

A Pan-Alpine Overview on the Status of Rivers

Dam Removal goes Alps 2021

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Alpine River network: ~60.000 km within the Alpine Convention borders

**Intensified
land use**

**Flood protection
measures**

**Hydropower
development**

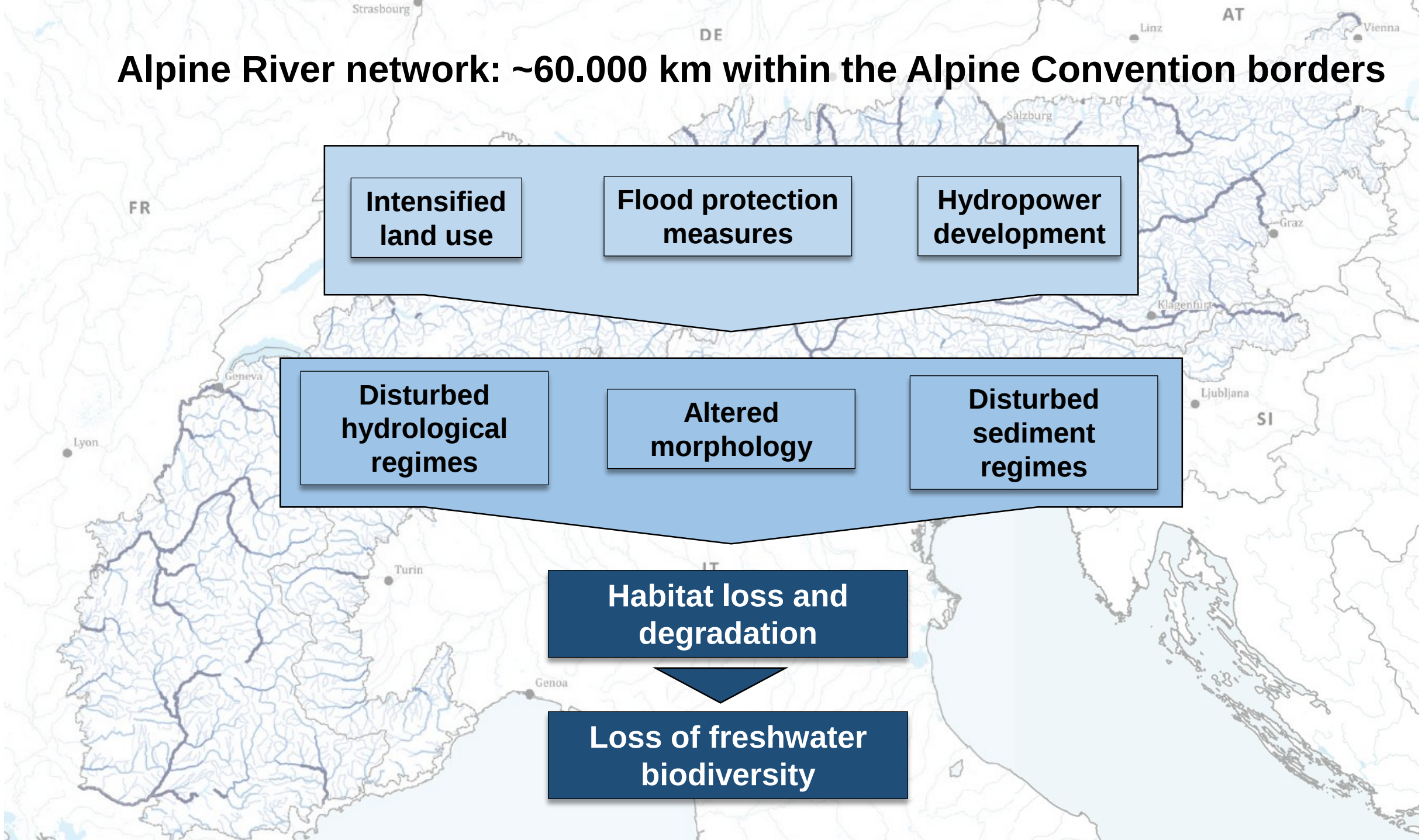
**Disturbed
hydrological
regimes**

