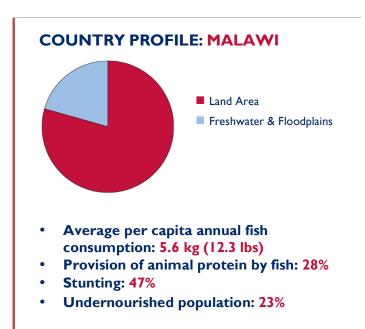


The Importance of Wild Fisheries For Local Food Security: MALAWI

Fish in Malawi are significant contributors to both global biodiversity and local food security. Fish provide an estimated 28% of the country's animal protein supply and are critical for nutrition and food security. Malawi has about 4% of the world's fish species and 14% of all known freshwater fish species; Lake Malawi alone is home to about 800 fish species, 95% of which are endemic. Increasing demands and poor management of fish populations are resulting in rising prices, declining catches, and decreasing food security.

Food Security: About 23% of Malawians are undernourished and 47% of children are stunted [1, 2]. Stunting rates are highest among children ages 18-23 months at 61% [2]. Additionally, 13% of children are underweight [2]. Fish play an important role in combating food insecurity, as they are a significant source of protein, vitamins, minerals, and micronutrients. Fish provide 28% of the country's animal protein supply and are critical for the health and nutrition of Malawians, especially for rural communities and those living around lakes [3, 4]. A comprehensive food security and vulnerability analysis found fish to be the most consumed animal protein, with 65% of households stating they consumed fish at least once per week, with an average consumption of 1.8 days per week [5]. Yet, because of increasing demand primarily from population growth, declines in catches due to poor management, and increases in costs, the amount of fish consumed is on the decline [6].

National Development Priority: Malawi has about 4% of the world's fish species and 14 % of all known freshwater fish species [7]. The Malawian government recognizes the importance of fisheries and the need to increase productivity and consumption of fish to promote economic growth and food security in the country. The Malawi 2011-2016 Growth and Development Strategy includes a plan designed to increase wild fish productivity [8]. The government aims to support sustainable fisheries through "enforcing legislation to ensure sustainable production of [wild] fish, promoting the use of modern techniques of fishing, capacity building, and development of fish farming" [7]. The Malawian government also supports co-management in an effort to ensure the sustainability of the country's fisheries and conserve their biodiversity [9]. Climate change is expected to decrease the productivity of Malawi's fisheries, negatively impacting the livelihoods of fishing communities unless improved fisheries management is implemented to ensure their resilience [10, 11].



Economic Benefits: Fisheries sustain the livelihoods of about 10% of the population and represent about 4% of the Gross Domestic Product (GDP) [7, 9]. Lake Malawi, home to an estimated 800 fish species of which 95% are endemic, is one of many lakes that serve as tourist attractions and contribute to the GDP through that sector [7]. About 90% of Malawi's annual fish production is from small-scale fishing [6]. Small-scale fisheries play a significant role in the

livelihoods of rural populations because they are sources of income, sustenance, and employment [12]. Fisheries in Malawi employ about 60,000 fishers and indirectly employ over half a million Malawians through processing, fish marketing, and boat building and repair [6]. Many of these employees are rural women involved in fish processing and marketing [12].

Fisheries Demand and Supply: Individual fish consumption is estimated at 5.6 kg/year, which is a large drop from 14 kg/year (30.8 lbs/year) in the 1970s [6]. Yields from the lakes are declining significantly; for example, Lake Chilwa's total catch has dropped by more than a third since the 1990's [7]. Rural fishing communities are facing difficulties in the wake of declining catches and are turning to reducing mesh sizes and using environmentally destructive fishing gear in an effort to increase their catch [13].

Lake Malawi: In addition to its significant contribution towards global biodiversity [7], Lake Malawi contributes the majority (75%) of the total annual catch for the country [14]. The southeast arm of the lake has the most nutrient-rich water, supports a richer fishery, and has the highest productivity per unit area; this arm alone contributes over 25% of the total catch in Malawi [15]. Yet, the lake is facing significant strain due to increasing demand for fish and overexploitation of fish stocks [16].

Sources:

- 1. IFPRI, Food security portal Malawi. Available from: http://www.foodsecurityportal.org/malawi. 2012.
- 2. National Institute of Statistics, Directorate General for Health, and ICF Macro, *Malawi 2010 Demographic and Health Survey:* Key findings. Available from: http://dhsprogram.com/pubs/pdf/SR184/SR184.pdf. 2010.
- 3. Phiri, L.Y., et al., Value chain analysis of Lake Malawi fish: a case study of Oreochromis spp. (Chambo). International Journal of Business and Social Science, 2013. 4(2): p. 170-181.
- 4. FAO Fisheries and Aquaculture Department, Summary tables of Fishery Statistics: Food Balance Sheets 2011. Available from: ftp://ftp.fao.org/FI/STAT/summary/default.htm. 2011.
- 5. WFP, Comprehensive food security and vulnerability analysis. Available from: http://www.wfp.org/content/malawi-comprehensive-food-security-analysis-2010.2010.
- 6. Government of Malawi, National Fisheries Policy 2012-2017. Available from: http://www.unpei.org/sites/default/files/event_documents/FISHERIES%20POLICY%20FINAL%2013.11.2012.pdf, 2012.
- 7. Government of Malawi, State of environment and outlook report: Environment for sustainable economic growth. Available from: http://www.unpei.org/sites/default/files/e_library_documents/Malawi%20State%20of%20the%20Environemnt%20and%20Outlook%20Report_2010.pdf. 2010.
- 8. Government of Malawi, Malawi Growth and Development Strategy II 2011-2016 Available from: http://www.mw.one.un.org/wp-content/uploads/2014/04/Malawi-Growth-and-Dedvelopment-Strategy-MGDS-II.pdf. 2010.
- 9. Donda, S. and H. Mafaniso, Fisheries management and conflicts in the Southeast Arm of Lake Malawi in Fragmentation of resource management on the south east arm of Lake Malawi, S. Donda, et al., Editors. 2014, Lit Verlag: Zurich.
- 10. Njaya, F., et al., The natural history of fisheries ecology of Lake Chilwa, southern Malawi. Journal of Great Lakes Research, 2011. 37: p. 15-25.
- 11. Kafumbata, D., D. Jamu, and S. Chiotha, *Riparian ecosystem resilience and livelihood strategies under test: lessons from Lake Chilwa in Malawi and other lakes in Africa.* Philosophical Transactions of the Royal Society of London. Series B, Biological sciences., 2014. **17**(369): p. 1639.
- 12. Njaya, F., Governance challenges of the implementation of fisheries co-management: Experiences from Malawi. International Journal of the Commons, 2007. I(I): p. 137-153.
- 13. Tweddle, D., et al., Challenges in fisheries management in the Zambezi, one of the great rivers of Africa. Fisheries Management and Ecology, 2015. **22**(1): p. 99-111.
- 14. FAO, Fishery Country Profile- The Republic of Malawi. Available from: http://www.fao.org/fishery/facp/MWI/en. 2005.
- 15. Institute for Poverty, Land and Agrarian Studies., Fragmentation of natural resources management on the Southeast Arm of Lake Malawi and the Conceptual Framework in Fragmentation of resource management on the south east arm of Lake Malawi, H. Mafaniso, et al., Editors. 2014, Lit Verlag: Zurich.
- 16. Ngochera, M., Southeast arm of Lake Malawi: Limnology, pollution, siltation and habitat change in fragmentation of resource management on the south east arm of Lake Malawi, S. Donda, et al., Editors. 2014, Lit Verlag: Zurich.