Abstract

Despite being one of the most well-known cichlid fish of importance to artisanal and sport fishing, and among the largest fishes in the Neotropics, data on digestive tract anatomy of peacock basses (Cichla spp.) are largely lacking, especially for non-native populations. In this paper, we describe for the first time the digestive tract morphology of Cichla kelberi, a voracious piscivore that was introduced in the 1950s into an oligotrophic and physically low-complex impoundment in Brazil. Peacock basses were collected between 1994 and 2002 in Lajes Reservoir, through gillnets (25 to 55mm mesh; 20-50x2m), seines (10x2.5m; 8.0mm mesh), cast nets and angling. All the fishes were kept on ice in the field and then transferred to the laboratory, where they were identified, measured, weighed and dissected for digestive tract analyses. The index of Relative importance-IRI was calculated for diet characterization while linear and non-linear regressions were performed to assess growth patterns of four morphological characters related to feeding (e.g. mouth width, mouth height, stomach length and intestine length) and the number of gill rakers during the C. kelberi ontogeny. Most digestive tract structures were directly related to the piscivorous diet of C. kelberi, indicating that peacock bass is a diurnal, bathypelagic and gape-size limited predator that feeds largely on shallow-water prey species within the littoral zone. Mouth width and height grew allometrically (b>1) with the size of peacock bass, broadening the size range in which prey can be eaten, but especially for predators smaller than ~400mm of total length. Differently, stomach and intestine lengths increased isometrically (b=1), which could constrain prey consumption for adult C. kelberi, especially those at advanced stages of gonadal maturation. The presence of longer-drawn, sharp and furcated gill rakers in C. kelberi may be related to increased prey retention in the resource-limited Lajes Reservoir, but further studies are necessary whether such features are randomly triggered by genetic or pheno-typic anomalies, or effectively bring ecological advantages to the predator. In addition to contribute to improve the current biological knowledge on peacock basses, our results can be also useful to further comparisons on whether those morphological features related to feeding will change with transitions on prey consumption by C. kelberi and/or with the particular conditions of the invaded ecosystem.

Keywords
Cichlid, peacock bass, ecomorphology, diet, invasive species, reservoir.