

Figure 1. Study Site in Northern Sweden -Trollberget Experimental Area (TEA). Ditch Cleaning (DC) catchments are shaded and biochar reactors were placed just downstream of the outlet weirs (orange). Water samples were taken at the weirs (inlet) and after the reactors (outlet).



Figure 2. Mean (\pm SE) initial concentration of C, N and P for different wood-based (i.e., pine, spruce and birch) and garden residue (i.e., shrubs and branches) biochar feedstocks. Letters indicate significant differences between nutrient concentrations in the different biochar feedstock ($p < 0.05$).

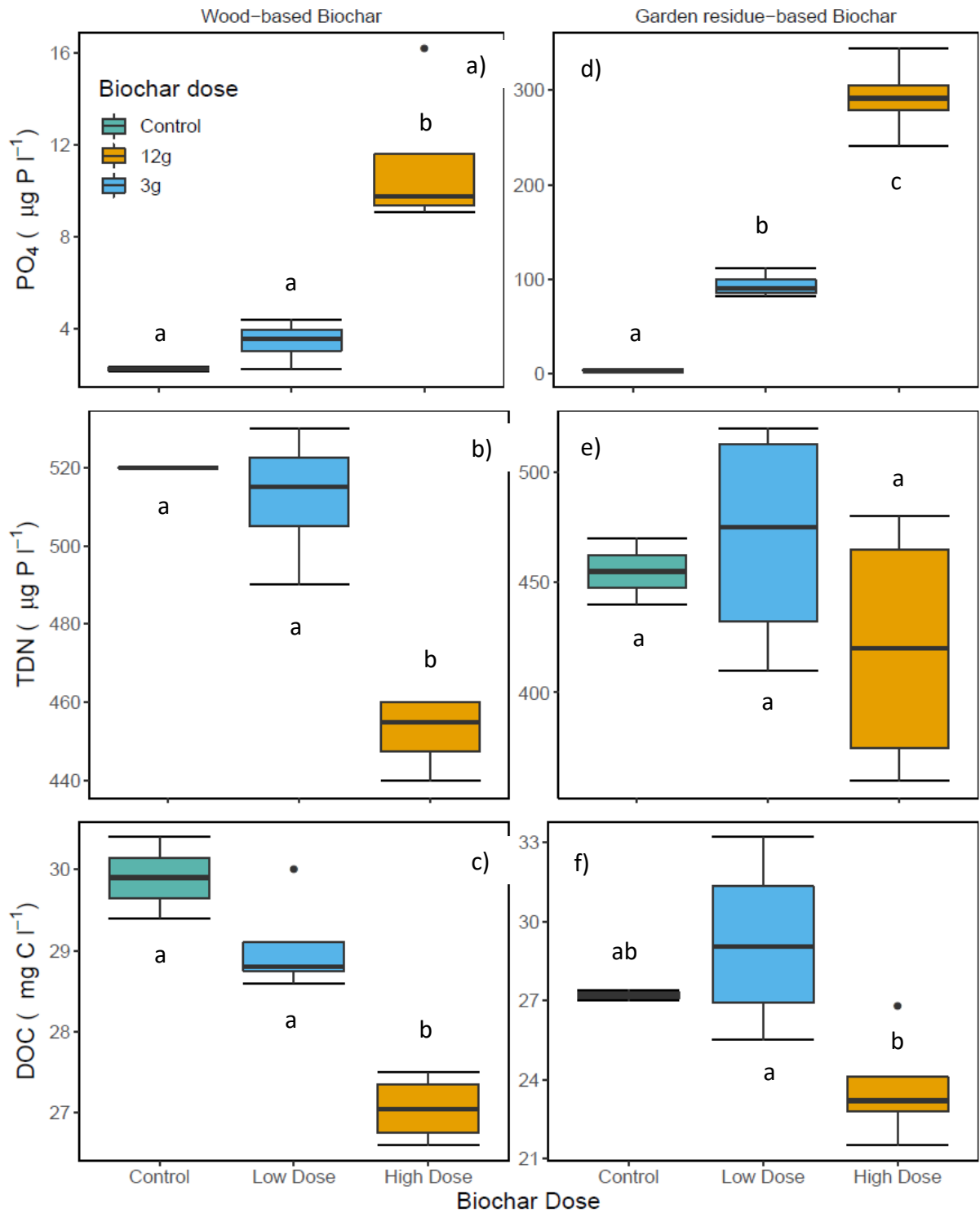


Figure 3. The effect of different biochar feedstock on nutrient concentrations in water: (a,b and c) wood-based biochar made of pine, spruce, and birch and (d,e,f) garden residue-based biochar made of shrubs and branches. Letters indicate significant differences between biochar doses ($p < 0.05$). Colors are the different biochar doses added. Solid line in box plots is the median value and box extents are the interquartile range (IQR)

