

Variable	Site	2014		2015		2016		2017		ANOVA results		
		U	R	U	R	U	R	U	R	Reach	Year	Reach (Year)
Hyporheic hydraulic head (mm)	KF	0.60 (5.55)	21.60 (10.21)	3.00 (5.15)	22.40 (18.93)	-2.00 (4.53)	-44.80 (39.66)	11.80 (10.23)	-55.20 (33.48)	2014 2015 2016 2017	U > R	b b a a ns
	NF	2.80 (4.38)	-2.80 (4.66)	-0.20 (6.30)	4.40 (6.35)	-8.40 (8.05)	-15.80 (38.92)	-1.20 (6.98)	-6.00 (6.48)	2014 2015 2016 2017	ns	ns ns ns ns
	SF	-0.80 (4.76)	13.80 (23.83)	-1.00 (6.40)	46.40 (52.65)	4.60 (28.75)	-33.20 (38.17)	-5.20 (7.95)	-17.40 (27.43)	2014 2015 2016 2017	ns	ab b a ab ns
Hyporheic temperature (°C)	KF	8.46 (0.18)	7.68 (0.11)	12.8 0 (0.19)	12.28 (0.08)	13.02 (0.04)	13.28 (0.18)	12.46 (0.15)	12.40 (0.07)	2014 2015 2016 2017	U > R	a b c b U > R U > R R > U ns
	NF	5.76 (0.32)	5.24 (0.39)	10.38 (0.26)	9.60 (0.07)	12.70 (0.00)	12.66 (0.05)	10.98 (0.13)	10.86 (0.24)	2014 2015 2016 2017	U > R	a b d c ns U > R ns ns
	SF	7.05 (0.68)	6.22 (0.15)	12.82 (0.11)	13.06 (0.43)	12.74 (0.09)	12.60 (0.20)	11.86 (0.09)	11.70 (0.14)	2014 2015 2016 2017	ns	a d c b ns
Hyporheic dissolved oxygen (mg L-1)	KF	5.89 (1.52)	7.45 (0.13)	6.94 (3.39)	7.78 (1.57)	9.76 (3.73)	12.00 (2.08)	6.98 (3.57)	8.68 (1.72)	2014 2015 2016 2017	ns	a a b ab ns
	NF	9.27 (0.73)	9.98 (0.57)	7.98 (2.37)	10.20 (0.70)	9.94 (1.97)	10.26 (2.83)	9.34 (3.55)	6.60 (4.56)	2014 2015 2016 2017	ns	ns ns ns ns
	SF	7.89 (1.30)	8.13 (0.71)	7.18 (2.00)	7.70 (2.83)	9.98 (5.78)	7.08 (2.29)	6.76 (1.63)	6.04 (2.67)	2014 2015 2016 2017	ns	ns ns ns ns

Variable	Site	2014		2015		2016		2017		ANOVA results		
		U	R	U	R	U	R	U	R	Reach	Year	Reach (Year)
Hyporheic conductivity (μSi cm-1)	KF	278.00 (44.18)	264.64 (0.33)	230.74 (22.71)	216.14 (12.38)	218.56 (16.07)	229.06 (9.45)	260.32 (18.76)	267.26 (8.27)	2014	ns	b
										2015		a
										2016		a
										2017		b
	NF	226.70 (8.88)	226.82 (0.65)	217.88 (3.93)	218.68 (6.12)	190.44 (20.64)	162.70 (9.52)	211.20 (1.50)	209.30 (7.71)	2014	U > R	c
										2015		bc
										2016		a
										2017		b
	SF	264.32 (15.77)	259.42 (2.40)	217.48 (7.88)	218.04 (8.93)	247.22 (59.64)	211.02 (3.51)	235.88 (37.43)	253.16 (16.97)	2014	ns	b
										2015		a
										2016		ab
										2017		ab
Surface temperature (°C)	KF	8.42 (0.13)	7.82 (0.15)	12.70 (0.07)	12.24 (0.05)	12.92 (0.04)	13.42 (0.08)	12.62 (0.04)	12.50 (0.00)	2014	U > R	a
										2015		b
										2016		c
										2017		b
	NF	5.46 (0.27)	4.80 (0.16)	9.78 (0.13)	9.50 (0.00)	12.66 (0.05)	12.56 (0.05)	10.50 (0.07)	10.28 (0.08)	2014	U > R	a
										2015		b
										2016		d
										2017		c
	SF	6.14 (0.05)	6.36 (0.11)	12.86 (0.05)	12.94 (0.05)	12.66 (0.05)	12.32 (0.08)	11.34 (0.05)	11.54 (0.05)	2014	ns	a
										2015		d
										2016		c
										2017		b
Surface dissolved oxygen (mg L-1)	KF	8.84 (0.28)	8.85 (0.25)	10.66 (0.15)	10.42 (0.19)	18.94 (0.74)	19.04 (0.50)	10.28 (0.63)	10.32 (0.29)	2014	ns	a
										2015		b
										2016		c
										2017		b
	NF	11.66 (1.49)	11.61 (0.60)	12.18 (0.80)	12.22 (0.38)	18.54 (0.64)	19.58 (0.82)	10.46 (0.29)	10.12 (0.75)	2014	ns	b
										2015		b
										2016		c
										2017		a
	SF	10.05 (0.22)	10.09 (0.68)	10.70 (0.16)	10.62 (0.08)	19.24 (0.62)	19.78 (0.13)	9.94 (0.24)	9.82 (0.23)	2014	ns	a
										2015		b
										2016		c
										2017		ab

		2014		2015		2016		2017		ANOVA results			
Variable	Site	U	R	U	R	U	R	U	R	Reach	Year	Reach (Year)	
Surface conductivity (μSi cm-1)	KF	267.30 (1.76)	265.12 (0.22)	211.44 (8.88)	213.78 (0.63)	220.12 (1.10)	225.08 (0.73)	276.34 (4.58)	274.88 (0.37)	2014	ns	c	ns
										2015		a	
										2016		b	
										2017		d	
	NF	226.38 (2.07)	226.06 (1.53)	223.48 (0.43)	222.16 (0.42)	144.36 (2.45)	139.32 (1.26)	212.88 (0.53)	211.02 (3.08)	2014	U > R	d	ns
										2015		c	
										2016		a	
										2017		b	
	SF	258.46 (1.07)	258.60 (0.27)	222.88 (1.23)	222.66 (2.72)	225.66 (0.55)	217.48 (10.01)	254.00 (1.49)	253.58 (1.22)	2014	ns	c	ns
										2015		a	
										2016		a	
										2017		b	