

Supraseasonal drought in an Alpine river: effects on benthic primary production and diatom community

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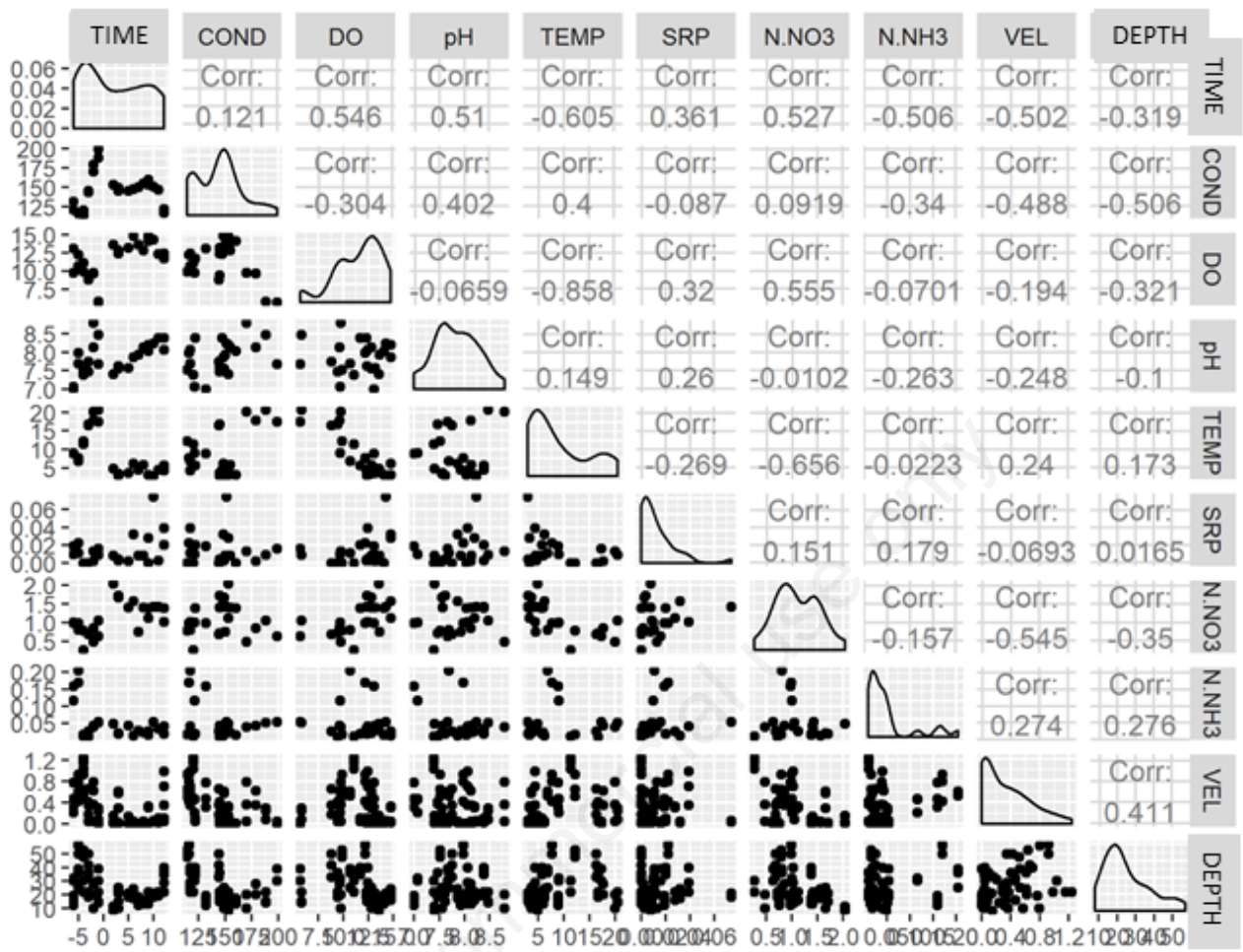
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Supplementary Material 1. Pearson correlation test performed among time, physical and chemical data measured during the survey.



Supplementary Material 2. List of diatom species detected during the three phases of the hydrological cycle of Pellice River.



