

SUPPORTING INFORMATION

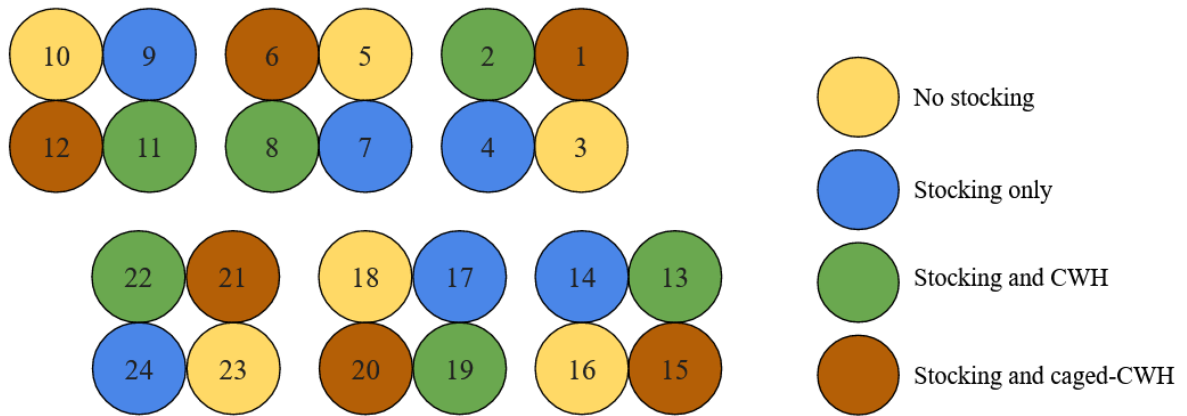
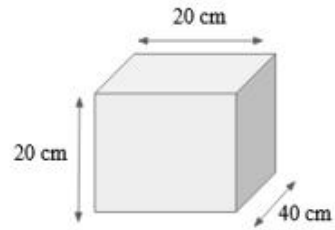


Fig. S1: Block design of the experiment with each block ($n = 6$) containing each of the four treatments.

(a)



(b)

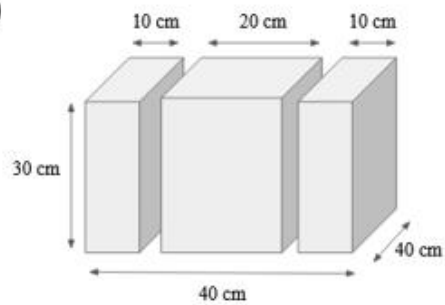


Fig. S2: Additional habitats used in the experiment: (a) coarse woody habitat (CWH) composed of a deadwood bundle (downy oak, *Quercus pubescens*) and (b) caged-CWH composed of a deadwood bundle (downy oak, *Quercus pubescens*) installed within an iron cage (Biohut[®], ECOCEAN, Montpellier, France).

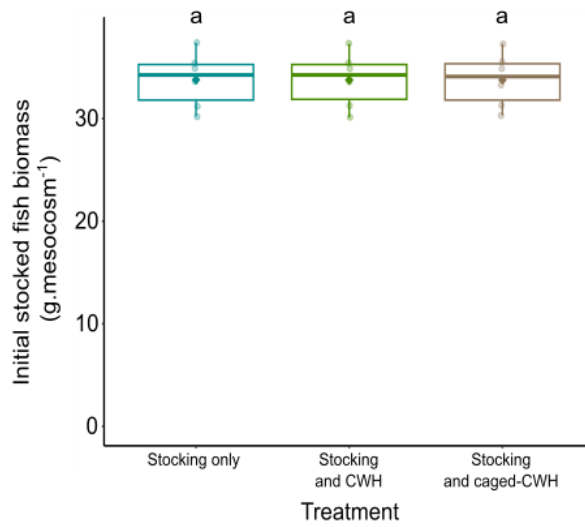


Fig. S3: Initial stocking biomass of largemouth bass *Micropterus nigricans* in treatments with stocking. For all treatments, five hatchery-reared young-of-the-year (YOY) largemouth bass were introduced in each mesocosm ($n_{total} = 90$ individuals). There was no significant difference between treatments in initial stocking biomass (Tukey post-hoc test, $p > 0.05$).

Tab. S1: Details on the models, transformation and distributions used for each response variable before and after stocking.

