A Snapshot of the Fish Fauna in Lake Sebakwe, Zimbabwe: A First Record
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Abstract
This research is a snapshot survey of the fish species fauna in a tropical lake, Lake Sebakwe, in Zimbabwe. This is the first record of the fish species present in the lake which was built to provide irrigation water and for recreational purposes. Continuous intensive gill and seine fishing was done over five days in the lake and 8 fish species were collected. The exotic Northern largemouth bass (Micropterus salmoides Lacepede, 1802) dominates the system. It appears the fish we sampled favour clear still waters which can act as a pointer to the water quality of the lake.

Keywords Fish fauna; White waters; Potamodromous; Lake Sebakwe

Introduction
Lake Sebakwe was originally completed in 1957 on the Sebakwe River, but it was raised by 7 m between 1982 and 1986. The dam was built as a buttress section, with downstream face slabbed over the spillway zone. It has a mean height of 47 m, a maximum water depth of 40.2 m and an area of 2 320 Ha and a maximum volume of 105 000 m³. It was mainly built for supplying water to the downstream city of Kwekwe and irrigating surrounding commercial farms. The lake has a huge potential for fisheries, but a few subsistence small scale fisheries exist. There have been no studies on the fish community assemblages of the Lake. Hence this brief snapshot survey of the fish species resident in the lake. We sampled continuously in the lake for four days using a combination of gill and seine nets. Gillnets of both cotton and monofilament were set up overnight. At each site nylon survey nets (10 metres with a mesh size 1.5 inches, 2 inches, 2.5 inches, 3 inches, 3.5 inches, 4 inches, 4.5 inches, 5 inches, 5.5 inches and 6 inches) were set. Gillnets were set at a distance of 30 metres apart to cover as much of the lake as possible (King, 1995). Gillnets were also described as the most effective in still water by Bell-Cross and Minshull (1988).

Gill nets were set from 1 600 hrs–0600 hrs and sampled fish were identified to species level according to Skelton (2001), counted, measured to the nearest millimeter and weighed to the nearest gram. The catch per unit effort was standardized according to the sampling method (numbers per net day for gill nets). Fish data that is species present, their abundance and sex were collected for each net and the total figures for each sampling station collected.

A total of 8 species belonging to 6 families were recorded in Lake Sebakwe for the sampling period. The families were: Cichlidae; Tilapia rendalii (Boulenger, 1896), Serranochromis robustus: Cyprinidae; Labeo cylindricus (Peters 1868): Clariidae; Clarias gariepinus (Burchell, 1822): Momyridae; Mormyrus longirostris (Peters, 1852), Marcusenius pongolensis (Fowler, 1934): Centrarchidae; Micropterus salmoides Lasepede, 1802: Alestiidae; Brycinus imberi (Peters, 1852). One exotic species was recorded in the lake (Micropterus salmoides), one introduced species was observed (S. robustus).The most frequent species has been the Micropterus salmoides accounting for 60% of the catch in the period sampled (Table 1).

A snapshot collection of fish species in Lake Sebakwe reveal a dominance of the exotic Northern large mouth bass (Micropterus salmoides, Lasepede, 1802). This fish is a predator that feeds primarily on fish, although some invertebrates are taken and shows ontogenetic diet shift (Marshall, 2010). This fish thrives in waters where there is an absence of more voracious predators. This may be the case in this lake as we found no other competing predators like the tigerfish (Hydrocynus...
or only inhabitant of diminishing pools of drying rivers. It can endure harsh conditions such as high turbidity or desiccation and is frequently the last species to breed and survive. The African catfish, *Clarias gariepinus* (Peters, 1868), is widely distributed throughout Africa and consists of at least 80 species which comprise 16% of the African cyprinid ichthyofauna. It is a benthopelagic species and occurs in both sediment-free and sediment rich rocky biotopes, where it can be abundant. *L.cylindricus* favors clear, running waters in rocky habitats of small and large rivers, also found in lakes and dams over rocky areas. This species is also commercially important throughout the African continent, having contributed significantly to various fisheries (Skelton, 2001). It feeds on diatoms and other small algae from rocks. It is a cryptic species that hides under rocks and is most active at night (Gratwicke et al., 2003). It is a very small species attaining a maximum length and mass of 25 cm and 0.9 kg respectively (Skelton, 2001).

The third most frequent species was the Marcusenius *pongolensis* (Fowler, 1934). This fish is usually found in main channels but lower catchments. It does not enter still lagoons and backwaters in the lower floodplains. It feeds primarily on benthic insects and prefers white still waters. In Zimbabwe this is the first record of the fish that we have found. It also prefers clean white waters. The fourth most frequent species was the Eastern bottenloose, *Mormyrus longirostris* (Peters, 1852). This species is widespread but not always numerous. It is a demersal and potamodromous species that hides in muddy areas, and it also hides among weeds (Marshall, 2010). It prefers quite deep waters with soft muddy bottoms and is rarely caught in marshy areas. It is active mainly at night and it breeds during the rainy season. It feeds on weeds and insects but may also feed on small fishes, bloodworms, crustaceans, mollusks and aquatic plants.

The next most abundant fish was the sharptooth African catfish, *Clarias gariepinus* (Burchell, 1822). The African catfish *C. gariepinus* occurs in almost any habitat but favors floodplains, large sluggish rivers, lakes and dams. It can endure harsh conditions such as high turbidity or desiccation and is frequently the last or only inhabitant of diminishing pools of drying rivers or lakes, where it may form burrows (Skeleton, 2001). Further, as a predator, it is able to utilize a variety of food items other than fish. The *Clarias* is well known for its adaptability and its hardiness against adverse environmental conditions, but tissue and organ anomalies resulting from environmental stress can be observed. These factors make them good indicators of chronic environmental stress, enabling them to reflect accumulative effects of both past and recent water quality conditions (Avenant-Oldewage, 2001).

The next most abundant fish species was the redbreast tilapia, *Tilapia rendalli* (Boulenger, 1896) which is generally an omnivorous, opportunistic feeder throughout its life, with the adult tilapia shifting towards herbivory as the primary feeding mode. Its natural habitats are fresh water lakes and fresh water marshes (Skelton, 2001). The rendalli feeds on algae, plants, small crustaceans, worms, and larvae, but prefers a vegetation diet such as the thick growth of weed. It can be found in perennial rivers, lakes and quiet places with clay or sandy bottoms. In some places it has been introduced into dams where the need to check the growth of weeds is required. It is a tolerant of a broad range of temperatures and salinity as well as high levels of silt (Marshall, 2010). In this study we collected the fish in the nets set close to the littoral shorelines where there were dense growths of aquatic macrophytes. The omnivorous and potamodromous The Spot-Tailed Robber, *Brycinus imberi* (Peters, 1852) was also caught but in fewer numbers and this fish favors freshwater rivers and shallow clean waters.

The underlying pattern was that we sampled freshwater fish that favour clean still white waters, a factor which points to the nutrient status and quality of the water in Lake Sebakwe. This brief survey found 8 species in a Lake that has not received scientific attention but it is hoped that it forms a baseline for future ichthyology studies.

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| Species             | L.cylindricus | M.pongolensis | T.rendalli | M.longirostris | M.salmoides | C.gariepinus | B.imberi | S.robustus |
|---------------------|---------------|---------------|------------|----------------|-------------|--------------|----------|------------|
| Frequency (%)       | 20            | 8             | 0.3        | 0.1            | 60          | 1.0          | 0.2      | 0.4        |
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