Secondaria F10 inalterata; F9 al di sotto di 5 m	Secondaria F10 inalterata; F9 + F10 fino ad almeno 10 m
Dom 2. Vegetazione	10	1	5	5
Dom 3. Ampiezza	10	1	5	10
Dom 4. Continuità	5	1	5	5
Indice Funzionalità Vegetazionale	25 - IV	3 - V	15 - V	20- IV



Tratti da 1 bis a 3bis – lunghezza 260 m	Ante operam	Previsione
Situazione	Hydropeaking	DMV modulato
Dom 5. Condizioni idriche	1	10

	DX			SX		
	2013	senza mitig	Con mitig	2013	senza mitig	Con mitig
I						
I - II						
II	27%					
II - III	23%			27%		
III	50%	30%	61%	43%	43%	43%
III - IV		32%		30%	57%	57%
IV		39%	39%			
IV - V						
V						

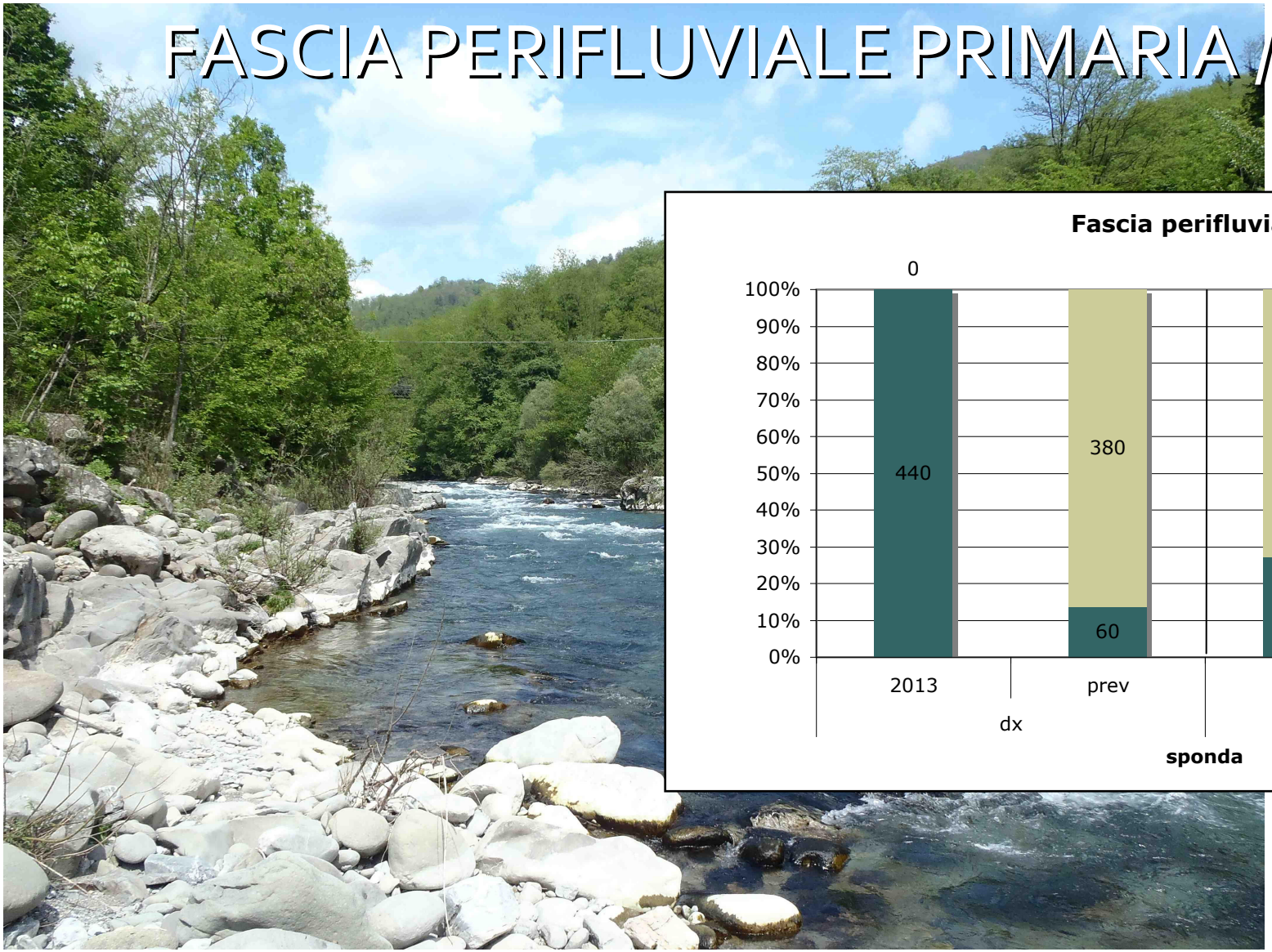


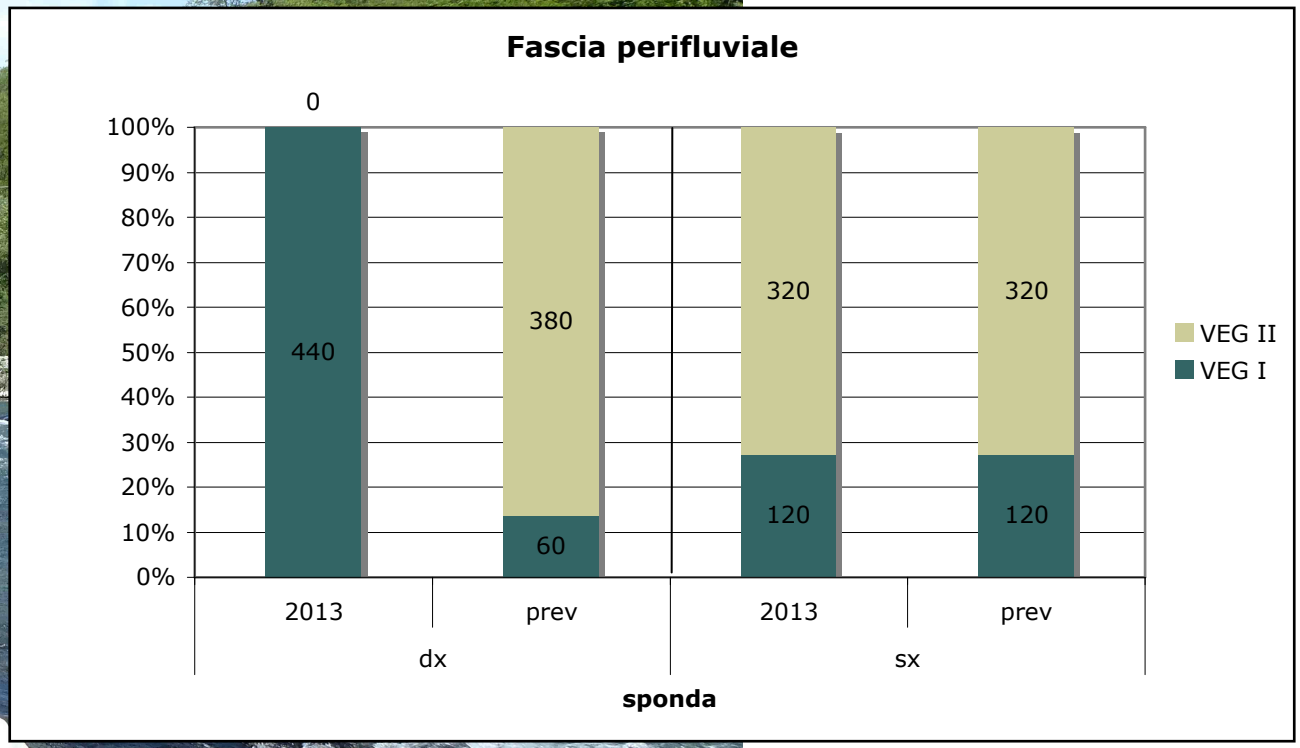
m		dx	sx		m
130	III	162	106	III-IV	130
90	III	161	147	III	90
100	II-III	181	156	III	100
120	II	206	196	II-III	120

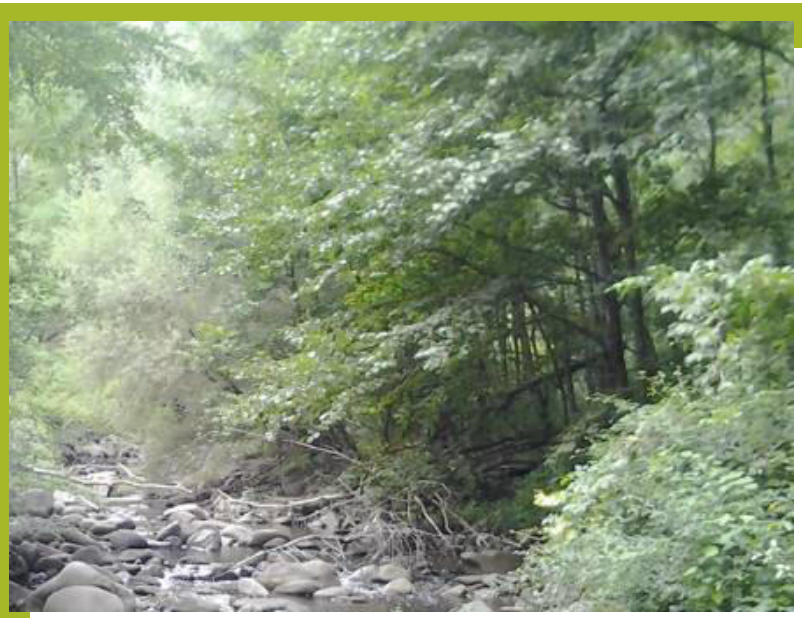
X X

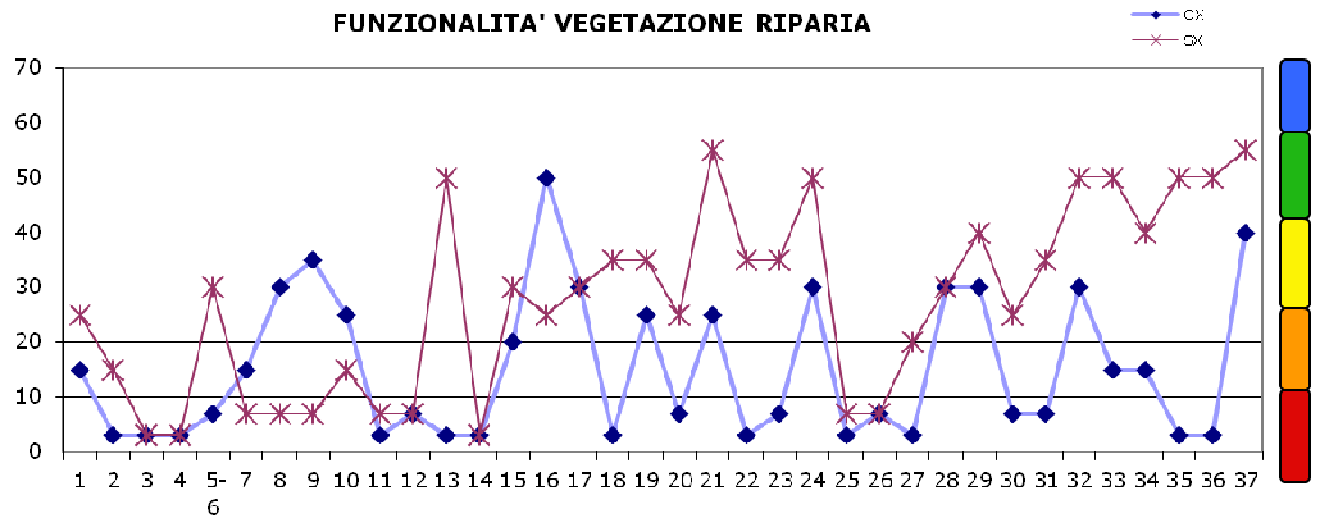
21060	13780	+
14490	13230	+
18100	15600	+
24720	23520	=
78370	+ 66130	=
144500 / 2L		=
164,2045455		