Response variables	Before fish stocking			After fish stocking		
	Model	Transformation	Distribution	Model	Transformation	Distribution
<i>Individual level</i>						
Scaled-mass index	-	-	-	GLMM	-	Gamma with log link function
Survival rate	-	-	-	LMM	log x	Normal
<i>Community level</i>						
Zooplankton richness	LMM	-	Normal	LMM	-	Normal
Zooplankton density (ind.L ⁻¹)	LMM	log x + 1	Normal	LMM	log x + 1	Normal
Zooplankton community structure (nMDS axis 1)	LMM	-	Normal	LMM	-	Normal
Zooplankton community structure (nMDS axis 2)	LMM	-	Normal	LMM	-	Normal
Macroinvertebrate richness	LMM	-	Normal	LMM	-	Normal
Macroinvertebrate density (ind.mesocosm ⁻¹)	LMM	$\sqrt{x + 1}$	Normal	LMM	$\sqrt{x + 1}$	Normal
Macroinvertebrate community structure (nMDS axis 1)	LMM	-	Normal	LMM	-	Normal
Macroinvertebrate community structure (nMDS axis 2)	LMM	-	Normal	LMM	-	Normal
Macroinvertebrate richness in added habitat	-	-	-	LMM	-	Normal
Macroinvertebrate density in added habitat (ind.hab ⁻¹)	-	-	-	LMM	$\sqrt{x + 1}$	Normal
Macroinvertebrate community structure in added habitat (nMDS axis 1)	-	-	-	LMM	-	Normal
Macroinvertebrate community structure in added habitat (nMDS axis 2)	-	-	-	LMM	-	Normal
<i>Ecosystem level</i>						
Pelagic primary production ($\mu\text{g chl-}a\text{.L}^{-1}$)	LMM	log x	Normal	LMM	log x	Normal
Benthic primary production ($\mu\text{g chl-}a\text{.cm}^{-2}$)	LMM	-	Normal	LMM	-	Normal
Decomposition rate (k)	LMM	log x + 1	Normal	LMM	log x + 1	Normal

