Moving beyond fitting fish into equations: Progressing the fish passage debate in the Anthropocene

Realization of the importance of fish passage for migratory species has led to the development of innovative and creative solutions ('fishways') to mitigate the effects of artificial barriers in freshwater systems in the last few decades. In many instances, however, the first move has been to attempt to engineer a solution to the problem, thus attempting to 'fit fish into an equation'. These fishways are often derived from designs targeting salmonids in the Northern Hemisphere. They are rarely adequate, even for these strong-swimming fish, and certainly appear to be unsuitable for most other species, not least for those of tropical regions.

Fishway design criteria do not adequately account for natural variation among individuals, populations and species. Moreover, engineered solutions cannot reinstate the natural habitat and geomorphological properties of the river, objectives that have been largely ignored.

This article discusses the most prominent issues with the current management and conservation of freshwater ecosystems as it pertains to fish passage. It is not intended as a review on fish passage, but rather a perspective on the issues related to fishways, as seen by practitioners.

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