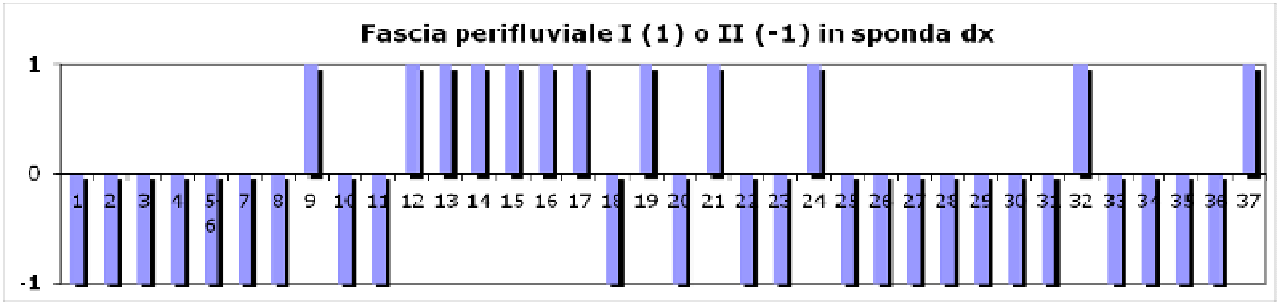
FASCIA PERIFLUVIALE PRIMARIA / SECONDARIA

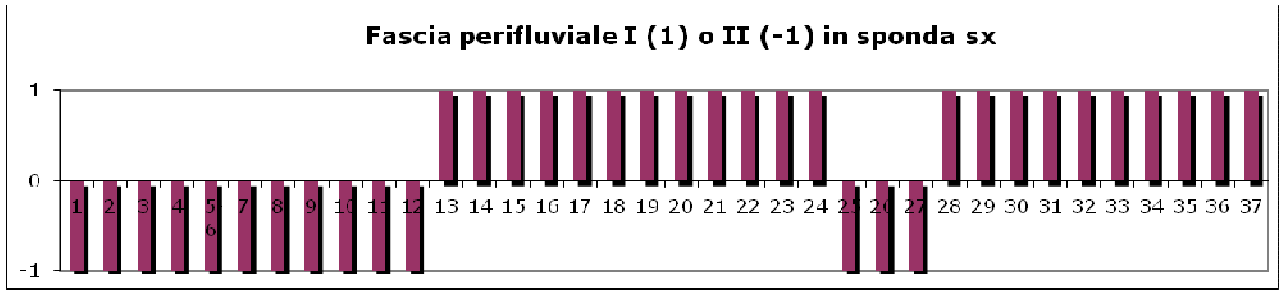




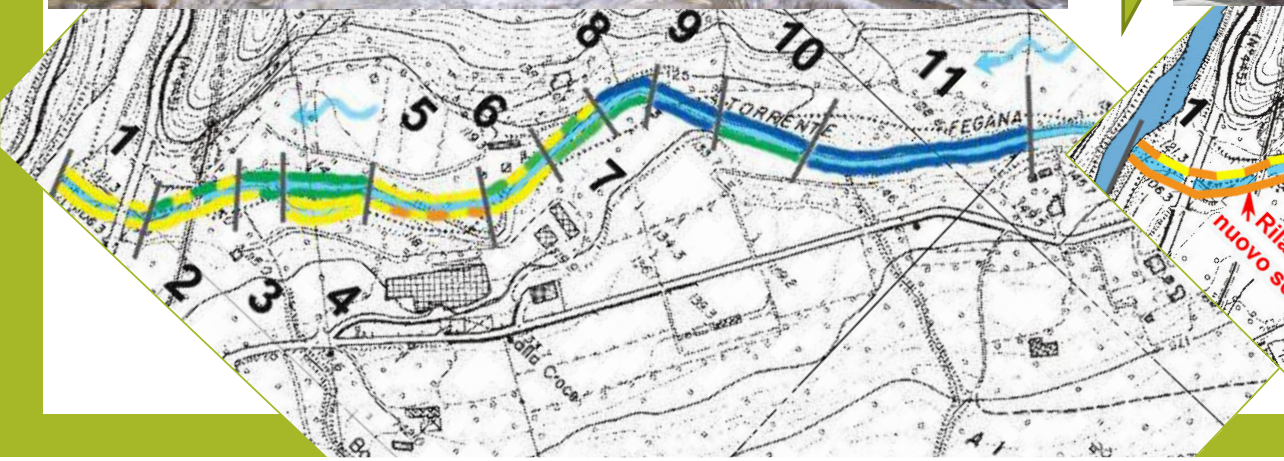


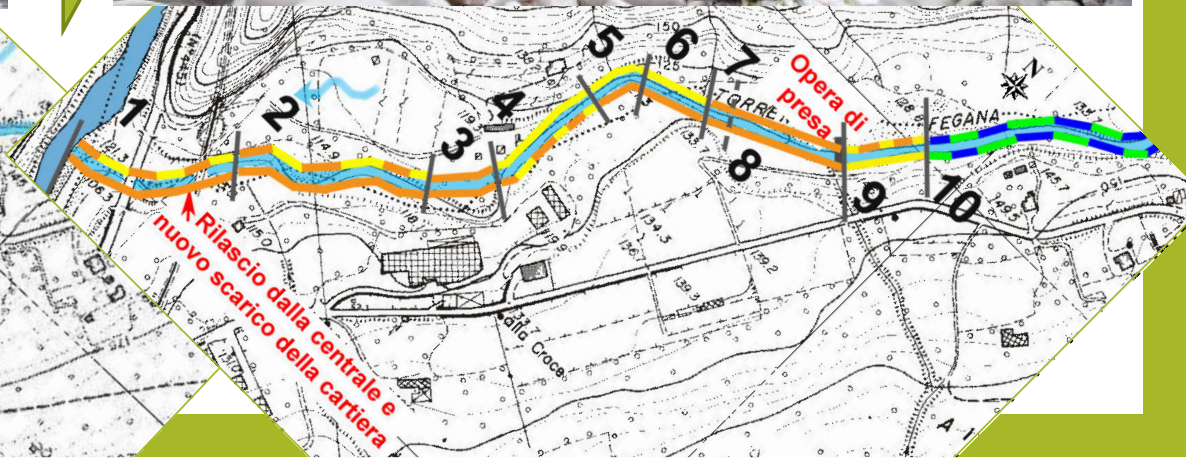

FUNZIONALITA' VEGETAZIONE RIPARIA
70
60
50
40
30
20
10
0
