

Table S1. One-sample t-tests of the differences between times spent by gammarids in the y-maze arms of different salinities (Experiment 1). Asterisks indicate statistically significant results after applying the sequential Bonferroni correction.

Species	Acclimation salinity			
	Low		High	
	t ₁₄	P	t ₁₄	P
<i>D. villosus</i>	3.43	0.004*	3.13	0.007*
<i>P. robustoides</i>	1.20	0.251	0.06	0.957

Table S2. Analysis of the behaviour of the tested gammarid species acclimated to various salinities in the y-maze (Experiment 1). Asterisks indicate statistically significant results.

Response variable	Effect ¹	df	MS	F	P
A. Time spent in the mixing zone (2-way ANOVA)	Gammarid species (G) ^{BS}	1	0.145	16.18	<0.001*
	Acclimation salinity (D) ^{BS}	1	0.086	9.65	0.003*
	G x D ^{BS}	1	0.172	19.26	<0.001*
	Error ^{BS}	55	0.009		
B. Activity (% of time spent on movement) in the y-arms (3-way mixed-model ANOVA)	Gammarid species (G) ^{BS}	1	0.393	25.96	<0.001*
	Acclimation salinity (D) ^{BS}	1	1.204	79.48	<0.001*
	G x D ^{BS}	1	0.600	39.62	<0.001*
	Error ^{BS}	55	0.015		
	Y-arm Salinity (A) ^{WS}	1	0.019	4.44	0.040*
	G x A ^{WS}	1	0.019	4.35	0.042*
	D x A ^{WS}	1	0.005	1.12	0.295
	G x D x A ^{WS}	1	0.021	4.91	0.031*
	Error ^{WS}	55	0.004		

¹ BS – between-subject effect, WS – within-subject effect

Table S3. Analysis of the impact of current velocity on the behaviour of the tested gammarid species (2-way ANOVA) (Experiment 2). Asterisks indicate statistically significant results.

Response variable	Effect	df	MS	F	P
A. Time spent in flow (in main current and upstream mesh zones)	Gammarid species (G)	1	<0.001	<0.01	0.986
	Current velocity (V)	4	0.223	7.05	<0.001*
	G x V	4	0.018	0.56	0.695
	Error	113	0.032		
B. Time spent on the downstream mesh	Gammarid species (G)	1	0.002	0.03	0.862
	Current velocity (V)	4	0.639	10.36	<0.001*
	G x V	4	0.055	0.88	0.476
	Error	113	0.062		
C. Time spent in stagnant water zones	Gammarid species (G)	1	<0.001	<0.01	0.988
	Current velocity (V)	4	0.113	2.84	0.027*
	G x V	4	0.025	0.39	0.817
	Error	113	0.040		
D. Distance to the upstream mesh	Gammarid species (G)	1	1.349	9.33	0.003*
	Current velocity (V)	4	0.790	5.47	<0.001*
	G x V	4	0.274	1.90	0.116
	Error	113	0.145		
E. Time spent on movement in the main current zone	Gammarid species (G)	1	13.063	16.22	<0.001*
	Current velocity (V)	4	8.612	10.69	<0.001*
	G x V	4	0.381	0.47	0.755
	Error	113	0.805		
F. Difference between times of the upstream and downstream movement	Gammarid species (G)	1	36.914	19.08	<0.001*
	Current velocity (V)	4	2.115	1.09	0.363
	G x V	4	4.997	2.58	0.041*
	Error	113	1.934		

Table S4. One-sample t-tests comparing the mean temperatures selected by gammarids in various treatments with their acclimation temperatures (Experiment 3). Asterisks indicate statistically significant results after applying the sequential Bonferroni correction.

Species	Acclimation temperature	Sampling season			
		Summer		Autumn	
		t ₉	P	t ₉	P
<i>D. villosus</i>	Low	5.03	0.001*	1.60	0.145
	High	3.33	0.009*	5.58	<0.001*
<i>P. robustoides</i>	Low	5.40	<0.001*	4.63	0.001*
	High	2.39	0.040	6.04	<0.001*

Table S5. Analysis of the impact of acclimation temperature and sampling season on the mean temperature selected by the studied gammarid species (3-way ANOVA) (Experiment 3). Asterisks indicate statistically significant results.

Effect	df	MS	F	P
Gammarid species (G)	1	2.9	0.25	0.617
Acclimation temperature (D)	1	998.6	86.03	<0.001*
Season (S)	1	103.8	8.95	0.004*
G x D	1	164.9	14.20	<0.001*
G x S	1	114.2	9.84	0.002*
D x S	1	84.7	7.30	0.009*
G x D x S	1	6.4	0.55	0.460
Error	72	11.6		