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Emergent properties of bio-physical self-organization in streams

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Propositions belonging to the PhD thesis:

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- 1 Rivers have an ability to self-regulate and fine-tune themselves, with submerged macrophytes acting as a natural buffer against changes in river flows and water levels. Hence, current management practices focused on vegetation removal need to re-evaluate vegetation as a crucial component of the adaptive capacity of rivers against global change (Chapter 2).
- 2 Self-organized heterogeneity provides a potential explanation for the high biodiversity observed in many natural communities, despite theoretical predictions of competitive exclusion. Therefore, it is important to limit human interventions that homogenize and ‘tame’ ecosystems (Chapter 3).
- 3 A self-organized, rather than homogeneous, configuration of vegetation promotes flow and sediment conveyance while maintaining high biodiversity. This spatial dimension of plant self-organization should be considered as a guiding vision in river restoration and management programs (Chapters 2 – 4).
- 4 For long, flow-vegetation interactions have been studied in homogeneous, monospecific settings. However, natural landscapes are much more diverse and heterogeneous, both in terms of species traits and their spatial (self-)organization. This complexity needs to be taken into account to get us to a more realistic understanding of bio-physical interactions and their emergent effects (Chapter 6).
- 5 No man ever steps in the same river twice, for it’s not the same river and he’s not the same man. (Heraclitus)
- 6 Substitute a politics of competition by an ethics of care (for yourself and for others). Science is about collaborative knowledge. (from David Berliner) – that describes the cooperative atmosphere of the NIOZ-Yerseke institute
- 7 Ever tried. Ever failed. No matter. Try again. Fail again. Fail better. (Samuel Beckett)