

[Reconstructing temporal changes and prediction of channel evolution in a large Alpine river: the Tagliamento river, Italy \(Ziliani & Surian 2016\) \[1\]](#)

This paper focuses on the temporal elements of the REFORM hydromorphological framework, illustrating these elements with an analysis of information from the lower Tagliamento river, Italy. It presents an analysis of historical channel adjustments at segment and reach scales over the last two centuries, reflecting human pressures that are summarised but not fully developed in this paper, and an analysis of data from aerial photographs, topographic surveys, and river flow records.

This is followed by an assessment of likely future changes over the period 2012–2035 based upon both a conceptual model founded on the historical analysis and numerical modelling. The Tagliamento river has gone through three main phases of adjustment. The first two phases, characterized by narrowing and incision, were driven primarily by human interventions (i.e. sediment mining and channelization). The most recent phase represents an attempt of the river to achieve a new equilibrium condition and is mainly controlled by flow regime (i.e. frequency and magnitude of formative discharges) and vegetation establishment. As for future channel evolution, both models showed that slight width changes are likely to occur over the period 2012–2035. Channel widening, that could be expected as a response to an excess of unit stream power, will be hampered by vegetation establishment. Finally, the “no intervention” strategy seems to be the best option for leading the river towards a new equilibrium condition and to achieve different goals (e.g. flood mitigation, conservation or improvement of ecological status).

Keywords: Braided rivers, Evolutionary trajectory, Vegetation establishment, CAESAR model, River management

Publication Date:

Saturday, 19 September 2015

Full reference:

Ziliani, L. & N. Surian (2016) Reconstructing temporal changes and prediction of channel evolution in a large Alpine river: the Tagliamento river, Italy. *Aquatic Sciences: research across boundaries* 78: 83-94.

Link to DOI:

<http://dx.doi.org/10.1007/s00027-015-0431-6> [2]

- [Home](#)
- [Imprint](#)

Source URL: <https://reformrivers.eu/reconstructing-temporal-changes-and-prediction-channel-evolution-large-alpine-river-tagliamento>

Links

[1] <https://reformrivers.eu/reconstructing-temporal-changes-and-prediction-channel-evolution-large-alpine-river-tagliamento>

[2] <http://dx.doi.org/10.1007/s00027-015-0431-6>