

EGU21-15963

<https://doi.org/10.5194/egusphere-egu21-15963>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Analysis of fishways in the Middle and Lower Jinsha River Basin (China)

Siqi Tong¹, Silke Wieprecht¹, and Martin Schletterer^{2,3}

¹Department of Hydraulic Engineering and Water Resources Management, University of Stuttgart, 70569 Stuttgart, Germany (siqi.tong1503@gmail.com and wieprecht@iws.uni-stuttgart.de)

²Institute of Hydrobiology and Aquatic Ecosystem Management (IHG), University of Natural Resources and Life Sciences, Gregor-Mendel-Straße 33, 1180 Vienna, Austria (martin.schletterer@boku.ac.at)

³TIWAG-Tiroler Wasserkraft AG, Eduard-Wallnöfer-Platz 2, 6020 Innsbruck, Austria (martin.schletterer@tiwag.at)

This study was carried out in the middle and lower reaches of the Jinsha River in southwest China, which represents the upper Yangtze River. Hydraulic structures (14 cascade hydropower stations) are planned and/or constructed in this system, which is considered as largest hydropower base. We aim to summarize appropriate measures to restore the riverine continuum in the middle and lower reaches of the Jinsha River, where high-head cascade hydropower dams are located or planned.

We distributed a questionnaire to Chinese researchers in the related fields (scientists, hydropower operators and NGOs in China, n = 60). According to the responses, fishways, fish lift, fish lock, trap-and-truck system as well as fish hatcheries (artificial breeding) are recognized to ensure passing respectively preserving fish in the Jinsha River basin.

A longitudinal connectivity assessment of the study area revealed a severely disturbed continuity status. Based on the biological analyses of the demands of the target fish species and review of fish pass technologies, a vertical-slot fishway is proposed.

Considering the dam heights and the geographical conditions, it is recommended to combine the vertical-slot fishway with these alternatives to achieve a higher efficiency in passing fish as well as to recover the river continuity towards regional sustainable development.