**Altered
morphology**

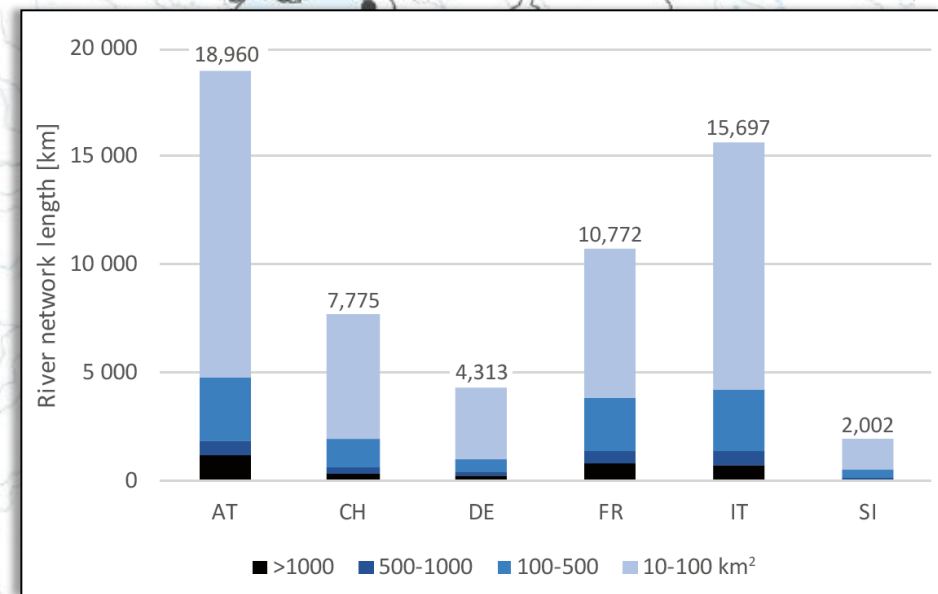
**Disturbed
sediment
regimes**

**Habitat loss and
degradation**

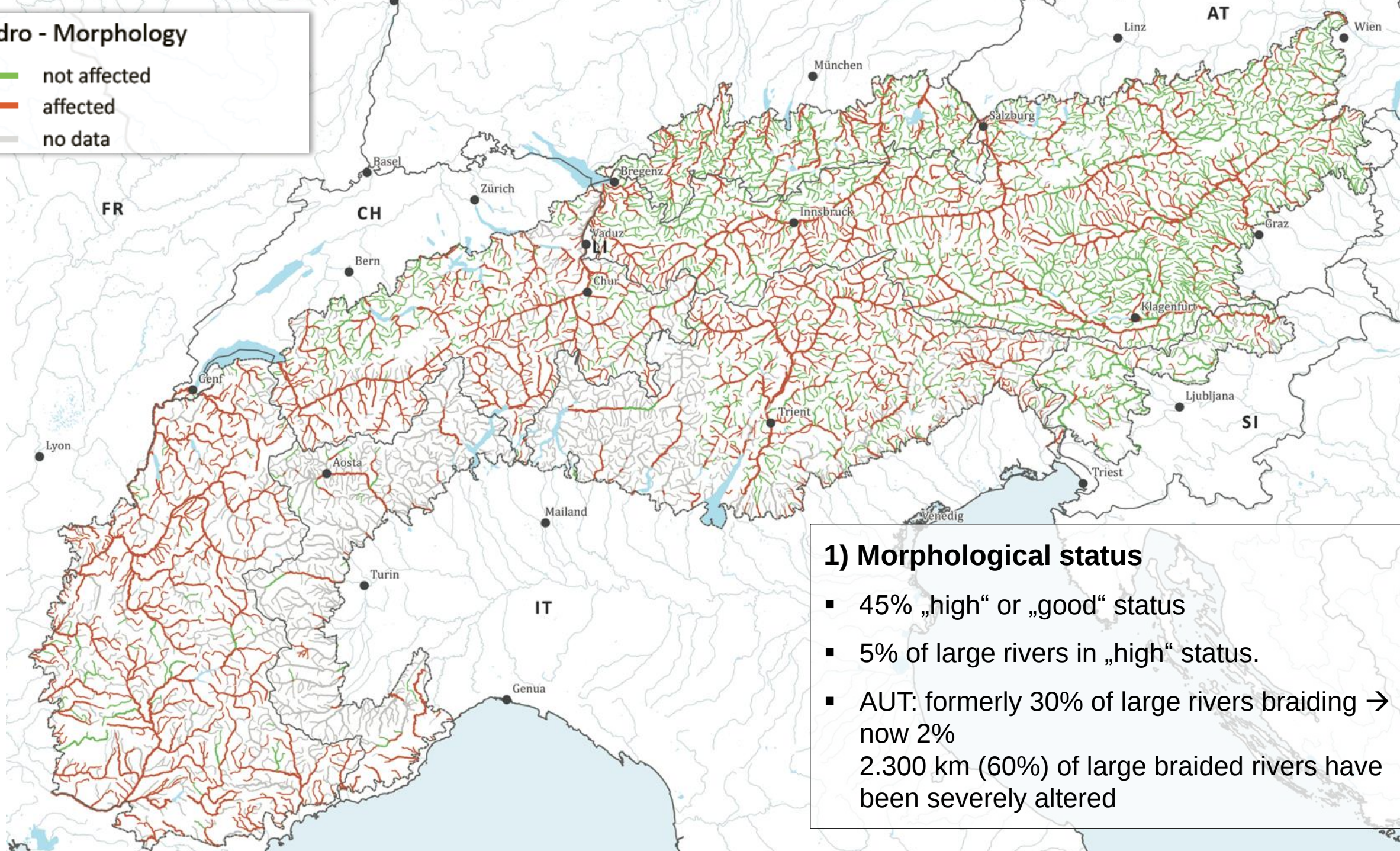
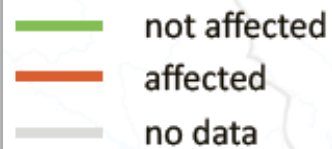
**Loss of freshwater
biodiversity**



60.000 km of river network (>10km²)
70% headwaters/small rivers (<100km²)
10% large rivers (>500km²)