1 2 3 4 5-6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37


Fascia perifluviale I (1) o II (-1) in sponda dx
1
0
-1


Fascia perifluviale I (1) o II (-1) in sponda sx
1
0
-1

2009: inizio lavori





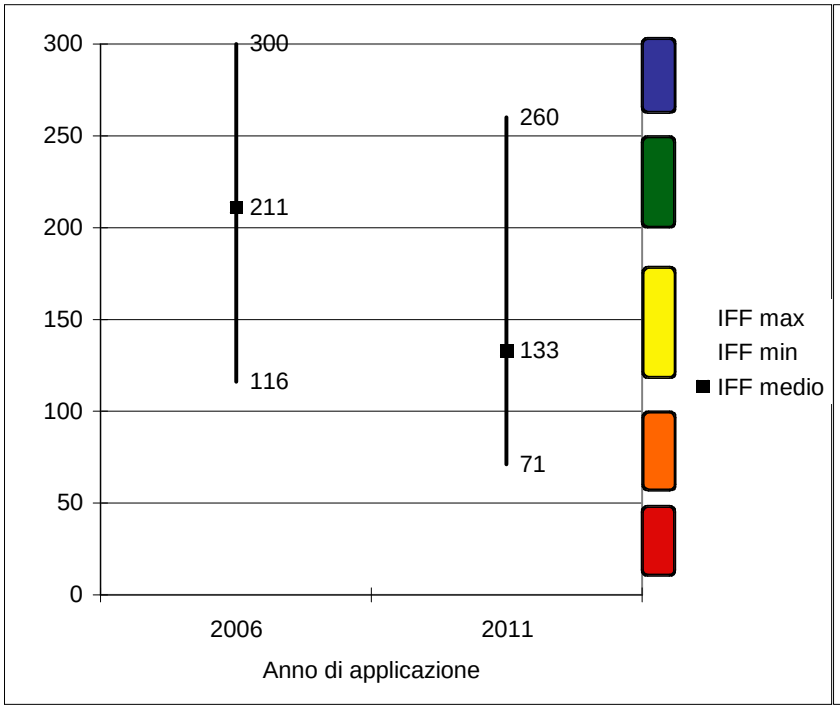
Immagini estratte dalla relazione geomorfologica di Dott. Geol. Laura Bianchi