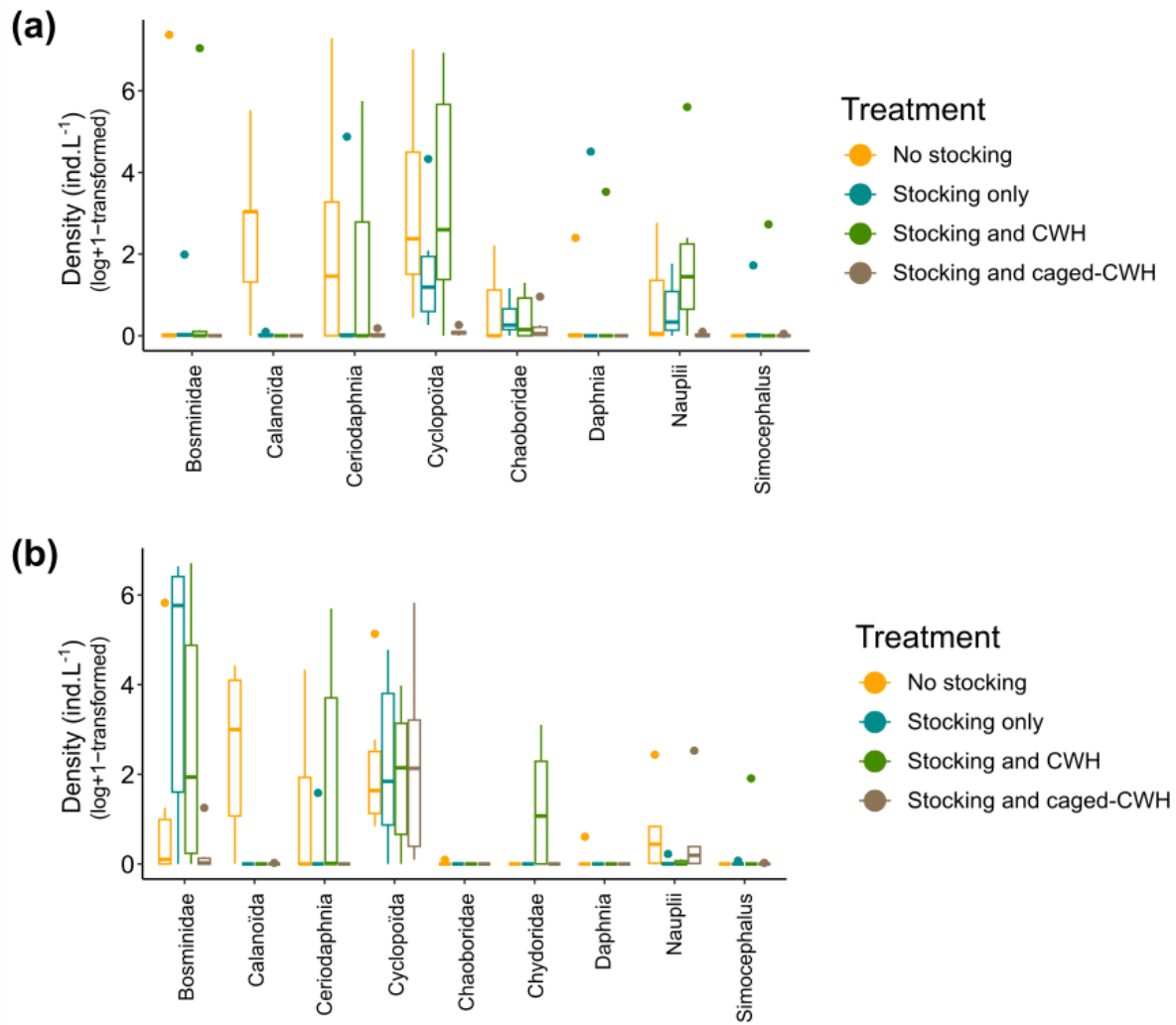


Fig. S4: Density (ind.L⁻¹) of each taxon zooplankton sampled in each treatment (a) before and (b) after fish stocking.