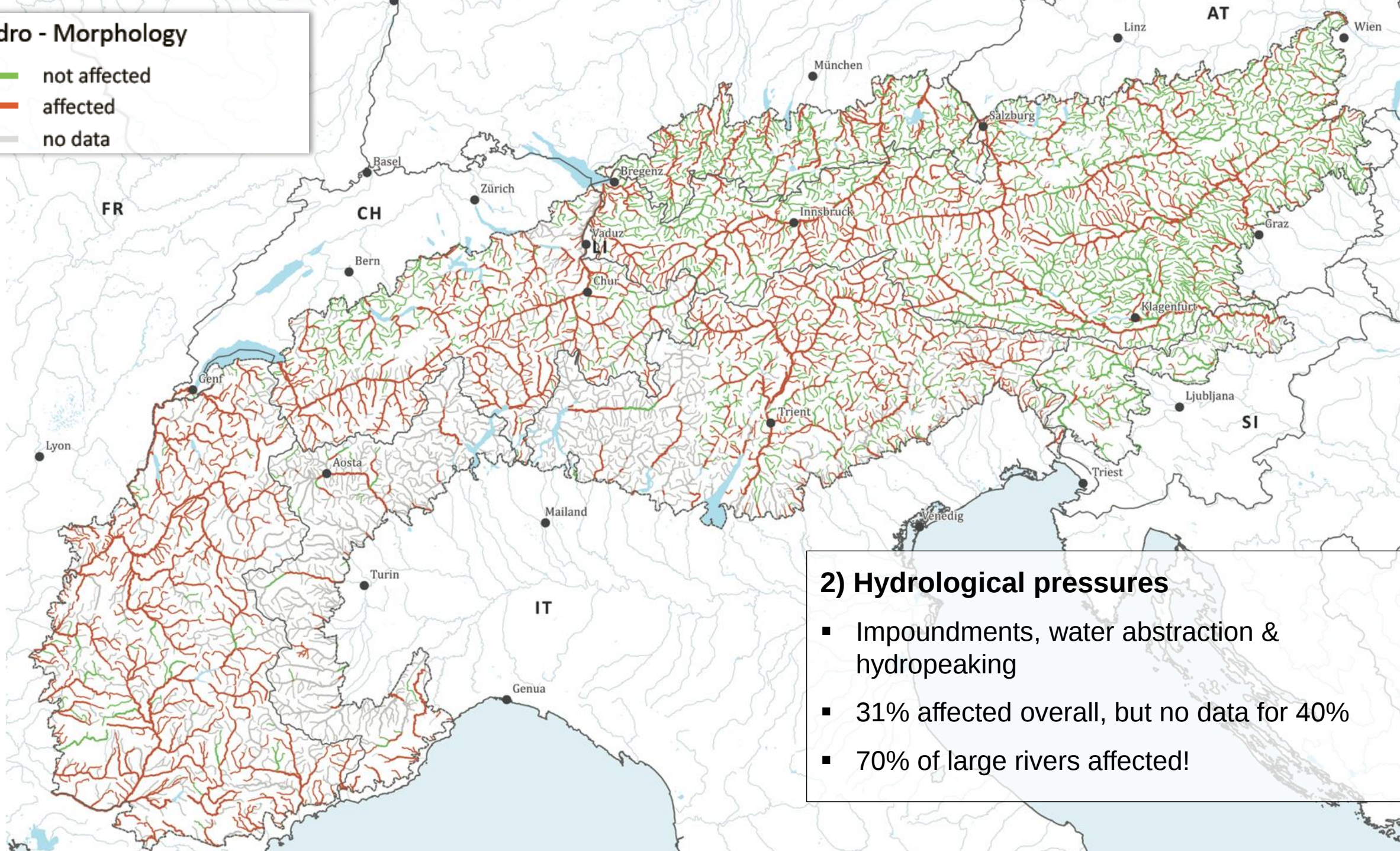
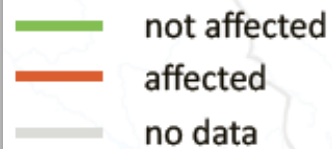
Hydro - Morphology



1) Morphological status

- 45% „high“ or „good“ status
- 5% of large rivers in „high“ status.
- AUT: formerly 30% of large rivers braiding → now 2%
2.300 km (60%) of large braided rivers have been severely altered

