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River Ecological Restoration on Habitat Suitability in Tung Chung River, Hong Kong

**Abstract (less than 300 words):**

River ecological restoration, as a burgeoning interdisciplinary field of study, combines hydrology, hydraulics, sediment kinematics, ecology etc. In Hong Kong, in order to improve the flooding situation, many rivers that pass through urban areas have been trained into concrete channels in straight, wide and deep forms. Tung Chung River is one of the few local rivers that have not been extensively channelized. But from an ecological perspective, the original river habitat has been severely devastated by the channelized section.

The study areas include two natural river reaches, Shek Mun Kap and Mok Ka, and two channelized river reaches, Shek Lau Po and Wong Ka Wai. In this research, we choose *parazacco spilurus* (typical endemic fish species in Hong Kong) as the target fish since they are sensitive to their habitat and prefer to live in clear and unpolluted streams. It is found from early field observation that there are no target fish in the channelized section and the target fishes tend to habitat in the Mok Ka river reach as well as the natural river sections which are adjacent to the channelized ones.

In order to attract the target fish back to the specific river sections, we plan to modify the water and sediment regime according to the habitat modeling results, and try to build a fish passage in the channelized river reach based on the efficiency of the indoor full-scale test of fishways in the laboratory of the university.

As a proposal for a River Nature Park covering the Tung Chung River was proposed in 2015 for public purposes including flood control and nature conservation, it is hoped that our research could serve as a useful guide for the future development and design for the Tung Chung River which is deserved to be protected due to its high biodiversity.