Assessment of anthropogenic impacts on the aquatic environment and biodiversity in the Katangese Copperbelt Area

a community-based ichthyoparasitological approach (DR Congo)

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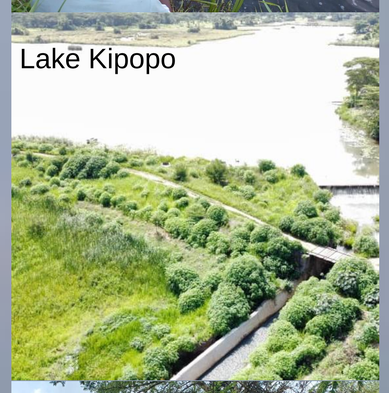
Lake Kipopo

Kipopo Bridge

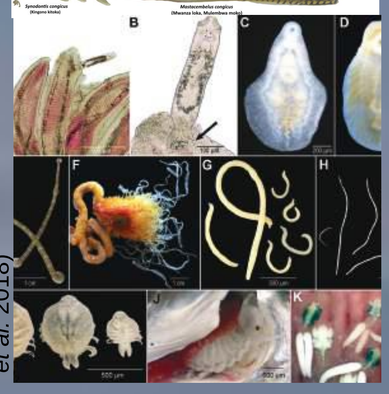
Lake Tshombe

Kasapa Bridge

Lake Kipopo



Domaine



Context

The huge hydrographic network of the DR Congo is threatened by (mining, organic and chemical) pollution, endangering aquatic life and human (users of watercourses and consumers of aquatic resources). Urgent sanitary survey measures are needed to assess the damage caused by pollution to aquatic organisms, and to propose sustainable management measures for protecting rivers and humans. This study aims to contribute to the assessment of anthropogenic impacts on the aquatic environment and biodiversity in the Katangese Copperbelt Area.

Study area

The Lubumbashi River Basin was chosen following four criteria: (i) Presence of mining activities in the region; (ii) The river crosses the city from the North to the South; (iii) The river holds fish of economic value; (iv) The river is used by the population.

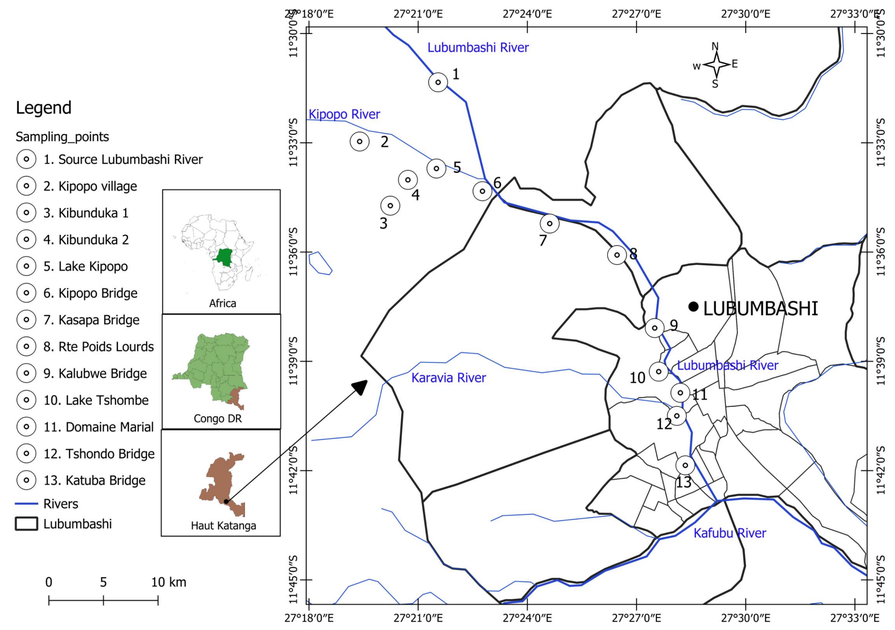


Fig. 1. Lubumbashi River Basin

Methodology

1. Characterization of the current status of the Lubumbashi River following the gradient of pollution

2. Assessment of pollution on the physiological status of clariids and cichlids

3. use of fish parasites as biological indicators of pollution: examining diversity

4. evaluation in a participatory way the impacts of pollution on the ecosystem services of the river system

Preliminary Results

Conductivity and pH range respectively 195 – 449µS/cm & 6.5 – 8.14, in the rain season.

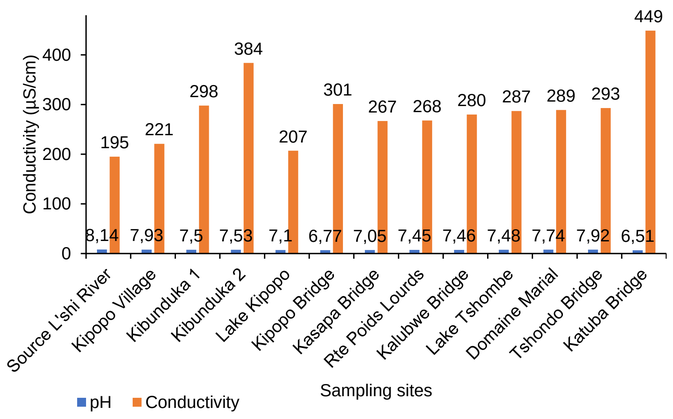


Fig. 2. Physico-chemical parameters of water

Five clariid species (with 11 parasite species belonging to three genera); and three cichlid species (with seven parasite species belonging to three genera) (Fig. 3 & 4; Table)

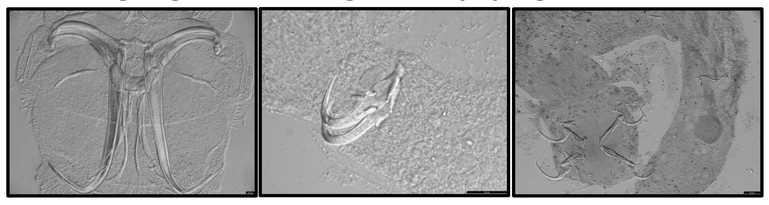


Fig. 3. Genus: *Macrogyrodactylus; Gyrodactylus; Quadriacanthus* on clariids

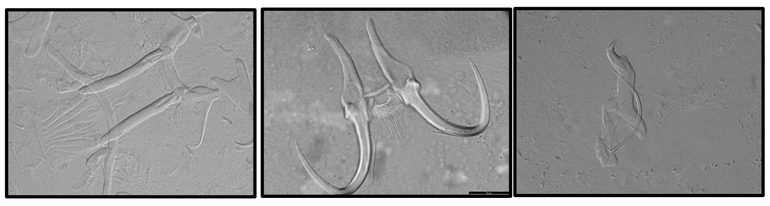


Fig. 4. Genus: *Scutogyrus; Gyrodactylus; Cichlidogyrus* on cichlids

Table: Parasite diversity per fish group, per locality

	Clariids	Cichlids
	N° parasite species	
Kipopo	11	7
Kasapa	8	-
Tshombe	2	-
Domaine	1	3

Fish diversity (Katemo *et al.* 2024)

Metazoan parasites (Kutcha *et al.* 2018)

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