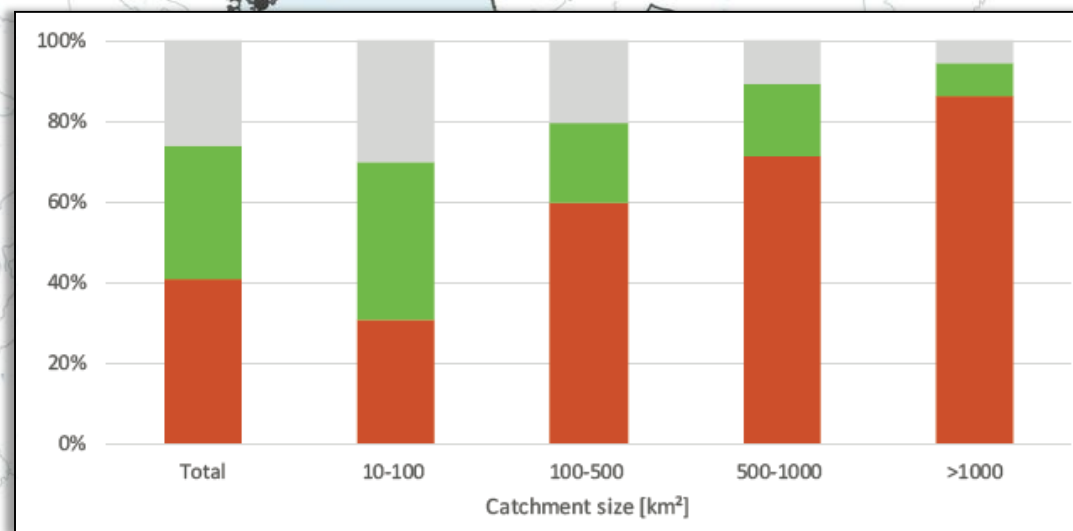
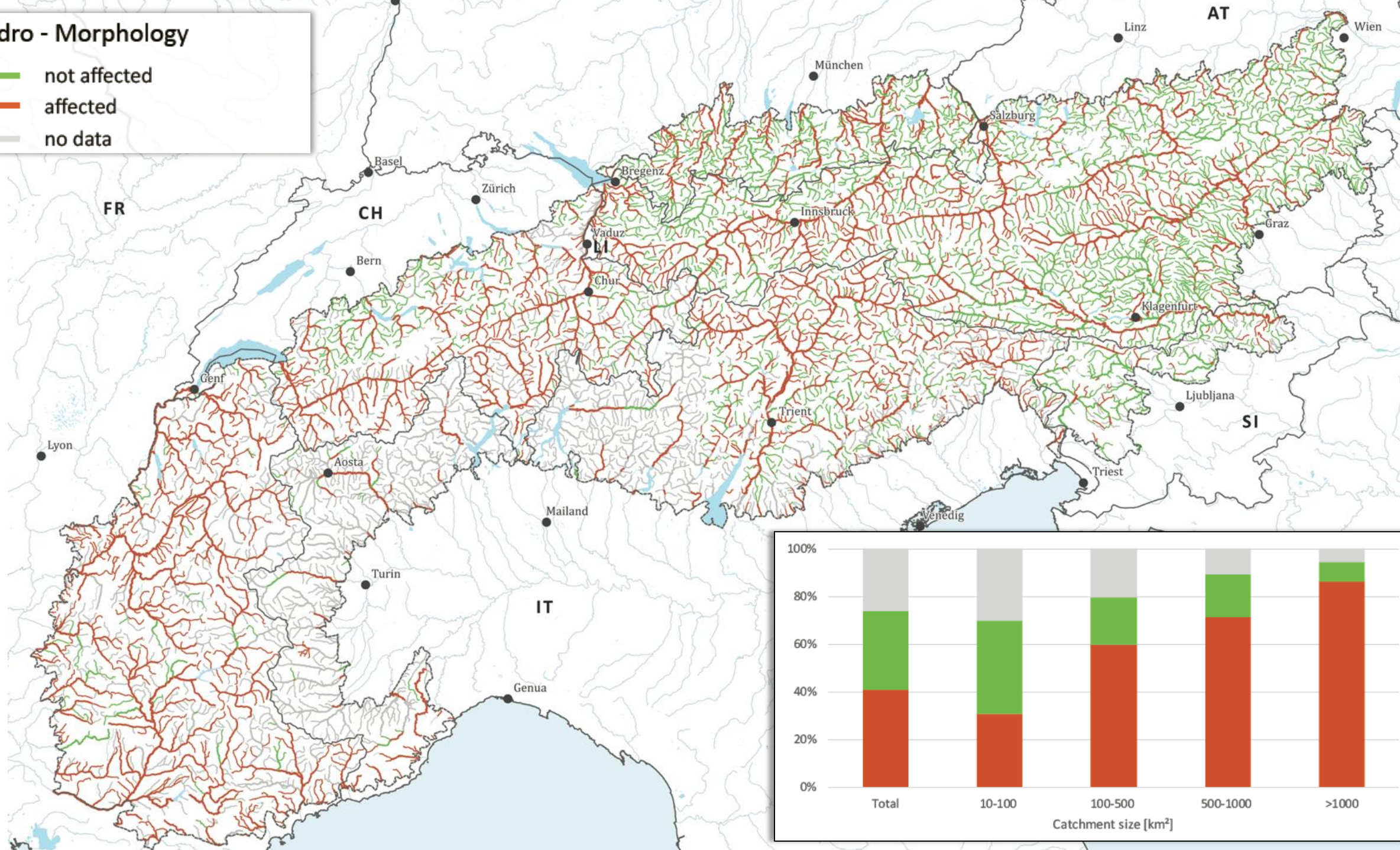
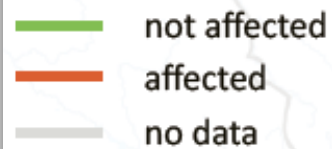
Hydro - Morphology



2) Hydrological pressures

- Impoundments, water abstraction & hydropeaking
- 31% affected overall, but no data for 40%
- 70% of large rivers affected!

