Size range and length-weight relationships of 17 fish species from Lake Ayame 1 (Côte d'Ivoire, West Africa)

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ABSTRACT
Objective: Fish growth and size can be influenced by several ecological and environmental factors. Thus, this work describes the length-weight relationships and condition factors of 17 fish species to assess fishing pressure on the fish fauna of Lake Ayamé 1 with the return of non-native fishermen.
Methodology and Results: A total of 8346 individuals from experimental and commercial fisheries were sampled from July 2017 to June 2018. The size of the individuals caught from 6.0 cm to 71.3 cm and the majority of the fishes (70%) were concentrated between 5 cm and 15 cm. Length-weight relationships were calculated using the equation $W = aTL^b$ and condition coefficients were determined using the equation $K = 100 \times W_T / TL$. The coefficient of determination (R^2) varied from 0.548 in *Brycinus longipinnis* to 0.973 in *Sarotherodon melanotheron*. The coefficient of allometry b varies from 2.409 in *Brycinus nurse* and 3.207 in *Clarias anguillaris*. Twelve species had negative allometry, three species had positive allometry and two species had isometry. These allometry coefficients indicated changes for *Hepsetus odoe*, *Clarias anguillaris*, *Schilbe mandibularis* and *Hemichromis fasciatus* compared to previous work. The average condition factor varied from 0.75 ± 0.41 in *Schilbe mandibularis* to 1.98 ± 0.60 in *Sarotherodon melanotheron*.
Conclusion and Application of results: The massive presence of small individuals expresses an overexploitation of the stock. These results highlighted the effect of fishing pressure on the fish fauna of Lake Ayamé 1.
Keywords: Allometry, fishing, threat, fish, conservation