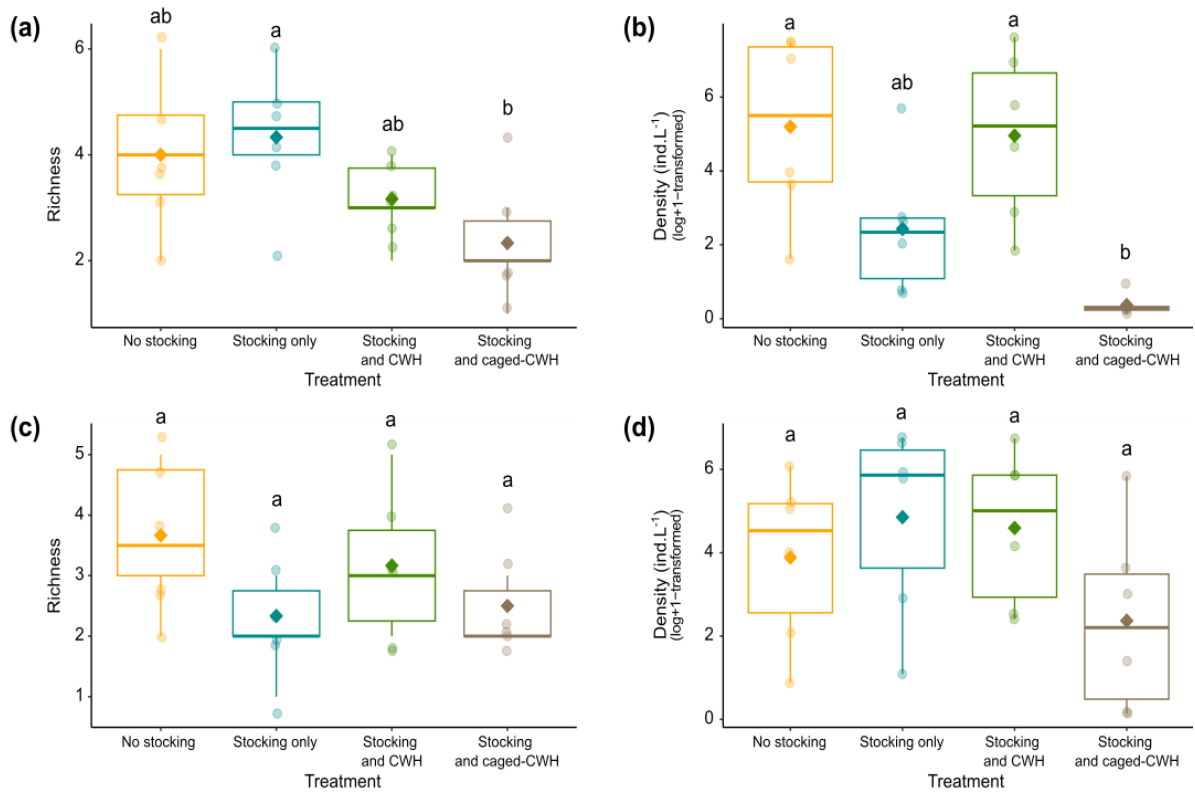


Fig. S5: Effect of management practices (a-b) before and (c-d) after fish stocking on zooplankton richness and density (ind.L⁻¹). Different letters indicate significant difference between treatments (Tukey post hoc test, $p < 0.05$).

