

Assessing the Prevalence of Illegal Fishing Practices and Strategic Approaches for Sustainable Fisheries Management in Lake Malawi

GRO • FTP

Fisheries Training Programme

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Introduction

- Malawi's fisheries sector is a critical source of nutrition, employment, and income
- Valuable fish species have experienced drastic declines in catches in recent years (Fig. 1)
- Widespread use of illegal monofilament nets drive overfishing, species decline, and environmental damage (GOM, 2016)
- As large fish populations shrink, small species like Usipa have become dominant
- This study evaluates the impact of monofilament nets on fish populations and the livelihoods of communities in lakeshore districts

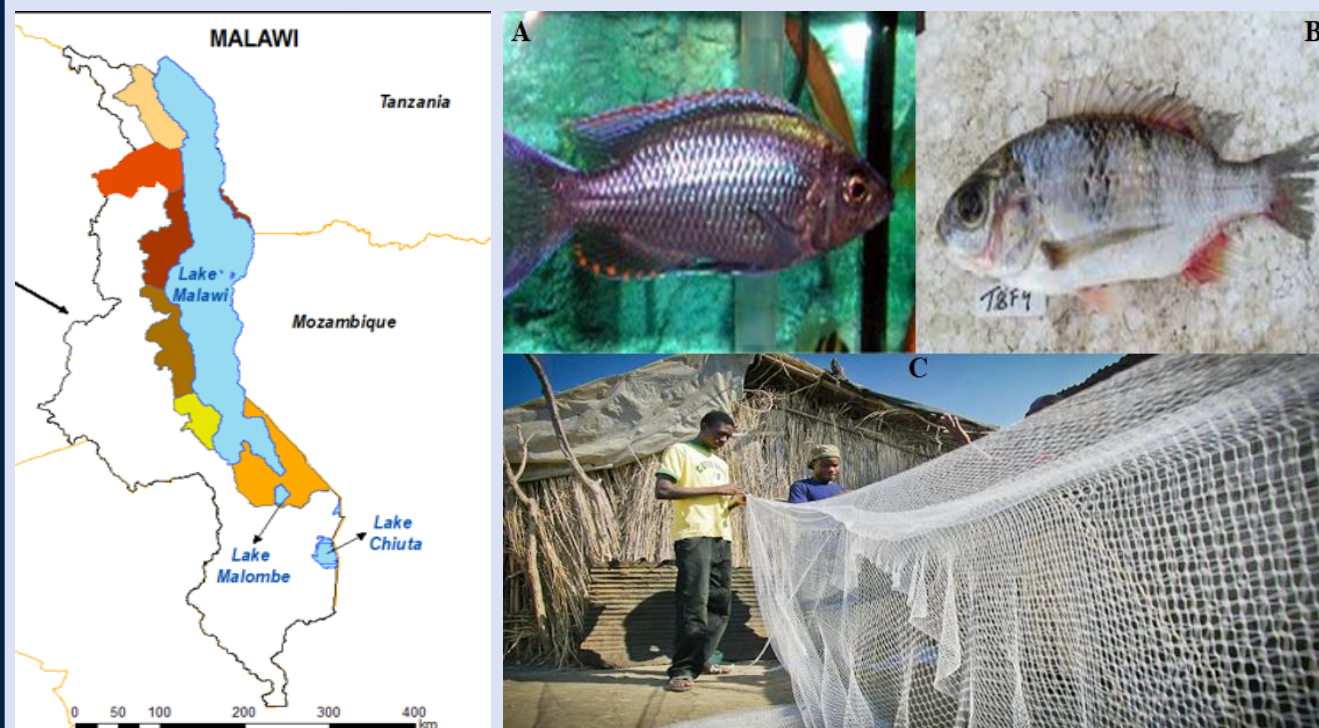
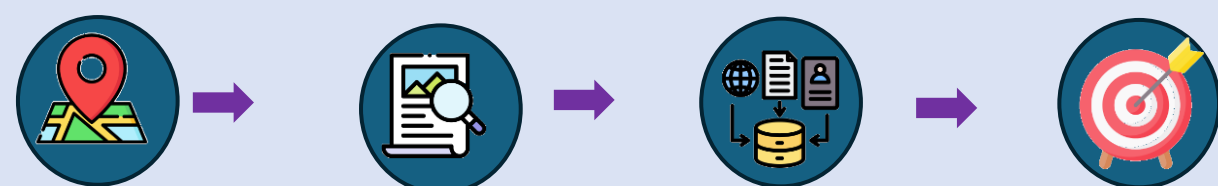


