

Effects of human-driven water stress on river ecosystems: from small to larger scales

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The forcing of the global water cycle is not negligible at the Planet scale, and manifestations are particularly dramatic in areas of poor water resources. Water stress affects river ecosystems when water resources demands impede their natural functioning. River ecosystems under water stress shift towards non-natural water regimes, associated to intensive management and regulation. Hydraulic infrastructures and water-abstraction schemes have the capacity to modify river hydrological regimes, its geomorphological dynamics, and the concentration of nutrients and pollutants. The direct and indirect effects of water stress may expand to biological communities, as well as to the overall downstream ecosystem functioning, expressed in significant changes in the nutrient uptake, organic matter decomposition, and primary production and respiration. These effects can be perceived at the local scale, but show reproducible patterns in rivers of different climates, sizes and contaminant influences. I will show the extent and significance of these effects to river ecosystems, as well as the relevance of co- stressors occurring with water stress.

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