

Population dynamics on dendritic river networks

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Fish species growing, living and dispersing in river networks are not only subject to necessary biological conditions for their persistence, but also to the particular dendritic geometry of their habitat. The degree to which habitat patches inhibit, facilitate or remain linked through fish dispersal is referred to as connectivity. Among the many existing indices to quantify connectivity, we consider the DCIp (Dendritic Connectivity Index) in our analysis. We check how this index is related to population persistence, and how both quantities are affected by external stressors. For this aim, obstacles such as dams are introduced in the river system, as well as upstream effects easily transportable in the water flow, such as chemical pollution. Our results show that, unlike one expects, disconnecting a river network may be beneficial for non-migratory (potadromous) species persistence.

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