Fig. 1: Map of Malawi showing Lake Malawi (left), Fish species Utaka (A) and Chambo (B) and monofilament fishing gears (C)

Methodology



Study Area :
Six key lakeshore districts on Lake Malawi: Mangochi, Salima, Nkhosha, Nkhatabay, Rumphu, and Karonga.

Study Design:

- Quantitative analysis of secondary data (Frame Survey & Fish Catch, 2014-2023).
- Qualitative assessments from questionnaires.

Data Sources:

- Secondary: Department of Fisheries annual reports.
- Primary: Questionnaires administered to fishers, BVC members, and fisheries inspectors.

Analysis Focus:
Identifying trends, changes in productivity, policy gaps, and drivers of illegal fishing.
Tools: Excel, Python, Tuckey, PBI, Clustering.

Objectives

- To evaluate the widespread use of monofilament nets and their impact on the decline of valuable fish species (Utaka and Chambo) in Lake Malawi
- To identify drivers that have led to the influx of monofilament nets
- To identify policy gaps and recommend sustainable, evidence-based strategies to address illegal fishing in Lake Malawi

Results and Discussion

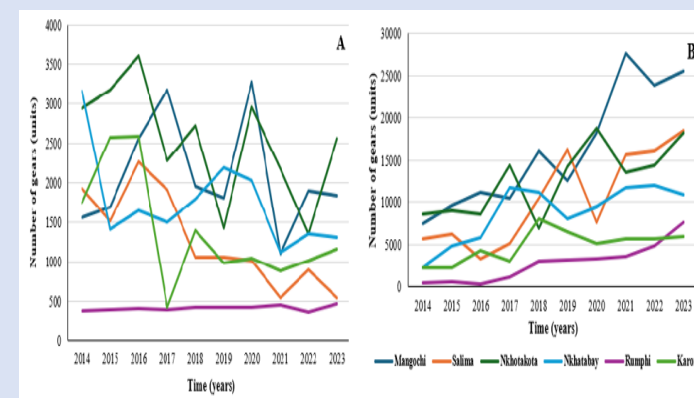


Fig. 2: Trend of fishing gears legal gear (A) and illegal gears (B)

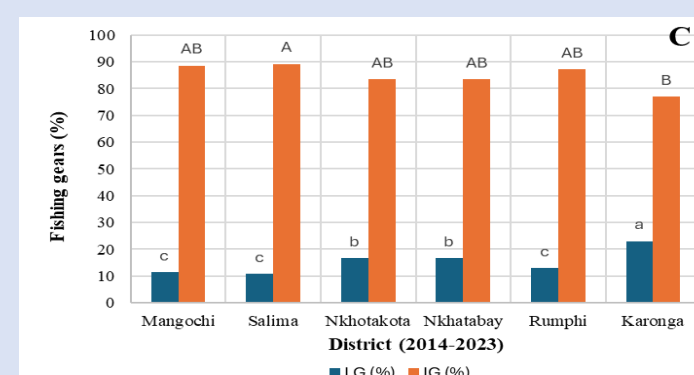


Fig. 3: Consolidated 10-year data on composition (%) of legal and illegal fishing gear in districts

