

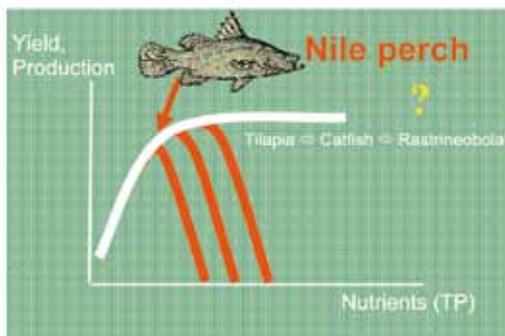


Eutrophication or exploitation as threat for fisheries? Ecosystem change in Lake Victoria

Paul van Zwieten

Introduction

Lake Victoria, Africa's largest freshwater lake, is changing fast under the combined effects of climate change, eutrophication and fisheries. Both eutrophication and fisheries caused the decrease in highly diverse cichlid stocks in the 1970-ies that paved the way for the switch to the new alternative stable state in the early 1980-ies establishing Nile perch as dominant predator in the lake's food web. Both processes still re-structure the fish community and the resource base of the fishery. Eutrophication has increased the productivity of the lake that now supports the largest freshwater commercial fishery in the World. Over 80,000 fishermen produce 1 million ton of fish, including 300,000 ton of Nile perch.



But, eutrophication continues with increasing population pressure and associated changes in land use in the catchment. The lake is now among the most heavily eutrophied large water bodies in the World, with blooms of cyanobacteria and an increased volume of seasonally anoxic deep waters. Could there be a third alternative stable state resulting from increased eutrophication and heavy size selective fishing on the top predator Nile perch?

Social and ecological drivers of ecosystem change (SEDEC)

We study the feedbacks in food webs and resource use with increased eutrophication and fishing pressure to aid in fisheries and ecosystem management. Our multidisciplinary program researches the responses of the fishery to changes in the food web and habitats for Nile perch; and the responses of the Nile perch stocks to the impacts of size selective fishing and eutrophication. Four PhD projects analyse (1) social factors that drive decision-making processes of individuals in the fishery; (2) ecological factors, including size-selective fishing and changes in Nile perch habitat, that drive spatial effort allocation by fishermen; (3) the impact of eutrophication and Nile perch predation on food web structure; and (4) model the interactions and feedbacks resulting from eutrophication and fishery, as most likely factors driving changes in Lake Victoria's food web.

Partners

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Literature

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