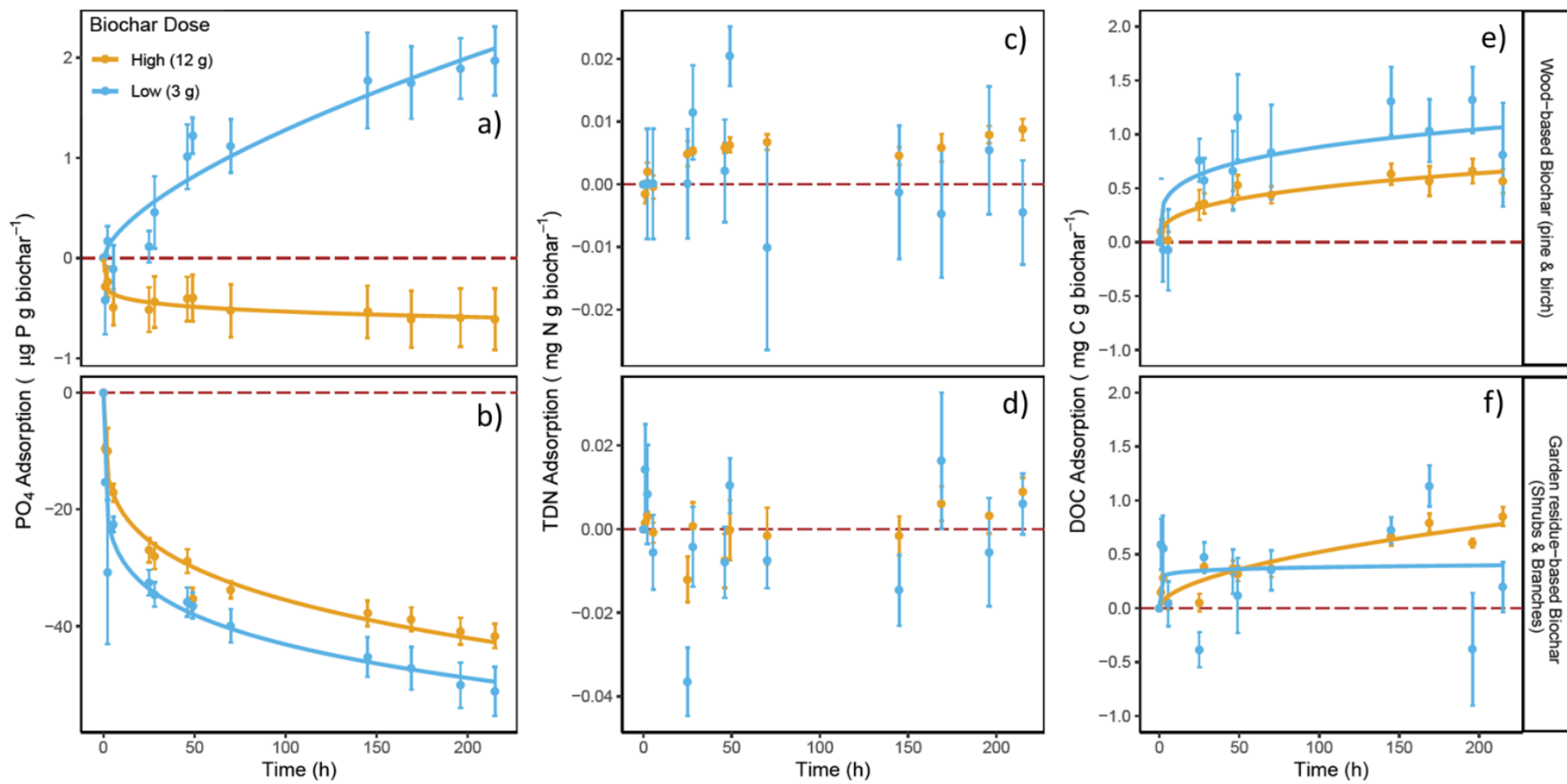


Figure 4. Mean nutrient adsorption (\pm SE) by biochar made from different feedstocks and doses. Biochar made with wood-based feedstock (a, c and d) and garden residue-based feedstock (b, d and f). (a and b) PO_4 adsorption, (c and d) TDN adsorption and (e and f) DOC adsorption.