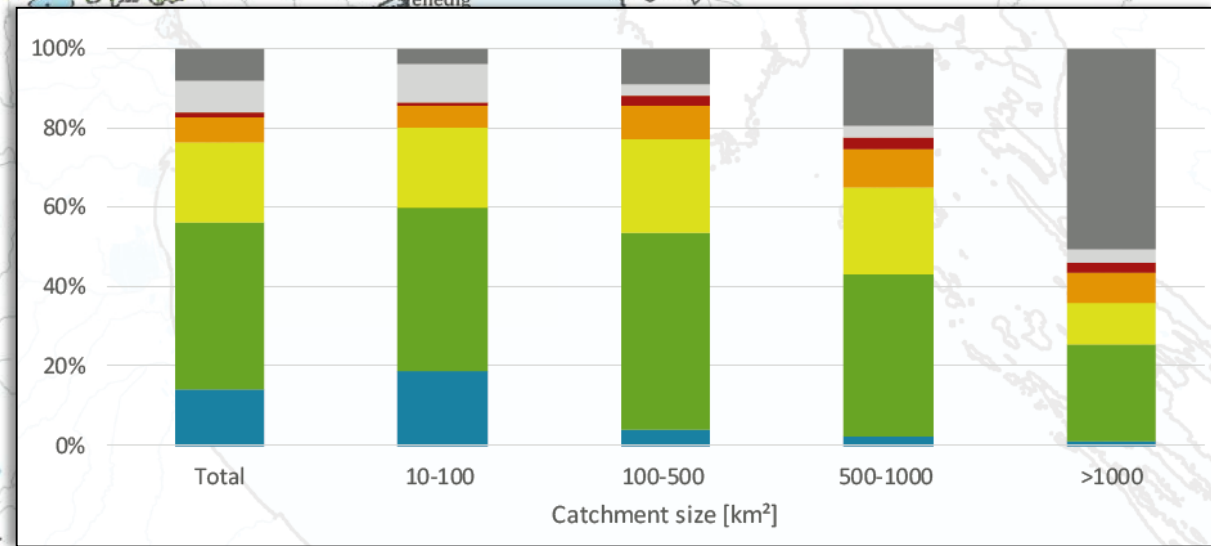
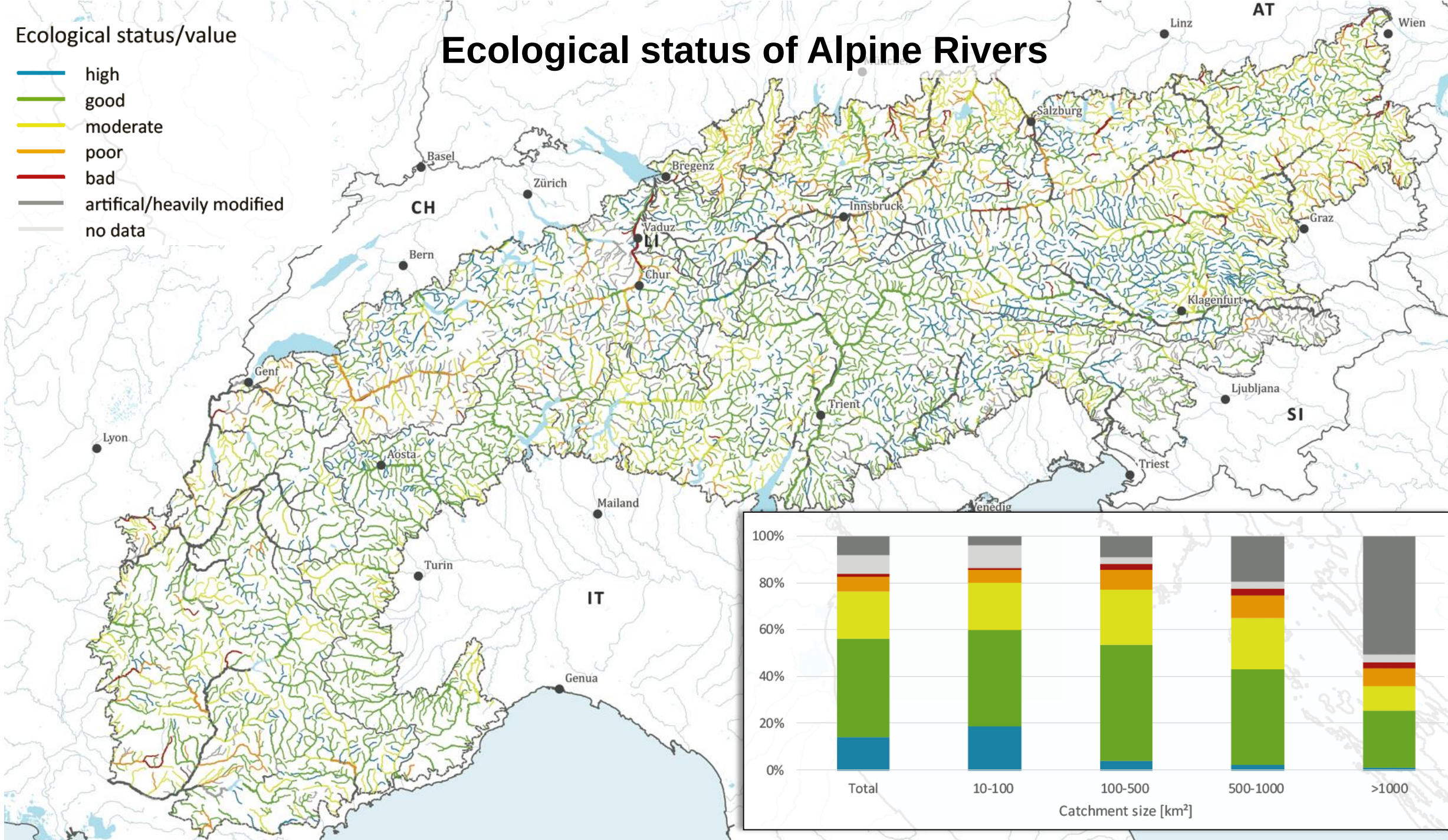
Hydro - Morphology



