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## Worrying decline of fish in the Congo River: Evidence from a site in Tshopo Province

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### Key messages

- Evidence shows severe decline in many fish species in site along the Congo River in Tshopo Province
- Fish are essential sources of nutrients in local diets and important for livelihoods
- Urgent need for better management of fisheries before problem becomes even worse
- Any management solution will depend on active participation of the fishers themselves

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## Background

**T**he Congo River and its tributaries play an important role in the economy, livelihoods, food security and nutrition of the Congolese people. It is the second longest river in Africa, stretching over 4,700 km and flowing through seven countries, including the Democratic Republic of Congo (DRC). The river and its tributaries support a rich diversity of fish which play an essential role in the diets of Congolese people.

Almost all communities living near the river engage in fishing because fish is often their primary animal source food. There have been many reports of declining fish in the Congo River, but little systematic evidence. A team of scientists from the University of Kisangani and Virginia Tech University learned more about what has been happening to local fisheries in one town along the river.



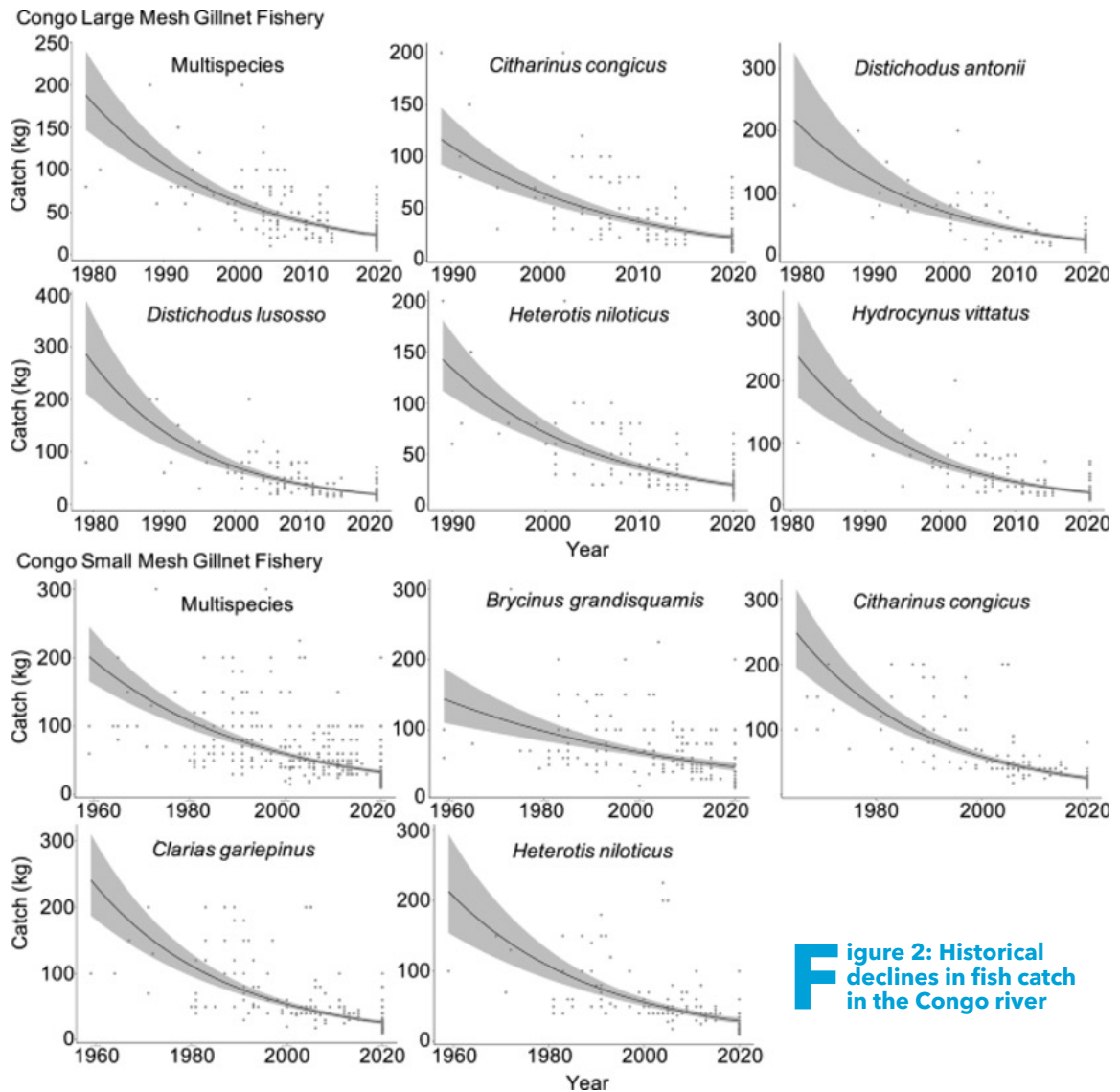
Credit: Fiston Wasanga/CIFOR-ICRAF

**F**igure 1: Ariel view of the Congo river from Lileko village

## Research & Results

**I**n 2021, as part of the Governing Multifunctional Landscapes Project, the team carried out a study of fishers around the village of Lileko near the mouth of the Lomami tributary of the Congo River. Lileko lies within the large Cuvette Centrale freshwater ecoregion and is about 160 km from Kisangani, the capital of Tshopo Province, and 60 km outside of the Yangambi Biosphere Reserve. The team surveyed 214 fishers about their knowledge of current and past fishing during June 2021 after obtaining their consent.

Fishers were asked to describe their catch (in kg) and effort (hours spent fishing, length, and mesh size of gillnet) for their five most caught species during the first three years that they fished and for the last three years. The same questions were asked for “middle” of fishing



**F**igure 2: Historical declines in fish catch in the Congo river

career for fishers with more than ten years of career. They were also asked to rank their order of contribution in weight to total catch and to estimate their average length-at-catch (cm) for the first, middle and last three-year periods they fished. The scientists used statistical methods to assess for possible changes in fish catch over time, while correcting for possible changes in effort.

They found two gillnet fisheries with different mesh sizes targeting different fish species. Results

showed that aggregate fish catch declined dramatically for both gillnet fisheries. The multispecies catch of the large mesh gillnet fishery declined from an average of about 190 kg in 1980 to approximately 30 kg in 2019 per fishing time, a decline of 84%. In the small gillnet fishery, average catch declined from 200 kg in 1959 to about 40 kg in 2019, a decline of 80%. These multispecies catch declines were also found in seven of the eight most caught species in both fisheries as can be seen in Figure 2.



