**Supplementary Information**

![Map of studied hydrological continuum and ground photos of sampled aquatic systems.](image)

**Fig. S1.** The map of studied hydrological continuum and ground photos of sampled aquatic systems.
**Fig. S2.** UV absorbency at 254 nm in biodegradation experiments. The error bars are 1 s.d. of triplicates.
**Fig. S3.** Number of colony-forming units of oligotrophic bacteria at 23°C in GF/F-filtration experiment of ‘classic’ protocol (A), at 4°C and 23°C in alternative (3 µm – filtration) protocol (B and C, respectively), and total bacterial count (DAPI-based) in GF/F-filtration experiment (D), where bacterial morphological structure (coccis and rods) is shown. The error bars are 1 s.d. of triplicates.
**Fig. S4.** The optical properties of DOC during photodegradation experiments: $E_{365}/E_{470}$ ratio corresponding to UV/vis absorbing functional groups (A), and the $E_{254}/E_{436}$ ratio, corresponding to autochthonous vs. terrestrial DOM (B). The error bars are 1 s.d. of triplicates.