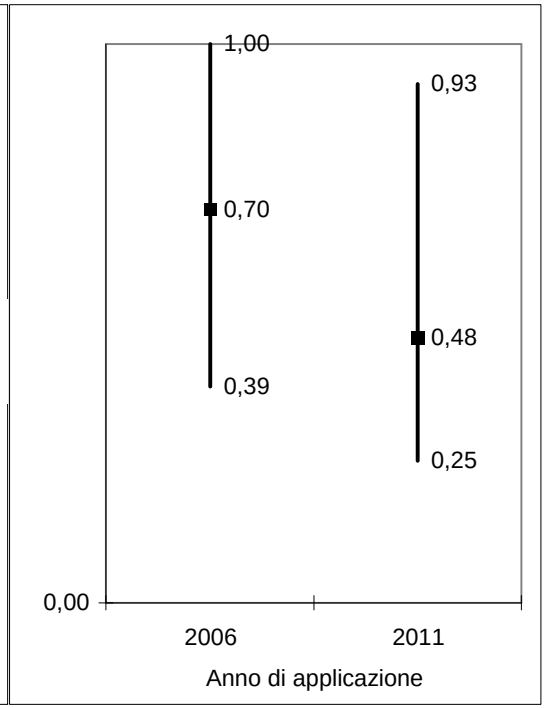
2010

2009

007

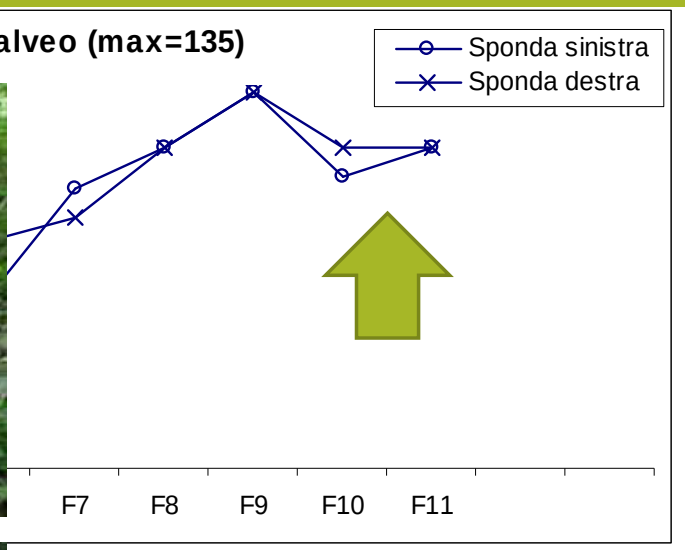

2011

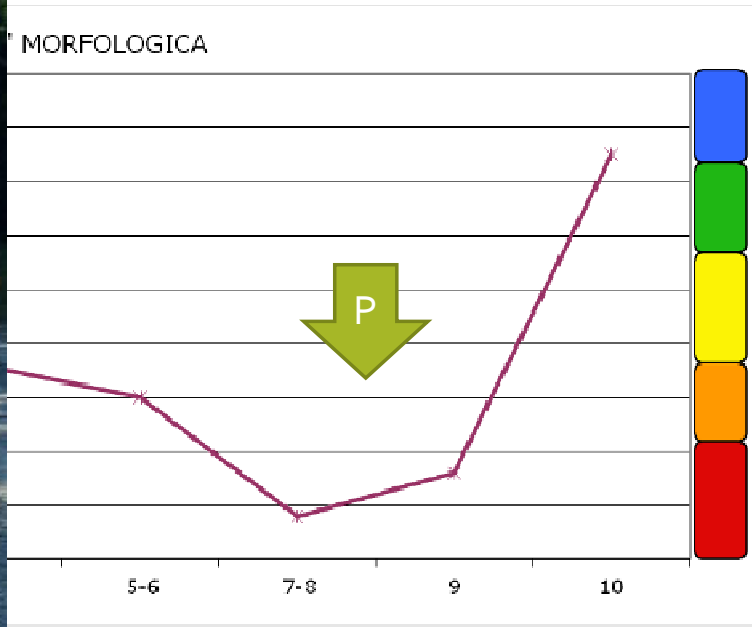




	DX		SX	
	2006	2011	2006	2011
I	45%		30%	
I - II		16%		16%
II	14%		20%	
II - III	23%		5%	
III	18%	25%	33%	8%
III - IV		40%	12%	13%
IV		19%		63%
IV - V				
V				

Anno di applicazione	Metodo utilizzato	Formula per IFF relativo
2006	IFF 2003	Valore rilevato/300
2011	IFF 2007	Valore rilevato/280

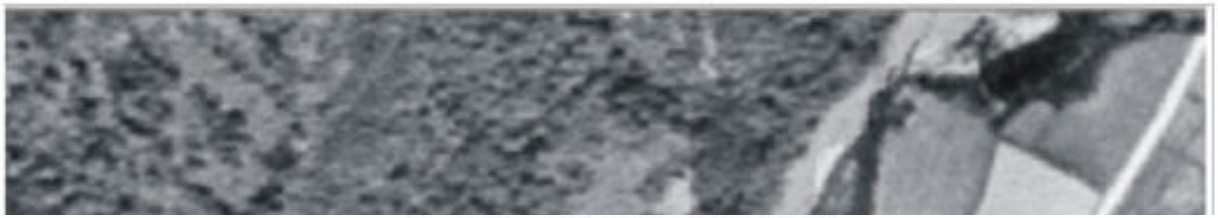

Struttura dell'alveo (max=135)
Sponda sinistra
Sponda destra
F7
F8
F9
F10
F11


MORFOLOGICA
P
5-6
7-8
9
10


…verificare che le opere non abbiano comportato variazioni artificiali della dinamica fluviale, concentrando il flusso in zone particolari provocando eventuali fenomeni di erosione fluviale…