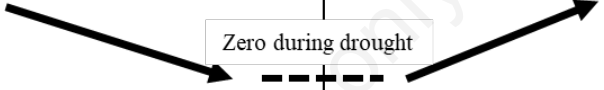


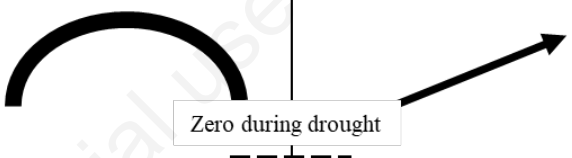




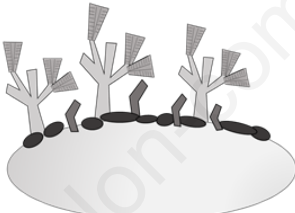
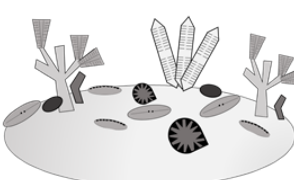

	CODE	HYDROLOGICAL STABILITY	IDENTIFICATION	REWETTING
<i>Achnanthydium affine</i> (Grun) Czarnecki	ACAF	+		+
<i>Achnanthydium atomoides</i> Monnier et al.	ADAM	+	+	
<i>Achnanthydium eutrophilum</i> (Lange-Bertalot) Lange-Bertalot	ADEU			+
<i>Achnanthydium lineare</i> W.Smith	ACLI	+	+	+
<i>Achnanthydium minutissimum</i> (Kützing) Czarnecki	ADMI	+	+	+
<i>Achnanthydium minutissimum</i> teratological form	ADMT	+		+
<i>Achnanthydium pyrenaicum</i> (Hustedt) Kobayasi	ADPY	+	+	+
<i>Achnanthydium pyrenaicum</i> teratological form	ADPT	+	+	+
<i>Achnanthydium straubianum</i> (Lange-Bertalot) Lange-Bertalot	ADSB	+		+
<i>Achnanthydium thiennemannii</i> (Hustedt) Lange-Bertalot	ADTH	+	+	+
<i>Adlafia minuscula</i> (Grunow) Lange-Bertalot	ADMS	+		+
<i>Adlafia</i> sp.	ADLF	+		+
<i>Amphora copulata</i> (Kützing) Schoeman & Archibald	ACOP		+	
<i>Amphora inariensis</i> Krammer	AINA	+		
<i>Amphora pediculus</i> (Kützing) Grunow	APED	+	+	+
<i>Aneumastus minor</i> (Hustedt) Lange-Bertalot	ANMI			+
<i>Caloneis</i> sp.	CALO		+	
<i>Cavinula cocconeiformis</i> var. <i>parva</i> McCall	CCPV			+
<i>Cocconeis euglypta</i> Ehrenberg	CEUG	+	+	+
<i>Cocconeis lineata</i> Ehrenberg	CLNT	+	+	+
<i>Cocconeis pediculus</i> Ehrenberg	CPED			+
<i>Cocconeis placentula</i> Ehrenberg	CPLA			+
<i>Cocconeis placentula</i> teratological form	CPTG	+	+	+
<i>Cocconeis pseudolineata</i> (Geitler) Lange-Bertalot	COPL	+	+	+
<i>Craticula subminuscula</i> (Manguin) Wetzel & Ector	CSNU			+
<i>Cyclotella meneghiniana</i> Kützing	CMEN			+
<i>Cymbella affinis</i> Kützing	CAFF	+	+	+
<i>Cymbella anglica</i> Lagerstedt	CYAN		+	
<i>Cymbella excisiformis</i> Krammer	CEXF	+		+
<i>Cymbella hustedtii</i> Krasske	CHUS			+
<i>Cymbella neocistula</i> Krammer	CNCI			+
<i>Cymbella parva</i> (W.Smith) Kirchner	CPAR			+
<i>Cymbella perparva</i> Krammer	CPPV		+	+
<i>Cymbella subcistula</i> Krammer	CSCI		+	
<i>Cymbella subhelvetica</i> Krammer	CSBH			+
<i>Cymbella tropica</i> Krammer	CTRO		+	+
<i>Cymbopleura amphicephala</i> Krammer	CBAM		+	
<i>Denticula tenuis</i> Kützing	DTEN	+	+	+
<i>Diadesmis contenta</i> (Grunow) Mann	DCOT	+		
<i>Diatoma ehrenbergii</i> teratological form	DEHT			+
<i>Diatoma ehrenbergii</i> Kützing	DEHR	+	+	+
<i>Diatoma mesodon</i> (Ehrenberg) Kützing	DMES	+		+