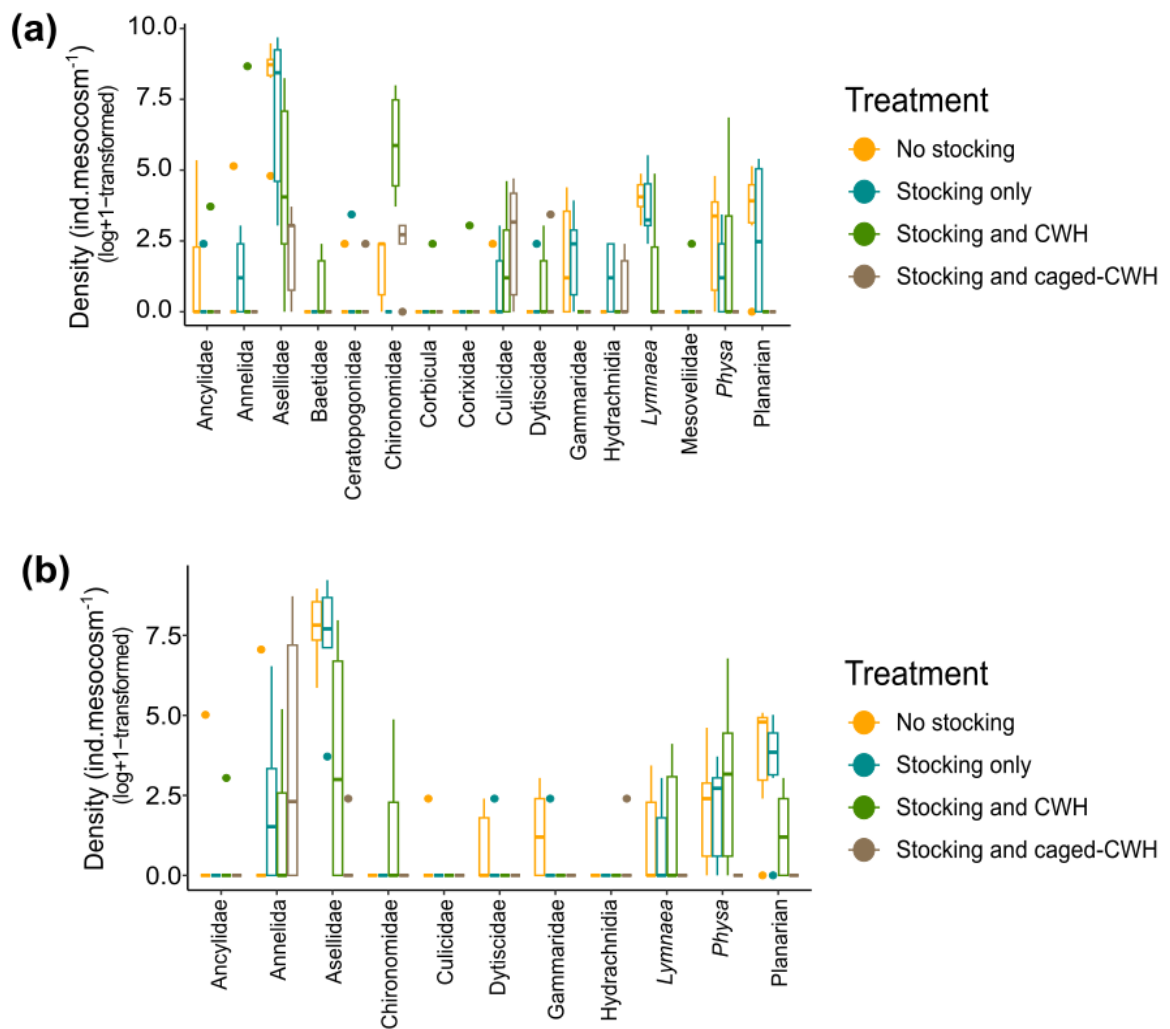


Fig. S6: Density (ind.mesocosm⁻¹) of sampled macroinvertebrate per taxon and for each treatment (a) before stocking and (b) after fish stocking.

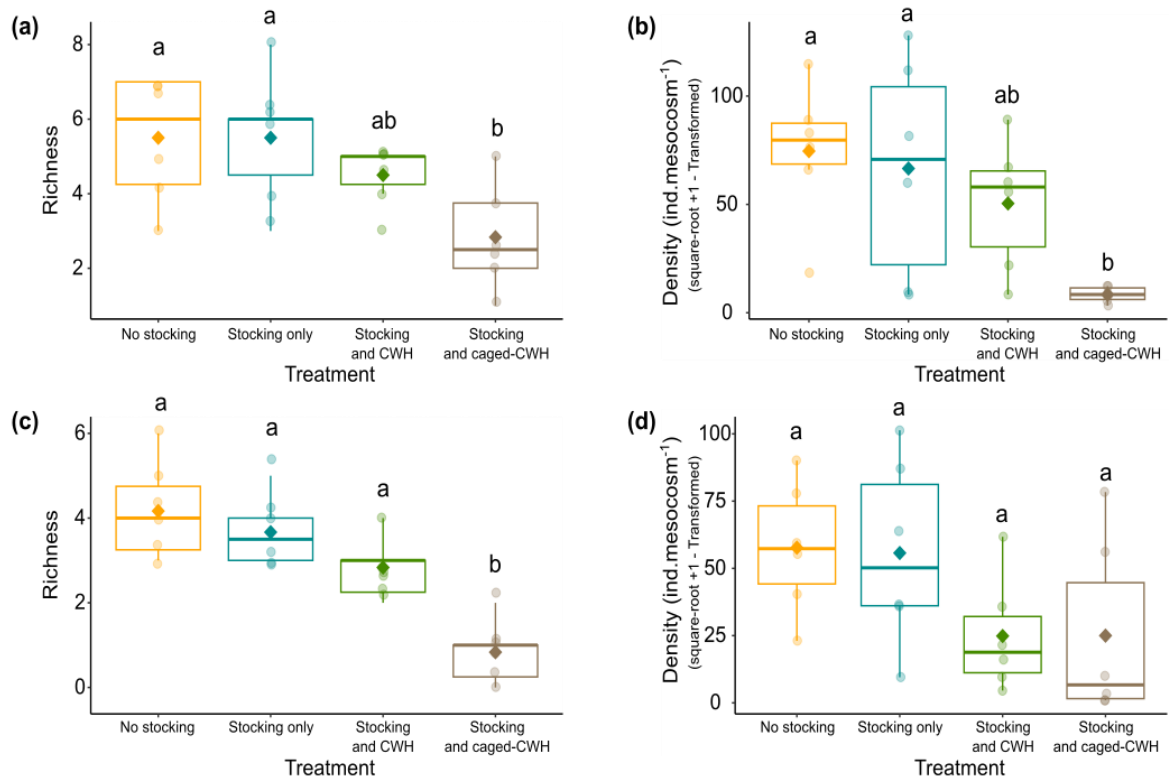


Fig. S7: Effect of management practices (a-b) before and (c-d) after fish stocking on macroinvertebrate richness and density (ind.mesocosm⁻¹). Different letters indicate significant difference between treatments (Tukey post hoc test, $p < 0.05$).