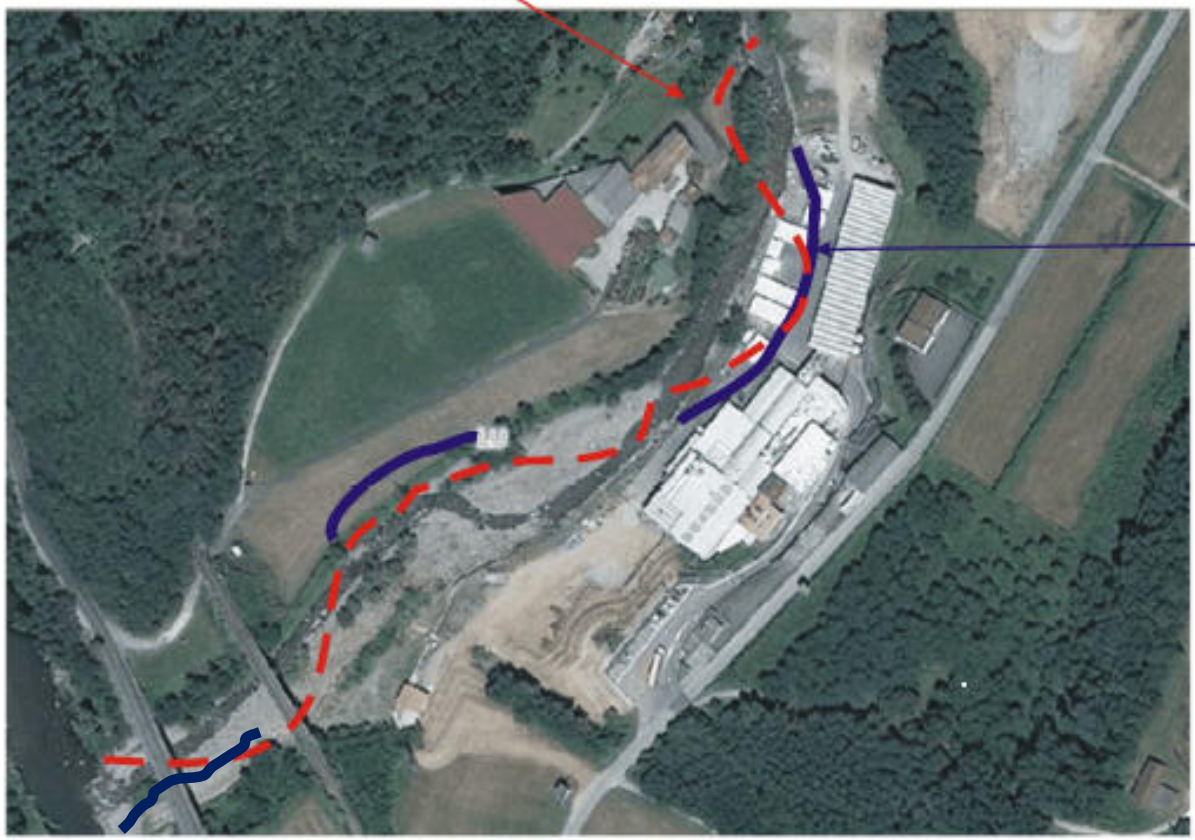
Nov 2012 e Mar 2013

Foto area 1954



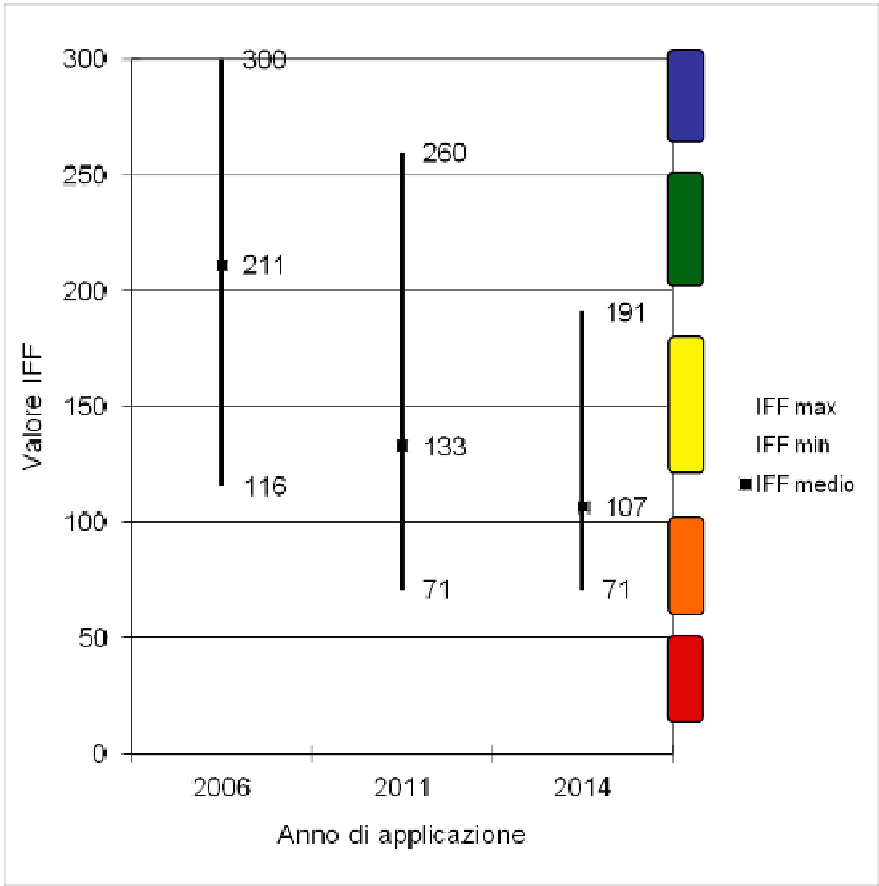
Asse del canale principale al 1954

Foto aerea 2012



Erosioni di sponda novembre 2012

Immagini estratte dalla relazione geomorfologica di Dott. Geol. Laura Bianchi