<i>Didymosphenia geminata</i> (Lyngbye) Schmidt	DGEM	+	+	+
<i>Discostella pseudostelligera</i> (Hustedt) Houk et Klee	DPST	+		
<i>Encyonema lange-bertalotii</i> morphotype 1 Krammer	ENLB	+		
<i>Encyonema minutum</i> (Hilse) Mann	ENMI	+	+	+
<i>Encyonema minutum</i> teratological form	ENMT			+
<i>Encyonema silesiacum</i> (Bleisch) Mann	ESLE	+	+	+
<i>Encyonema silesiacum</i> teratological form	ESAB	+		+
<i>Encyonema ventricosum</i> (Kützing) Grunow	ENVE	+	+	+
<i>Encyonopsis minuta</i> Krammer & Reichardt	ECPM		+	+
<i>Eucocconeis laevis</i> (Østrup) Lange-Bertalot	EULA	+	+	+
<i>Eunotia tenella</i> (Grunow) Hustedt	ETEN			+
<i>Fistulifera pelliculosa</i> (Brébisson) Lange-Bertalot	FPEL			+
<i>Fistulifera saprophila</i> (Lange-Bertalot & Bonik) Lange-Bertalot	FSAP	+		+
<i>Fragilaria</i> sp.	FRAG	+		
<i>Fragilaria amphicephaloides</i> Lange-Bertalot	FAPO			+
<i>Fragilaria arcus</i> teratological form	FART			+
<i>Fragilaria arcus</i> (Ehrenberg) Cleve	FARC	+	+	+
<i>Fragilaria austriaca</i> (Grunow) Lange-Bertalot	FAUT			+
<i>Fragilaria candidagilae</i> Almeida et al.	FCAD	+		+
<i>Fragilaria capucina</i> teratological form	FCAT		+	
<i>Fragilaria crotonensis</i> Kitton	FCRO			+
<i>Fragilaria delicatissima</i> (W.Smith) Lange-Bertalot	FDEL			+
<i>Fragilaria neointermedia</i> Tuji et Williams	FNIN	+	+	+
<i>Fragilaria pararumpens</i> Lange-Bertalot, Hofmann & Werum in Hofmann & al.	FPRU		+	+
<i>Fragilaria pectinalis</i> Lyngbye	FPEC	+		
<i>Fragilaria perminuta</i> (Grunow) Lange-Bertalot	FPEM	+		
<i>Fragilaria rumpens</i> (Kütz.) Carlson	FRUM	+	+	+
<i>Fragilaria</i> sp	FRAS	+	+	+
<i>Fragilaria vaucheriae</i> (Kützing) Petersen	FVAU	+		+
<i>Geissleria acceptata</i> (Hust.) Lange-Bertalot & Metzeltin	GACC	+		+
<i>Geissleria decussis</i> (Østrup) Lange-Bertalot & Metzeltin	GDEC	+	+	+
<i>Gomphonema capitatum</i> Ehrenberg	GCAP		+	
<i>Gomphonema cybelliclinum</i> Reichardt & Lange-Bertalot	GCBC			+
<i>Gomphonema elegantissimum</i> Reichardt & Lange-Bertalot	GELG	+	+	+
<i>Gomphonema gracile</i> Ehrenberg	GGRA			+
<i>Gomphonema lateripunctatum</i> Reichardt & Lange-Bertalot	GLAT			+
<i>Gomphonema micropus</i> Kützing var. micropus	GMIC	+		+
<i>Gomphonema minutum</i> (Agardh) Agardh	GMIN			+
<i>Gomphonema olivaceoides</i> Hustedt	GOLD	+		+
<i>Gomphonema olivaceum</i> (Hornemann) Brébisson	GOLI	+		
<i>Gomphonema parvulum</i> (Kützing) Kützing	GPAR	+	+	+
<i>Gomphonema pumilum</i> var. <i>rigidum</i> Reichardt & Lange-Bertalot	GPRI			+
<i>Gomphonema tergestinum</i> (Grunow) Schmidt	GTER	+	+	+
<i>Hippodonta capitata</i> (Ehr.) Lange-Bertalot et al.	HCAP			+
<i>Hippodonta hungarica</i> Grunow) Lange-Bertalot et al.	HHUN			+