There were also clear signs of overfishing in both fisheries; seven of the eight most caught species were caught below their lengths-at-maturity and optimal lengths in recent years. The more severely overfished species tended to be the larger ones with high commercial value. Interviews with fishers revealed, unsurprisingly, that they were aware of these trends. They blamed the use of small mesh gear (including mosquito nets) and declining water levels in the river.

This decline in fish is very concerning in a place where fish comprised 76% of the animal source foods consumed by children under five in 2019 and where rates of food insecurity and malnutrition are already very high. There is an urgent need for management interventions to prevent further declines in fisheries and ideally to reverse these trends. While the DRC already has bans on certain types of fishing gear and closed seasons for fishing, these do not appear to be respected or enforced. Since it is the fishers themselves who are suffering the most from this decline, they will likely be willing to adopt some restrictions if they are engaged in the process.

## Recommendations

**P**reventing further degradation of these fisheries requires management action.

Legislation that bans certain fishing gears and closed seasons or moratoria for some species exist in DRC but are rarely enforced on the river. If such regulations could be enforced, gear, size, and season regulations could promote sustainability. Protected areas and no-take reserves in certain spots along the river, could also contribute to making fisheries more sustainable.

One strategy that is being increasingly recognized as a way to promote sustainability in places like the DRC where there is little data on historical biomass and of age-structured models, is regulating the size selectivity of fishing. The idea is to regulate the size of fish captured so that harvested fishes have had time to grow and reproduce. This strategy is ideal in data poor situations such as these fisheries because it can maintain catch and spawning biomass at high levels even with intense fishing effort.

Implementing such a strategy could benefit from a collaboration between government fisheries officials and local communities to collect data on size composition of

fish catch and local sizes of maturity in order to develop locally relevant rules. The key for this strategy to work in a place like DRC, where government resources for enforcement are minimal, is to involve local fishers in the development of the management rules and to support them in self-regulating. After all, it is these stakeholders that have the most to lose if the fish in the Congo River continue to decline, and therefore the most to gain, to halt and reverse this trend.

## References

- Castello, L., Carvalho, F., Ateba, N.O.O., Busanga, A.K., Ickowitz, A., E. Frimpong. 2023. An approach to assess data-less small-scale fisheries: examples from Congo rivers. *Rev Fish Biol Fisheries* <https://doi.org/10.1007/s11160-023-09770-x>
- Prince J, Hordyk A (2019) What to do when you have almost nothing: a simple quantitative prescription for managing extremely data-poor fisheries. *Fish and Fisheries* 20:224-238. <https://doi.org/10.1111/faf.12335>.

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