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Emergent properties of bio-physical self-organization in streams

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Document Version

Publisher's PDF, also known as Version of record

Publication date:

2018

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Cornacchia, L. (2018). *Emergent properties of bio-physical self-organization in streams*. [Thesis fully internal (DIV), University of Groningen]. Rijksuniversiteit Groningen.

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Curriculum vitae

Loreta Cornacchia was born in Bari (Italy), on March 22, 1988. She graduated from high school in Gravina in Puglia in 2007, and then moved to Bologna (Italy), where she earned a Bachelor's degree in Natural Science (2010). She later moved to Rome, where she completed a Master's degree in Ecobiology (2012). During her Master thesis, she did an internship at ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale) in Rome, where she worked on remote sensing applications to study vegetation evolution in coastal areas.



During this internship, she discovered her passion for scientific research, and particularly for the interactions between vegetation and hydrodynamic forces. Between August 2013 and October 2017, she carried out her PhD in the framework of the project HYTECH (Marie Curie ITN) in the Department of Estuarine and Delta Systems in NIOZ – Yerseke. During the HYTECH project, she spent 9 months at Université Claude Bernard Lyon 1, three months at Queen Mary University of London and one month at IGB – Leibniz-Institute of Freshwater Ecology and Inland Fisheries (Berlin, Germany). During her PhD research, she supervised several Bachelor and Master students in fieldwork and laboratory experiments.

List of publications

Cornacchia, L., Licci, S., van de Koppel, J., van der Wal, D., Wharton, G., Puijalon, S., Bouma, T. J. (2016). Flow Velocity and Morphology of a Submerged Patch of the Aquatic Species *Veronica anagallis-aquatica* L. In Hydrodynamic and Mass Transport at Freshwater Aquatic Interfaces (pp. 141-152). Springer International Publishing

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Taramelli, A., Valentini, E., **Cornacchia, L.**, Mandrone, S., Monbaliu, J., Thompson, R., Hogart, S., Zanuttigh, B. (2013), Modelling uncertainty in estuarine system by means of combined approach of optical and radar remote sensing, *Coastal Engineering*. 10.1016/j.coastaleng.2013.11.001

Under review

Cornacchia, L., van de Koppel, J., van der Wal, D., Wharton, G., Puijalon, S., Bouma, T. J. Landscapes of facilitation: how self-organized patchiness of aquatic macrophytes promotes diversity in streams.

Cornacchia, L., Licci, S., Nepf, H.M., Folkard, A., van der Wal, D., van de Koppel, J., Puijalon, S., Bouma, T. J. Turbulence-mediated facilitation of resource uptake in patchy stream macrophytes.

Cornacchia, L., van der Wal, D., van de Koppel, J., Puijalon, S., Wharton, G., & Bouma, T. J. Flow-divergence feedbacks underlie propagule retention by in-stream vegetation: the importance of spatial patterns for facilitation.

Conference presentations

Ecological Society of America Annual Meeting, Portland, OR (USA), 2017.
Cornacchia L., Wharton G., Davies G., Grabowski R., Temmerman S., van der Wal D., Bouma T.J., van de Koppel, J. Self-organized control of key ecosystem services: Water level and flow velocity regulation by submerged aquatic vegetation.

EGU General Assembly, Vienna, Austria, 2016.

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Netherlands Annual Ecology Meeting, Lunteren, 2016.

Cornacchia L., Davies G., Grabowski R., van der Wal D., van de Koppel J., Wharton G., Bouma T.J. Self-organization jointly regulates hydro-morphological processes and related ecosystem services: case study on aquatic macrophytes in streams.

14th International Symposium on Aquatic Plants, Edinburgh, UK, 2015.

Cornacchia L., van de Koppel J, van der Wal D., Puijalon S., Bouma T.J. The role of biophysical interactions in enhancing biodiversity through self-organization.

XXXIV International School of Hydraulics, Zelechow, Poland, 2015.

Cornacchia L., Licci S., van de Koppel J., van der Wal D., Wharton G., Puijalon S., Bouma T.J. Flow velocity and morphology of a submerged patch of the aquatic species *Veronica anagallis-aquatica* L.

