

## **Abstract**

Habitat suitability indices indicate how fish species respond to different habitat types. We assessed effects of habitat characteristics on fish distribution in an equatorial lake, Lake Naivasha, Kenya, where habitats vary according to substrate, depth and turbidity. Using monthly data between 2008 and 2010 using multi-mesh gill nets, catch per unit effort was used as a relative abundance measure to identify how habitat variables drive fish distribution.

The focus was on commercial fishes: two introduced species (*Cyprinus carpio* and *Micropterus salmoides*) and two naturalised species (*Oreochromis leucostictus* and *Tilapia zillii*). Analyses revealed distinct preferences for different habitat variables by all commercial species except for *C. carpio*. For example, *O. leucostictus* preferred shallow waters with silt–clay substrates whilst *M. salmoides* preferred deeper waters with sandy/rocky substrates. Conversely, *C. carpio* showed no specialised habitat requirements. Niche overlaps were significantly lower between *O. leucostictus* and its respective sympatric species than between other species, a likely result of its territorial behaviour. The continued environmental degradation of Lake Naivasha may imperil the preferred habitats of the niche restricted *M. salmoides*, *O. leucostictus* and *T. zillii*. By contrast, the ubiquity of *C. carpio* may facilitate their invasion, and consequently sustain their dominance in the lake's commercial fishery.