<i>Mayamaea permitis</i> (Hustedt) Bruder & Medlin	MPMI	+	+	
<i>Melosira varians</i> Agardh	MVAR	+	+	+
<i>Meridion circulare</i> (Greville) C.A.Agardh	MCIR			+
<i>Meridion circulare</i> var. <i>constrictum</i> (Ralfs) Van Heurck	MCCO			+
<i>Navicula antonii</i> Lange-Bertalot	NANT	+	+	+
<i>Navicula capitatoradiata</i> Germain	NCPR	+	+	+
<i>Navicula caterva</i> Hohn & Hellerman	NCTV		+	+
<i>Navicula cryptocephala</i> Kützing	NCRY	+	+	+
<i>Navicula cryptotenella</i> Lange-Bertalot	NCTE	+	+	+
<i>Navicula cryptotenelloides</i> Lange-Bertalot	NCTO		+	+
<i>Navicula gregaria</i> Donkin	NGRE	+	+	+
<i>Navicula imperfecta</i> Cleve	NIMP	+		+
<i>Navicula lanceolata</i> (Agardh) Ehrenberg	NLAN	+	+	
<i>Navicula novaesiberica</i> Lange-Bertalot	NNOV		+	+
<i>Navicula praeterita</i> Hustedt	NPRA	+	+	
<i>Navicula radiosa</i> Kützing	NRAD	+	+	+
<i>Navicula reichardtiana</i> Lange-Bertalot	NRCH	+	+	+
<i>Navicula reinhardtii</i> (Grunow) Grunow	NREI		+	+
<i>Navicula splendidula</i> Van Landingham	NSPD	+	+	+
<i>Navicula tripunctata</i> (Müller) Bory	NTPT	+		+
<i>Navicula veneta</i> Kützing	NVEN		+	
<i>Nitzschia</i> sp.	NITZ	+		
<i>Nitzschia acicularis</i> Kützing) Smith	NACI		+	+
<i>Nitzschia acidoclinata</i> Lange-Bertalot	NACD			+
<i>Nitzschia alicae</i> Hlubikova & Ector	NALC	+		
<i>Nitzschia archibaldii</i> Lange-Bertalot	NIAR	+	+	+
<i>Nitzschia costei</i> Tudesque et al.	NYCO			+
<i>Nitzschia dissipata</i> (Kützing) Grunow	NDIS	+	+	+
<i>Nitzschia dissipata</i> var. <i>media</i> (Hantzsch) Grunow	NDME	+		+
<i>Nitzschia fonticola</i> teratological form	NFOT		+	+
<i>Nitzschia fonticola</i> Grunow	NFON	+	+	+
<i>Nitzschia hantzschiana</i> Rabenhorst	NHAN	+		
<i>Nitzschia inconspicua</i> Grunow	NINC	+		+
<i>Nitzschia intermedia</i> Hantzsch ex Cleve & Grunow	NINT		+	
<i>Nitzschia lacuum</i> Lange-Bertalot	NILA		+	+
<i>Nitzschia linearis</i> (Agardh) W.M.Smith	NLIN	+	+	+
<i>Nitzschia linearis</i> var. <i>subtilis</i> (Grunow) Hustedt	NLSU			+
<i>Nitzschia oligotraphenta</i> (Lange-Bertalot) Lange-Bertalot	NIOG	+	+	+
<i>Nitzschia palea</i> (Kützing) W. Smith	NPAL	+	+	
<i>Nitzschia palea</i> var. <i>debilis</i> (Kützing) Grunow	NPAD	+	+	+
<i>Nitzschia paleacea</i> (Grunow) Grunow	NPAE	+	+	+
<i>Nitzschia perminuta</i> (Grunow) M.Peragallo	NIPM		+	+
<i>Nitzschia puriformis</i> Hlubikova et Ector	NPUF	+		+
<i>Nitzschia pusilla</i> (Kützing) Grunow emend Lange-Bertalot	NIPU			+
<i>Nitzschia recta</i> Hantzsch	NREC	+		
<i>Nitzschia soratensis</i> Morales & Vis	NSTS	+	+	+