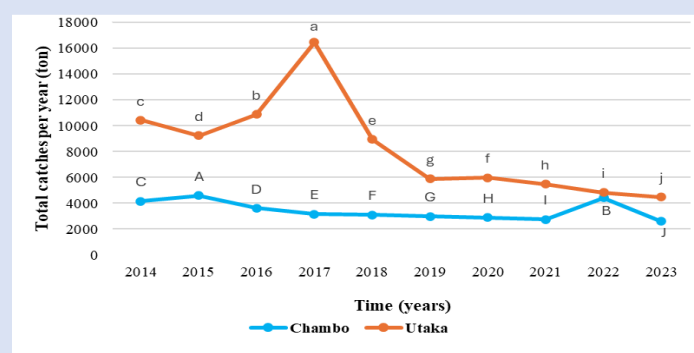


Fig. 4: Trends of Chambo (*Oreochromis karongai*) and Utaka (*Copadichromis virginalis*) over a 10-year period (2014-2023) across all districts

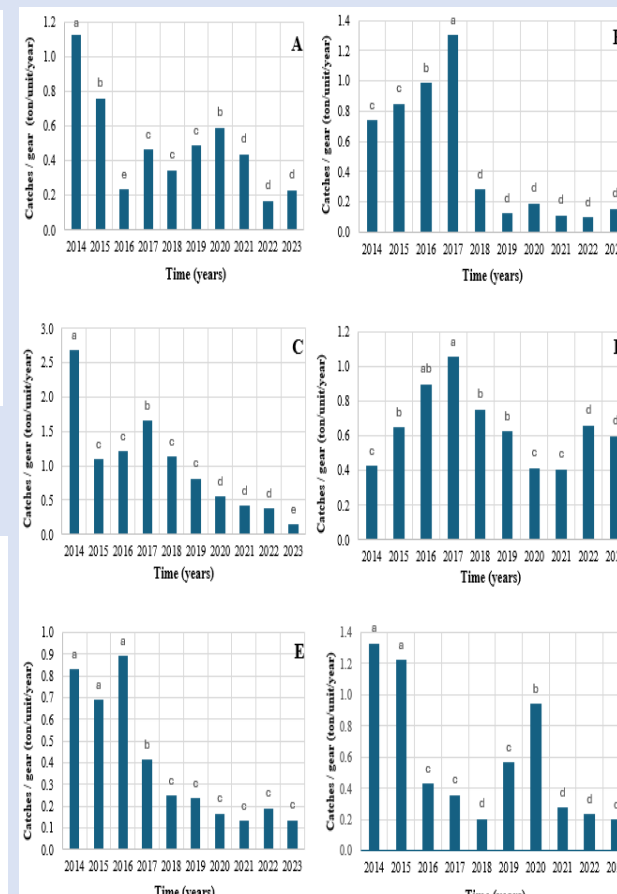


Fig. 5: Catch per unit effort over time for Mangochi (A), Salima (B), Nkhosha (C), Nkhatabay (D), Rumphu (E), and Karonga (F)