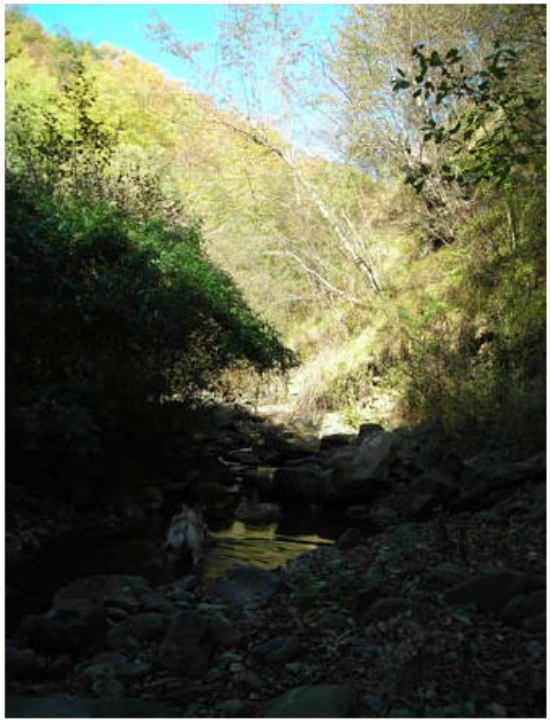


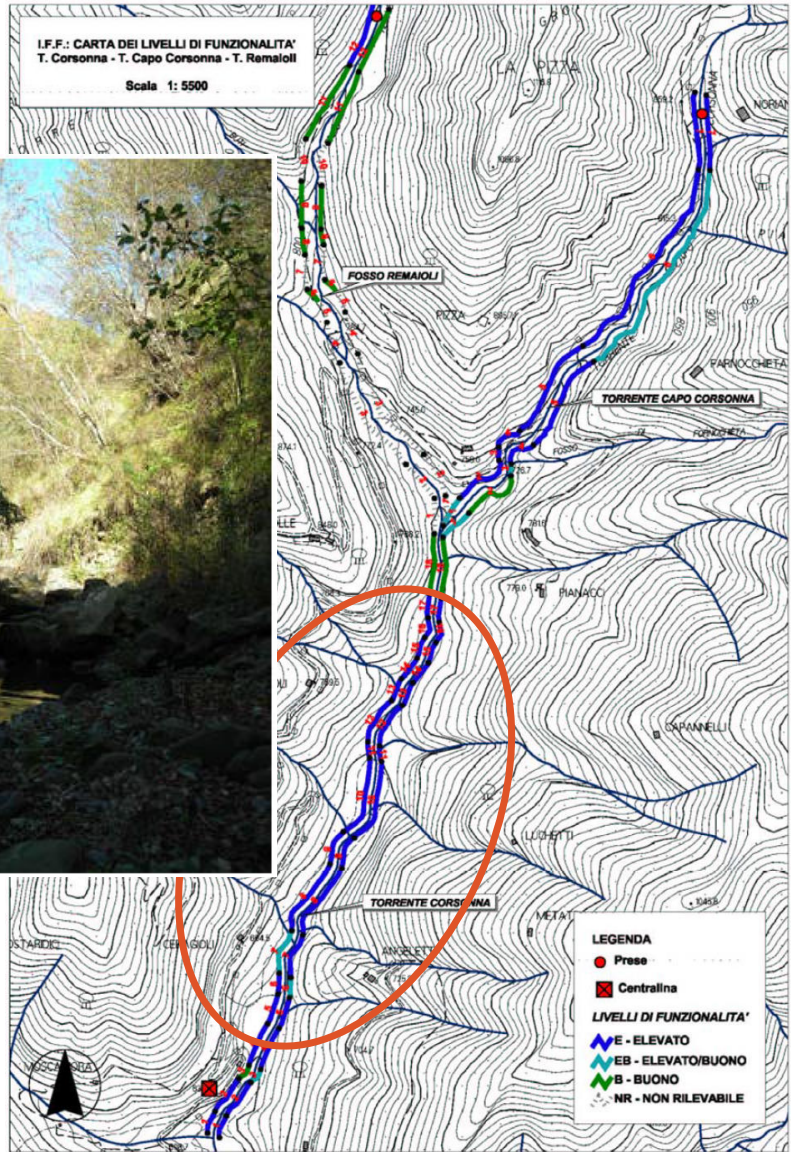
	DX			SX		
	2006	2011	2014	2006	2011	2014
I	45%			30%		
I - II		16%			16%	
II	14%			20%		
II - III	23%		28%	5%		16%
III	18%	25%		33%	8%	11%
III - IV		40%	11%	12%	13%	14%
IV		19%	61%		63%	59%
IV - V						
V						

