

# Impacts of dewatering on fish assemblages of tropical floodplain wetlands: a matter of frequency and context

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## Abstract

Dewatering of floodplain wetlands for the purpose of crop irrigation and fish harvesting is a common practice in many tropical river-floodplain systems. Viewed as highly destructive to fish communities, the practice is widely discouraged or banned. We investigated the impacts of dewatering on fish abundance and assemblage structure in permanent floodplain wetlands of the lower Mekong region. Impacts of draining were found to be equivalent to those of intensive fishing, rather than entirely catastrophic. Many wetlands were drained and fished repeatedly in a single dry season, with catches declining by 72% on average between consecutive events. Species richness and mean length of fish also declined with consecutive dewatering events. Draining was carried out only in wetlands where access for water withdrawal and fishing was restricted to individual households or groups, and where fishing was restricted to draining events. Fish biomass was higher in drained wetlands prior to the first and second draining events than in open-access, non-drained wetlands. These surprising results suggest that draining of floodplain wetlands is not as fundamentally destructive of fish populations as is often assumed. Where fishing pressure under open access conditions is high, allocation of exclusive rights to dewater and fish wetlands can aid fish conservation as long as dewatering is carried out only once.

**KEY WORDS:** dewatering, floodplain fisheries, hoovering gears, irrigation, Lao PDR, tropical