Ecological status/value

- high
- good
- moderate
- poor
- bad
- artificial/heavily modified
- no data

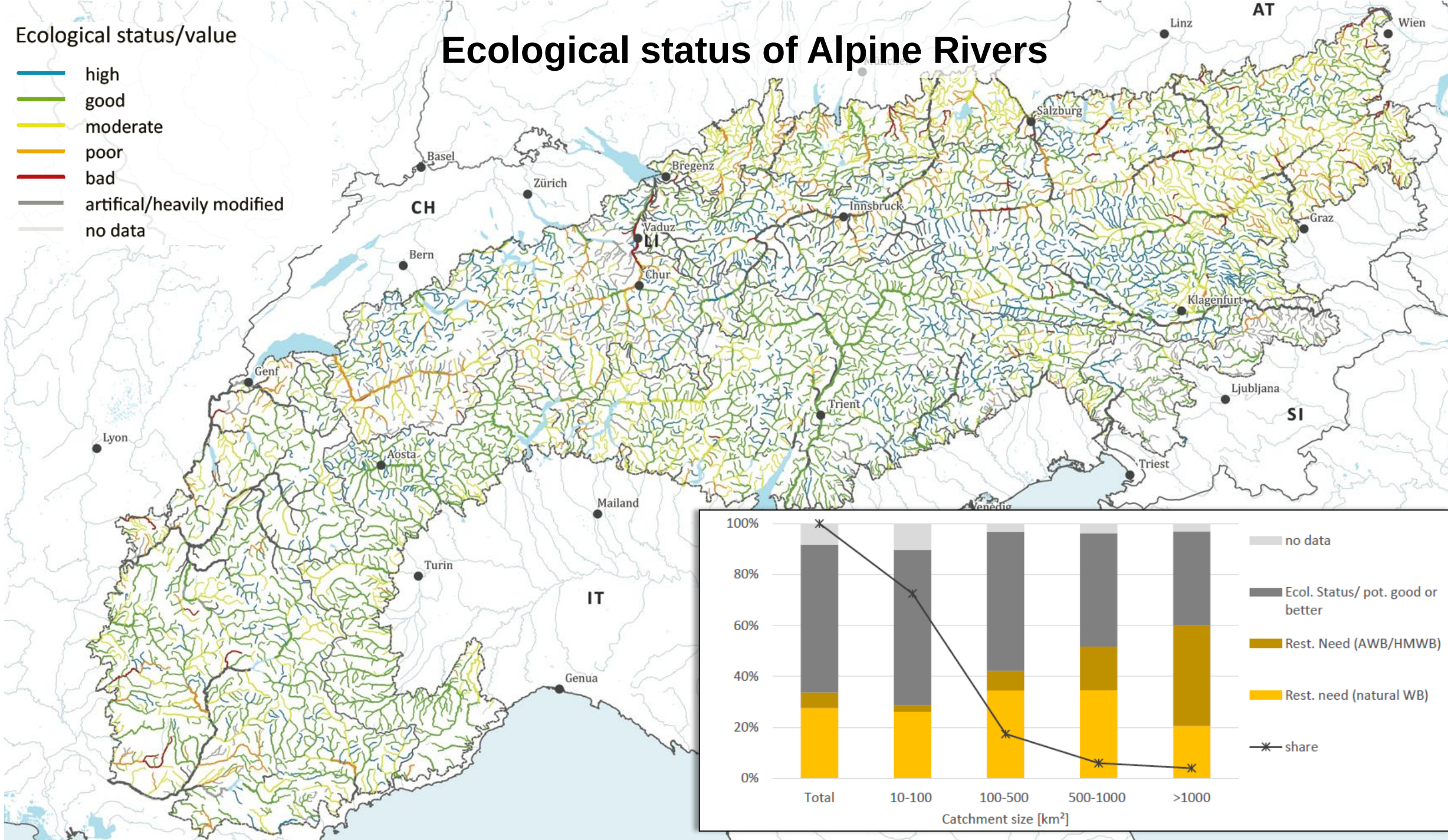
Ecological status of Alpine Rivers



Ecological status/value

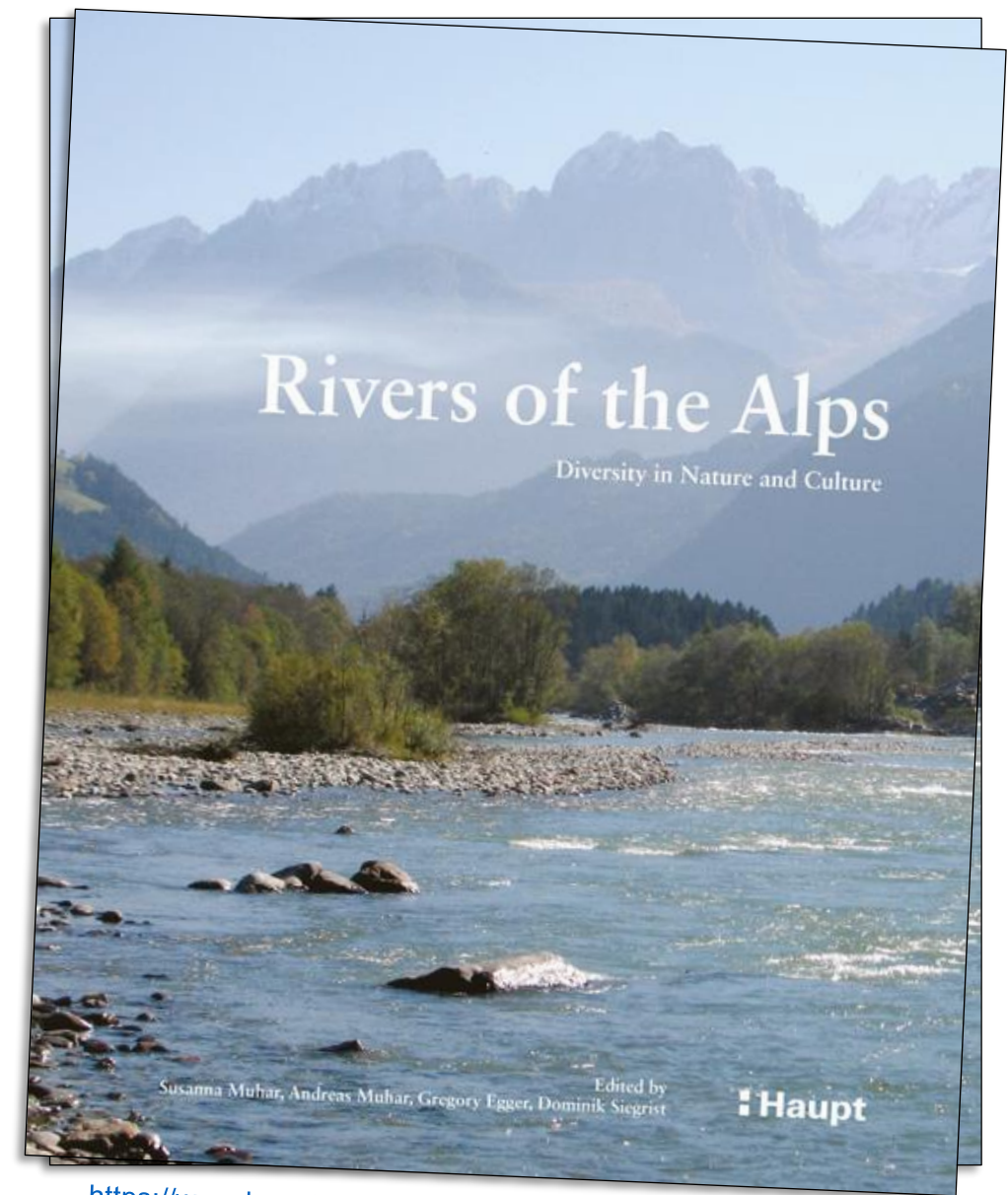
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Ecological status of Alpine Rivers