2009

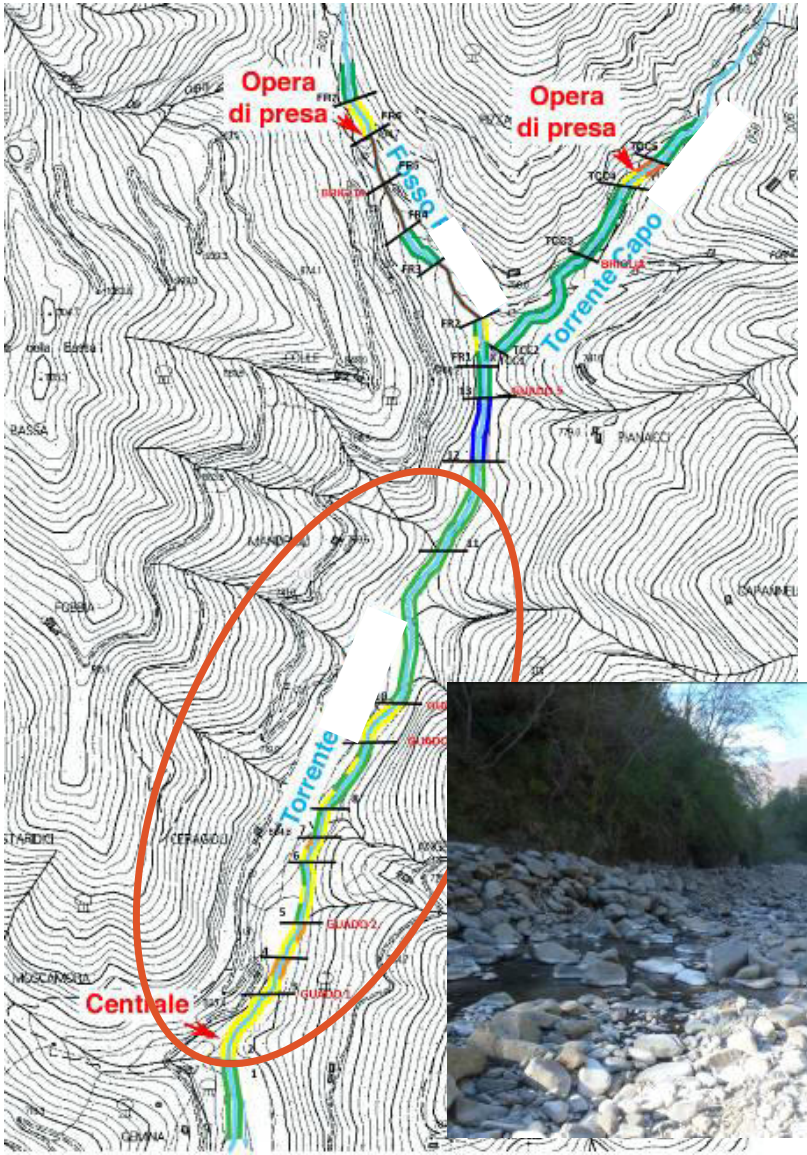
2009

2006

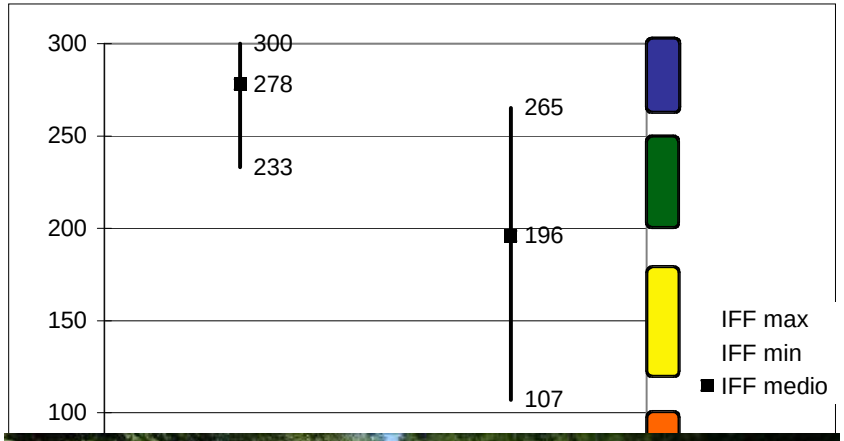


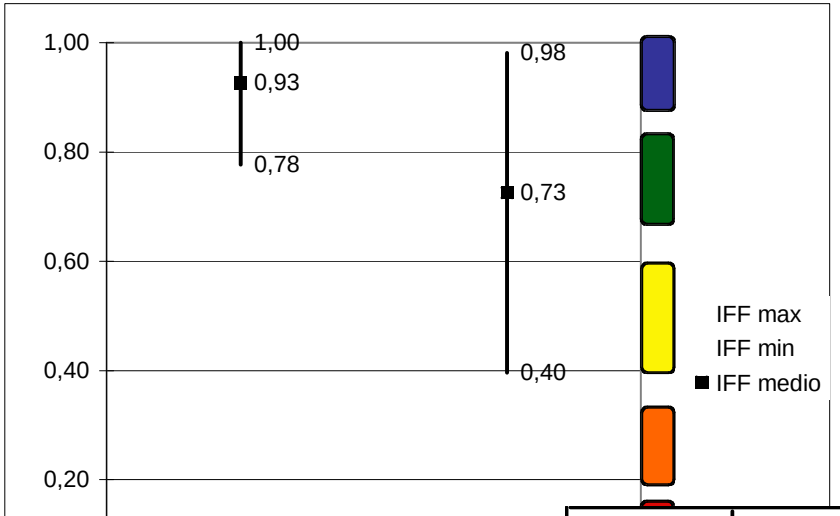

I.F.F.: CARTA DEI LIVELLI DI FUNZIONALITA'
T. Corsonna - T. Capo Corsonna - T. Remaioli
Scala 1: 5500
FOSSO REMAIOLI
TORRENTE CAPO CORSONNA
TORRENTE CORSONNA
LEGENDA
Prese
Centralina
LIVELLI DI FUNZIONALITA'
E - ELEVATO
EB - ELEVATO/BUONO
B - BUONO
NR - NON RILEVABILE

2011


Opera di presa
Opera di presa
Fosso I
Torrente Capo
Torrente
Centrale


2014/04/16





	DX		SX	
	2006	2011	2006	2011
I	81%	9%	85%	9%
I - II	9%		5%	
II	10%	48%	9%	51%
II - III		13%		
III		21%		29%
III - IV		9%		11%
IV				
IV - V				
V				

CONCLUSIONI

- Forte impatto dell'idroelettrico con condotte in alveo od a bordo alveo
- Perdita di resilienza del sistema a funzionalità fluviale ridotta

- Necessità di una norma che preveda l'utilizzo dell'IFF nelle VIA ed affini
- Necessità di interazione committente/operatore ambientale sin dalle prime fasi di progettazione dell'opera
- Necessità di Formazione e Qualifica degli operatori
- Necessità di prevedere monitoraggi *post operam* a cadenza adeguata

- Maggior CORAGGIO da parte delle Amministrazioni, perché i buoni operatori gli mettono in mano gli strumenti per poter prendere le giuste decisioni.