Table 1. Results of the linear mixed-effect model for concentrations of PO₄, DOC and TDN for field conditions experiment

	Value	SE	DF	p-value
PO₄ (µg l⁻¹)	0.55	1.14	186	> 0.05
DOC (mg l⁻¹)	2.09	0.63	186	< 0.001
TDN (mg l⁻¹)	0.08	0.02	186	< 0.001

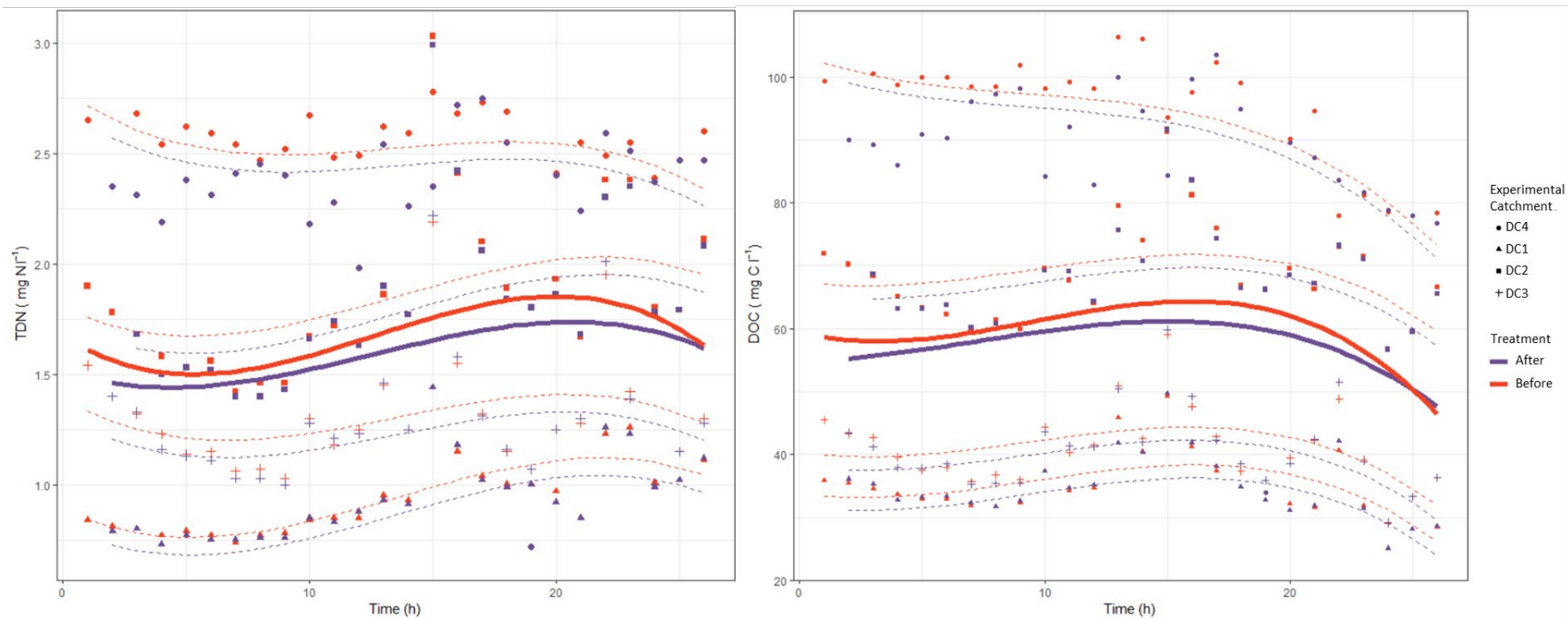


Figure 5. Nutrient concentrations in ditches of inlets and outlets of biochar reactors over the time period of the field study (September 27 – November 3). Solid lines represent the general fitted linear mixed effect model for inlet (red) and outlet (purple) from treatment over time. Dotted lines represent the fitted linear mixed effect model for inlet (red) and outlet (purple) from each of the four individual experimental catchments. Different point symbols represent individual measurements from different experimental catchments (DC1-4).