

# Tackling food insecurity through inland fisheries in Limpopo

SALAB/DFFE

The Glen Alpine Dam during November 2024. The low water levels coincided with a fish kill, which led to a significant decline in fish abundance and diversity.

*In Limpopo province, poverty and unemployment continue to challenge rural communities, but a new project is exploring how local inland dams might provide a sustainable solution. Flag Boshielo and Glen Alpine dams are at the heart of pilot research to inform South Africa's national strategy on freshwater fisheries. Could small-scale inland fishing be the key to alleviating hunger, boosting local economies and transforming rural livelihoods?*

Limpopo province faces significant challenges, including poverty and unemployment. To address these, the South African government, through the Department of Forestry, Fisheries and the Environment (DFFE), has identified inland fisheries as a sector with great potential to reduce poverty and food insecurity, particularly for rural communities near dams. However, the current state of South Africa's inland fisheries demands urgent, targeted action.

Constraints affecting Limpopo's inland fisheries mainly stem from limited data on catch and effort, life-history traits of target species, usage patterns by local fishers, and an absence of clear legislation. Without proper regulation, inland fisheries remain largely informal and subsistence-driven. To transition these fisheries into sustainable, formal operations, scientific research tailored to specific sites is crucial.

This project aims to assess:

- The exploitation potential of inland fisheries resources
- Health risks of consuming fish from local water bodies
- Effects of water-level changes on fish production
- Current patterns of inland fisheries utilization
- Associated value chains

- Pilot initiatives supporting the National Freshwater Wild Capture Fisheries Policy.

Four field surveys were conducted in May, August and November 2024, and January 2025. Researchers measured water quality at three random sites per dam (inflow, mid-dam, dam wall) using handheld multiparameter meters. Fish sampling involved gillnets of various mesh sizes, fyke nets and cast nets, allowing calculation of catch-per-unit-effort (CPUE). Concurrently, surveys examined socio-economic aspects such as fisher demographics, motivations (sale, recreation, subsistence), transportation methods, employment status, gear types and catch sizes.

Fish diversity and abundance varied notably at Flag Boshielo Dam and showed significant seasonal fluctuations at Glen Alpine Dam, raising concerns about sustainability and highlighting impacts from mismanagement, overfishing, environmental changes, and habitat preferences. Regular monitoring of both fish populations and environmental parameters is vital.

Future management should prioritise periodic biomass assessments and continuous environmental monitoring. Adaptive management strategies, including flexible

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A view from the dam wall of the Glen Alpine Dam wall in January 2025. This rapid increase in water levels facilitated the recovery of fishery resources with a marked increase in species abundance and diversity.

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Figure 4: Preparation for the placing of the gill nets.

fishing regulations based on real-time data and closed fishing seasons during breeding periods, will be essential to sustaining fish populations.

Community involvement is crucial for conservation success. Educational programmes promoting sustainable fishing can reduce overfishing pressures and enhance stewardship. Partnerships with local fishermen can facilitate knowledge sharing about ecological best practices.

Future research should emphasise integrated fisheries management, merging scientific findings, community engagement and policy input. Such an approach will reconcile diverse stakeholder interests, supporting ecological sustainability and community well-being.

Currently, small-scale fisheries at both Flag Boshielo and Glen Alpine dams lack appropriate regulation and management, causing sustainability concerns and social conflicts. The absence of national legislation and outdated provincial laws creates uncertainty regarding responsibility. The DFFE must engage transparently with provinces and stakeholders to develop interim solutions.

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Profenseng ya Limpopo, bodiidi le tlhokego ya mešomo di tšwela pele go tšhwenya diphitlhelelo tša mahae. Morero o moswa o hlahloba kamoo matamo a selegae a ka neago tharollo e tswelelelago. Matamo a Flag Boshielo le Glen Alpine a bohlokwa nyakisšong ya go hlama leano la naga la dihlapi tša meetse a a hlwekilego. Na go swara dihlapi ka tekanyo e nyenyane go ka fokotša tlala, tsenya tšweletšo moruong wa selegae, le kaonafatša maphelo a setšhaba?

Translated into North Sotho by Prof. Walter Matli