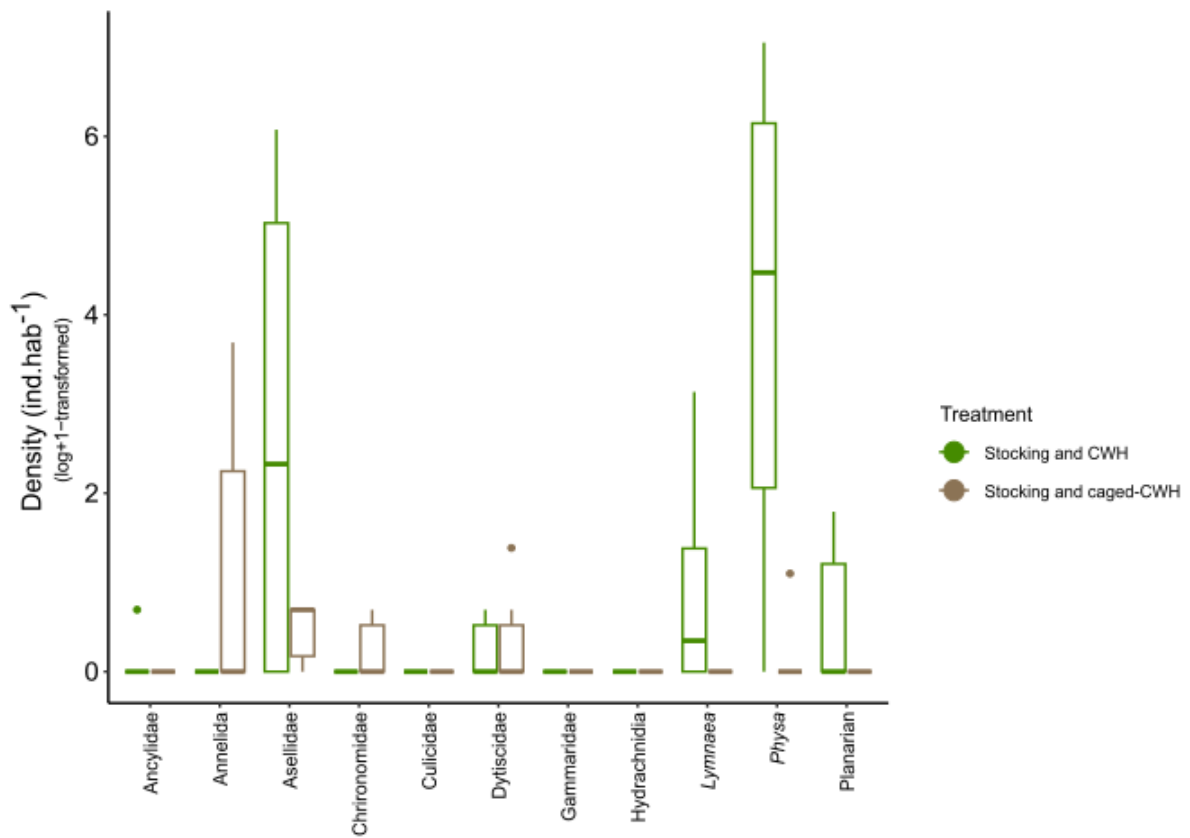


Fig. S8: Density (ind.hab⁻¹) of each taxon of macroinvertebrates for each treatment with a habitat enhancement device (CWH only and caged-CWH) after fish stocking.