More data, maps and information → → →

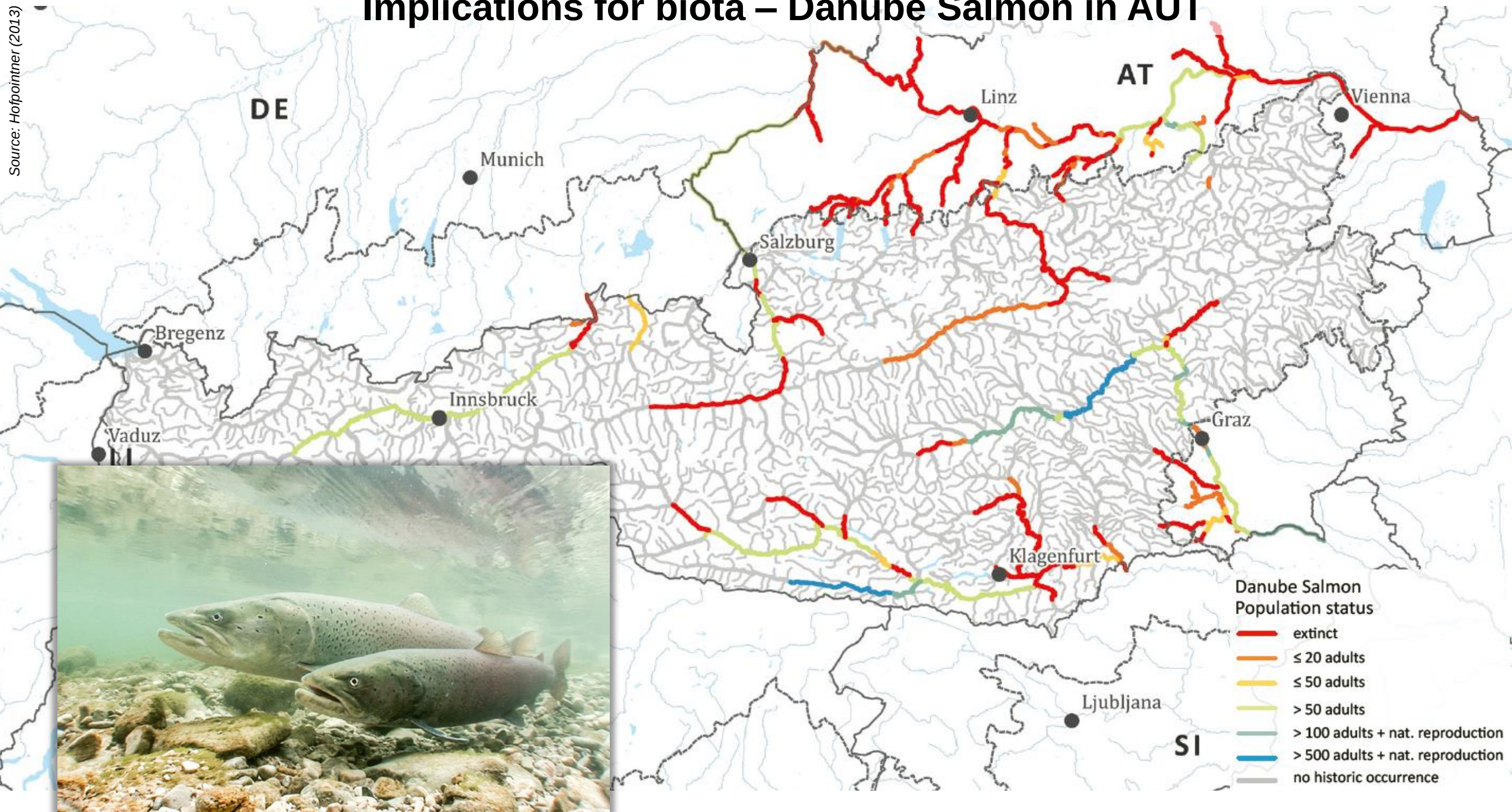
Thanks to Susanne Muhar, Carina Seliger and the SPARE-Team!