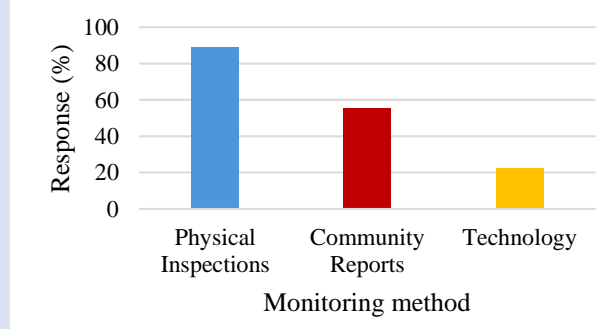


Fig. 6: Illegal fishing practices monitoring and identification methods

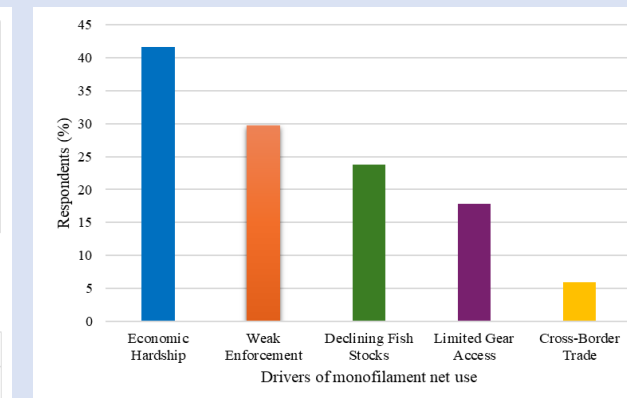


Fig. 7: Identified drivers that led to widespread use of monofilament

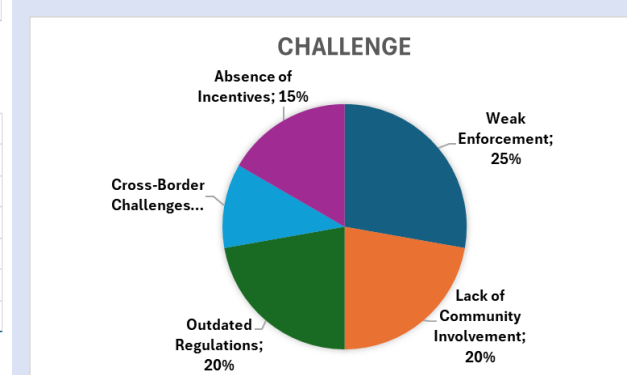


Fig. 8: Identified policy gaps

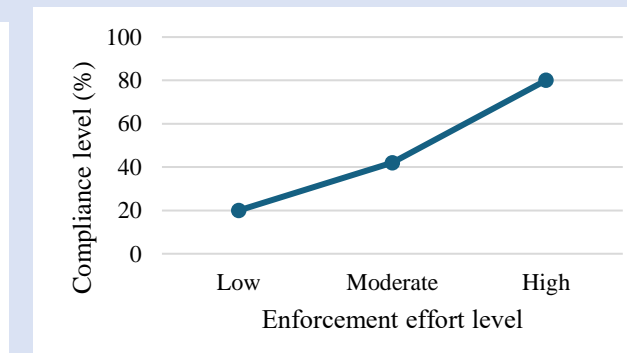


Fig. 9: Higher levels of enforcement are directly linked to improved compliance

- Illegal monofilament nets now dominate Lake Malawi's fisheries (with about 85%) — urgent action needed (Fig. 2)
- The rise of monofilament nets since 2017 is linked to the decline of high-value species (e.g. Chambo and Utaka), due to their high selectivity for larger, slow-growing fish (Fig. 3)
- A hidden collapse of large fish populations and ecological imbalance (Fig. 4)
- CPUE for large fish species has declined significantly in all districts, clear evidence of overfishing and resource depletion (Fig. 5)
- The heavy use of illegal gear and overreliance on a few fast-reproducing species reflect unsustainable exploitation (Fig. 7)
- Economic hardship, weak enforcement and easy access to illegal gear are key drivers of the illegal fishing crisis (Fig. 6 and 8)
- Outdated policies, lack of modern enforcement tools, and poor community involvement hinders sustainable fisheries (Fig. 9)

Conclusion

- Approximately **85%** of all fishing gear used is illegal
- Large fish populations are rapidly declining, CPUE for large-sized species has dropped across all districts.
- Chambo and Utaka catches have decreased by **75%**; monofilament nets is driving fishery collapse and unsustainable fishery.
- Poverty, weak enforcement, and easy access to illegal gear are fueling the crisis — **the issue extends beyond policy alone.**

Recommendations

- (1) Policy reforms
- (2) Alternative livelihoods and microfinance opportunities
- (3) Promote aquaculture
- (4) Raise awareness
- (5) Co-management
- (6) Gear exchange program

Reference

GOM (2016). *National Fisheries and Aquaculture Policy* (2nd ed.). Lilongwe: Department of Fisheries, Government of Malawi.

Acknowledgements