<i>Nitzschia species</i> teratological form	NIZT	+	+	
<i>Nitzschia sublinearis</i> Hustedt	NSBL	+		+
<i>Nitzschia tenuis</i> W.Smith	NITE	+		+
<i>Odontidium neomaximum</i> Jüttner et al.	ONMA	+		+
<i>Pinnularia</i> sp.	PINU	+		
<i>Pinnularia viridis</i> morphotype 1 Krammer	PVIR			+
<i>Planothidium frequentissimum</i> (Lange-Bertalot) Lange-Bertalot	PLFR	+		+
<i>Planothidium lanceolatum</i> (Brébisson ex Kützing) Lange-Bertalot	PTLA	+	+	+
<i>Psammothidium bioretii</i> (Germain) Bukhtiyarova et Round	PBIO	+		+
<i>Psammothidium</i> sp.	PSMT	+	+	+
<i>Psammothidium chlidanos</i> (Hohn & Helleman) Lange-Bertalot	PCHL	+		
<i>Psammothidium subatomoides</i> (Hustedt) Bukhtiyarova et Round	PSAT			+
<i>Pseudostaurosira binodis</i> (Ehrenberg) M.B. Edlund	PBND			+
<i>Pseudostaurosira brevistriata</i> (Grunow) Williams & Round	PSBR		+	+
<i>Reimeria sinuata</i> (Gregory) Kociolek & Stoermer teratological form	RSIT	+		
<i>Reimeria sinuata</i> (Gregory) Kociolek & Stoermer	RSIN	+	+	+
<i>Reimeria uniseriata</i> Sala Guerrero & Ferrario	RUNI	+		
<i>Sellaphora bacillum</i> (Ehrenberg) Mann	SEBA		+	
<i>Sellaphora nigri</i> (De Not.) Wetzel et Ector	SNIG	+		+
<i>Sellaphora ventraloides</i> (Hustedt) Falasco & Ector	SVTL			+
<i>Simonsenia delognei</i> Lange-Bertalot	SIDE			+
<i>Staurosira mutabilis</i> (Wm Smith) Grunow	SSMU	+	+	
<i>Staurosira venter</i> (Ehrenberg) Cleve & Moeller	SSVE		+	
<i>Surirella angusta</i> Kützing	SANG			+
<i>Tryblionella</i> sp.	TRYB			+
<i>Ulnaria acus</i> (Kützing) Aboal	UACU	+	+	+
<i>Ulnaria ulna</i> (Nitzsch) Compère	UULN	+	+	+
<i>Ulnaria ulna</i> teratological form	UULT		+	+

Supplementary Material 3. Schematization of the main differences detected among the three phases of the hydrological cycle of the Pellice River.

		HYDROLOGICAL PHASES			
		STABLE FLOW	LENTIFICATION	REWETTING	
PHYSICAL AND CHEMICAL PARAMETERS		<ul style="list-style-type: none"> • Cond: LOW • DO: HIGH • Temp: MEAN • Vel: HIGH • SRP: LOW • N-NH₃: LOW 	<ul style="list-style-type: none"> • Cond ↑ • DO ↓ • Temp ↑ • Vel ↓ • SRP: LOW • N-NH₃: LOW 	<ul style="list-style-type: none"> • Cond  • DO: HIGH • Temp ↓ • Vel ↓ • SRP: LOW • N-NH₃ ↑ 	
	CHLOROPHYLL <i>a</i>	Tot and diatom			
		Cyano			
Green					
DIATOM COMMUNITY		 <p>LOW PROFILE STALKED LS2</p>	 <p><i>Cocconeis euglypta</i> <i>Navicula capitatoradiata</i> <i>Navicula caterva</i> <i>Navicula cryptocephala</i> <i>Navicula splendidula</i> <i>Nitzschia acicularis</i> <i>Nitzschia archibaldii</i> <i>Nitzschia palea</i> <i>Nitzschia palea var. debilis</i> <i>Nitzschia paleacea</i> <i>Nitzschia sp. (abnormal form)</i> <i>Ulnaria acus</i> <i>Ulnaria ulna</i></p>	 <p>MOTILE LS3; HS2; HS3; MS1; MS3</p> <p><i>Adlafia minuscula</i> <i>Navicula reichardtiana</i> <i>Nitzschia costei</i> <i>Nitzschia pusilla</i> <i>Psammothidium bioretii</i></p>	