<https://www.haupt.ch/buecher/natur-garten/rivers-of-the-alps.html>

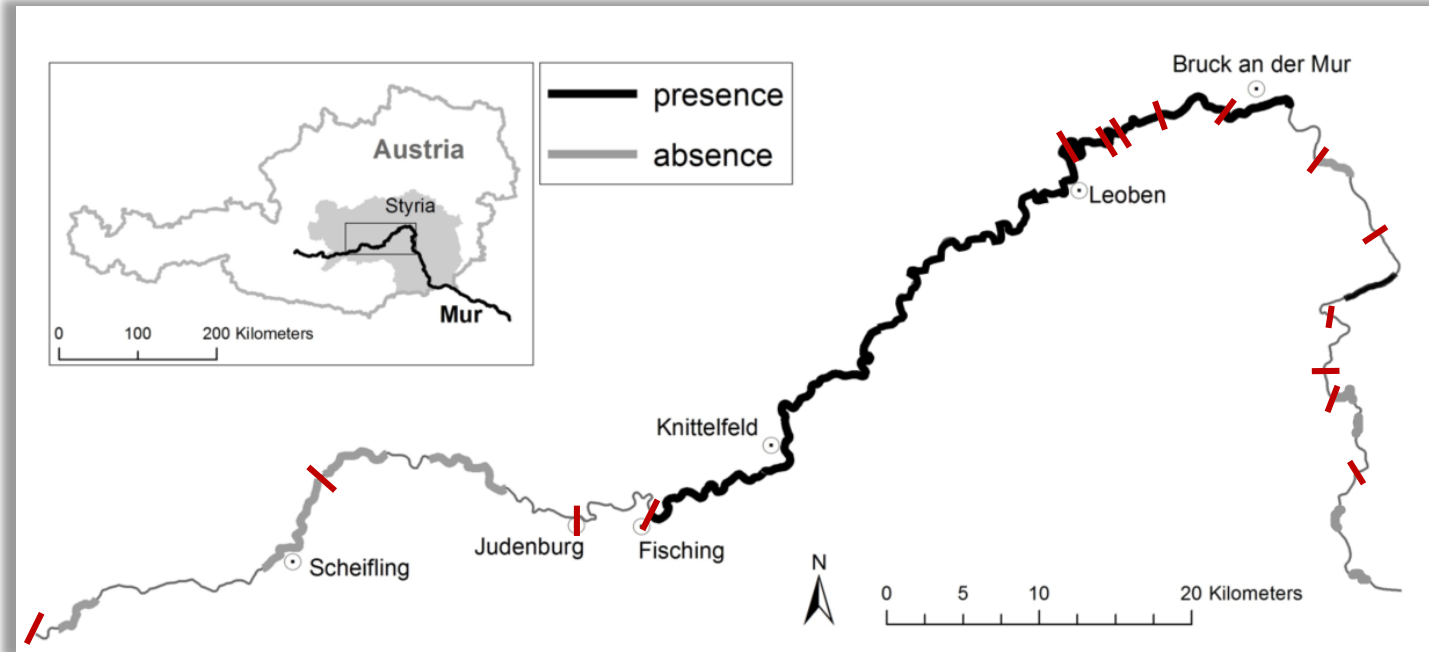
Implications for biota – Danube Salmon in AUT

Source: Hofpointner (2013)



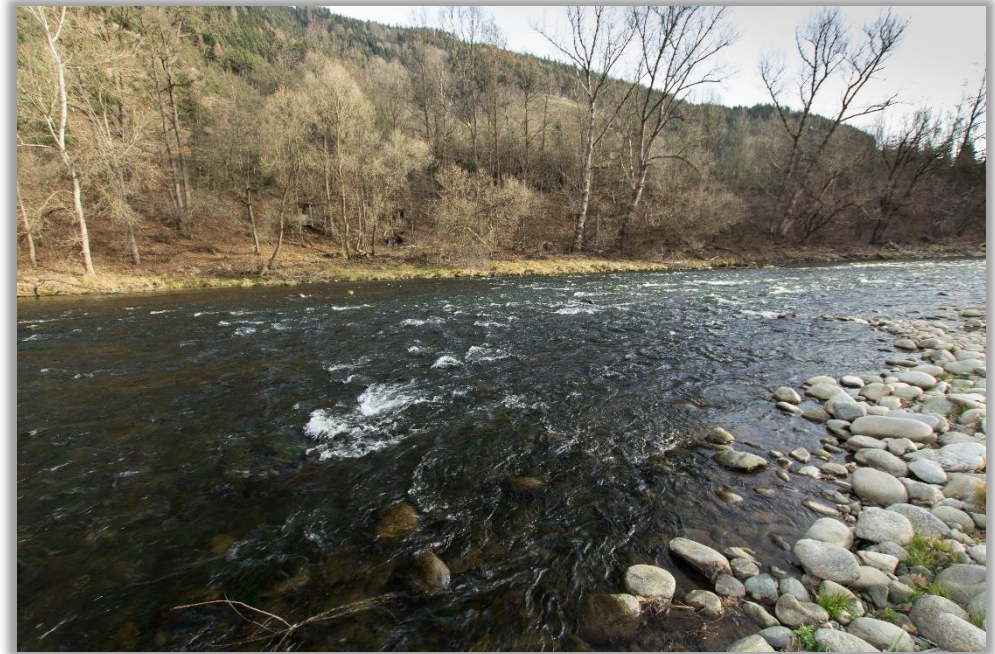
The Emerald gudgeon (*Romanogobio skywalkeri*)

A newly described species in the Mur/Austria (Friedrich et al., 2018)



The Emerald gudgeon

- Encounter of odd gudgeon individuals in the upper Mur in 2014.
- Originally 3 sp. of *Romanogobio* in AUT
- Morphological and genetic analysis of several specimen
→ **new species!**





*... in protecting and restoring rivers in the Alps,
in Europe and throughout the world...*

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<https://boku.ac.at/en/wau/ihg>



Sources and Literature:

- Seliger, C., Muhar, S., 2018. Report on the status of Alpine river ecosystems. EU-Alpine Space project SPARE - Strategic planning for Alpine River Ecosystems. WP T4 Deliverable 4.1.4., University of Natural Resources and Life Sciences, Vienna.
- Muhar, S., Schinegger, R., Fleck, S., Schülting, L., Preis, S., Trautwein, C., Schmutz, S., 2013. Scientific foundations for identifying ecologically sensitive river stretches in the Alpine Arc. Study funded by MAVA, Gland, Switzerland, and WWF, Innsbruck.
- Hofpointner, M., 2013. Verbreitung, Gefährdung und Schutz des Huchens (*Hucho hucho*) in Österreich. Master thesis, University of Natural Resources and Life Sciences, Vienna.
- Friedrich, T., Wiesner, C., Zangl, L., Daill, D., Freyhof, J., Koblmüller, S., 2018. *Romanogobio skywalkeri*, a new gudgeon (Teleostei: Gobionidae) from the upper Mur River, Austria. *Zootaxa* 4403(2), 336–350.