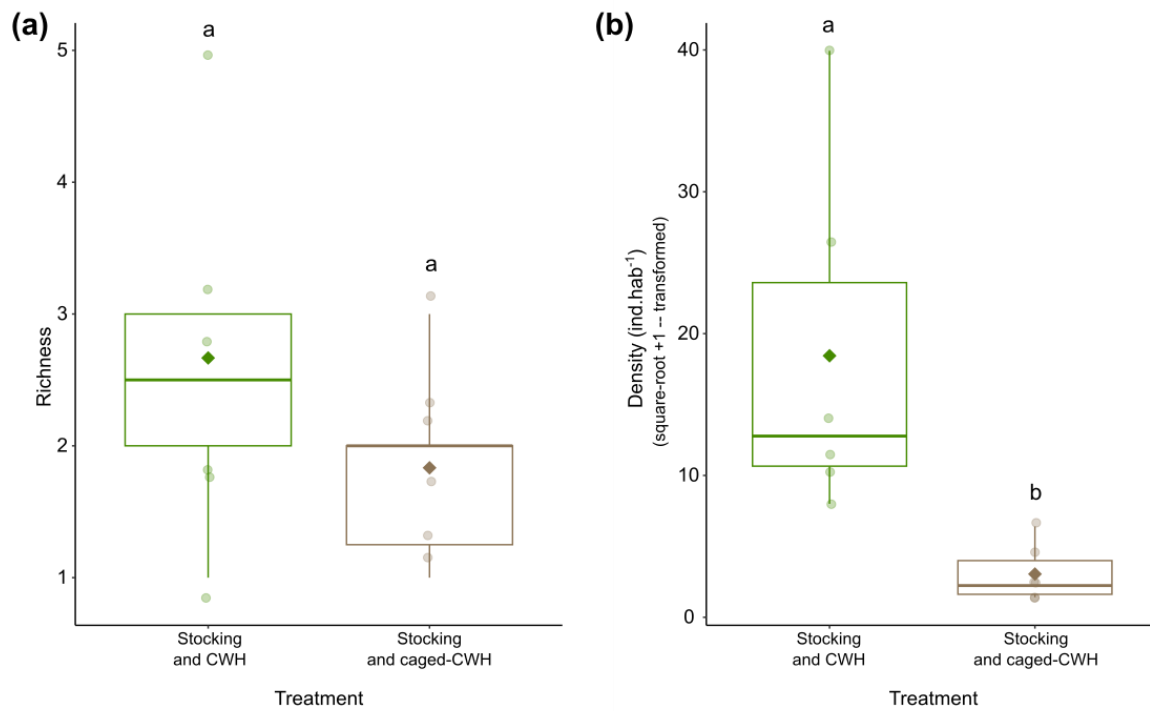


Fig. S9: Macroinvertebrate (a) richness and (b) density (ind.hab⁻¹) within the CWH and the caged-CWH. Different letters indicate significant difference between treatments (ANOVA, $p < 0.05$).

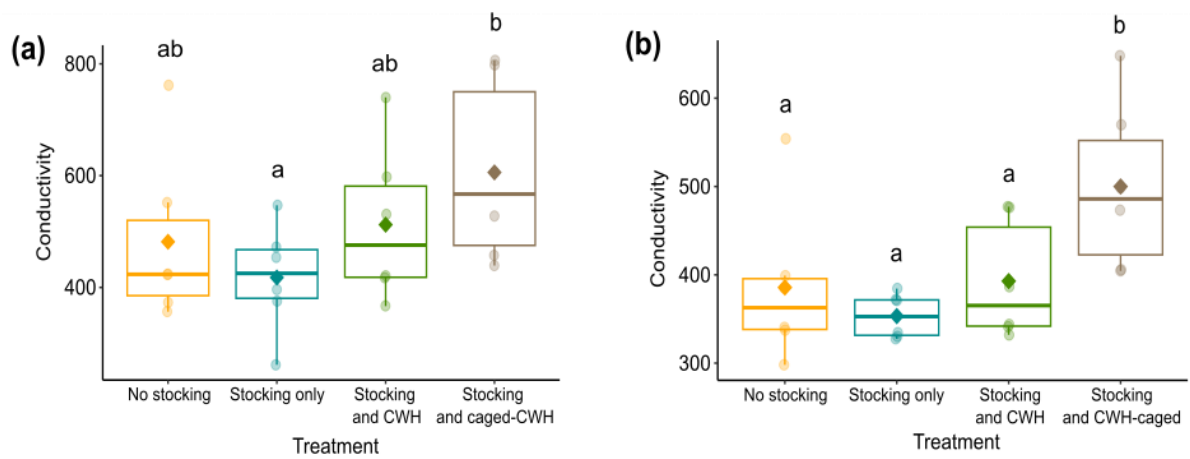


Fig. S10: Effects of treatments (a) before and (b) after stocking on conductivity ($\mu\text{S}\cdot\text{cm}^{-1}$). Different letters indicate significant difference between treatments (Tukey post hoc test, $p < 0.05$).

To assess difference in conductivity, we used a linear mixed effects model using treatment as a fixed variable and experimental block as a random variable. Conductivity was measured directly during the sampling campaign using a parameter probe (ProDSS YSI) in each mesocosm. Conductivity differed significantly between treatments before (LMM, $\chi^2_{(3,23)} = 7.94$, $p < 0.05$) and after stocking (LMM, $\chi^2_{(3,23)} = 31.04$, $p < 0.0001$).