

Fact Sheet



FACT SHEET no: KMF/GoK/RS/2020/C1.1.5 (iii) May 2020

Assessment of the Socio-economic Impact of cage fish farming in Lake Victoria, Kenya and to disseminate to stakeholders for informed decision making



Authors: Ombwa, V., Nyaundi, J., Owiti, H., Otuo, P., Mziri, V., Owili, M., Oketchi, JK., Aura, C., Nyamweya, C., (2020).

Kenya Marine and Fisheries Research Institute. P. O. Box 1881-40100. Kisumu. Kenya

Email: kmfrikisumucentre@yahoo.com

Tel: 254770567443

Preparation

This brief relies on the latest available scientific information to give both strategic and tactical advice to fisheries managers for timely interventions for sustainable management of cage fish farming in Lake Victoria. The brief recognizes that continued monitoring of cages and securing a sustainable exploitation of natural assets will assist in acquiring new ways of setting up the right number of cages that are geared towards adherence to best management practices - with a much sharper focus on quality, not just quantity.

Executive Summary

Numerous concerns have been raised about the socio-economic impact of cage culture, as fish farming practice is on the increase within the Kenyan waters yet it is currently being conducted without adherence to best management practices. To arrest and even reverse the current trends towards sustainable level, continuous monitoring of infrastructural placement of cage sizes, length from the shores and depth in the lake should be prioritized. This will help in addressing the problem of deterioration of water quality and administration of fish feeds. It is imperative to carry out continuous sensitization, training and monitoring to enhance business resilience, hence facilitate market projections and improve income for the stakeholders.

Introduction

Cage culture within the Lake Victoria, Kenya region is a relatively new technology which is rapidly gaining great interest among fishermen, BMU officials are turning into cage fish farming and investors along the Lake Victoria belt. This is mostly attributed to their response to increasing pressure from growing demand for fish. Despite the existence of aquaculture through pond and cage fish farming for supplementing white proteins, Kenya still cannot meet the demand resulting into importing fish from other countries. From economic point of view, as the fish supply decreases, the demand goes up and in doing so the prices go up too.

Given that cage culture is not affected by seasonality as wild capture fisheries are, fish supply from cages serve to smoothen seasonal fluctuations that are responsible for the very prevalent erratic pricing in the fish market. However, in spite of increase in the technology's adoption its sustainability remains uncertain owing to several socio-ecological challenges within the lake such as resource use conflicts (blockage of navigation roots, interference with wild life habitats etc), water hyacinth, increased inputs into the Lake ecosystem in terms of feeds and wastes among others.

The aim of this study was to assess the role of cage culture on food security, job creation and poverty alleviation within the Lake Victoria, Kenya region and to inform the

Government of Kenya and stakeholders on the development of strategy for its contribution to the socio-economic development of the riparian counties.

Approaches and Results

Study site

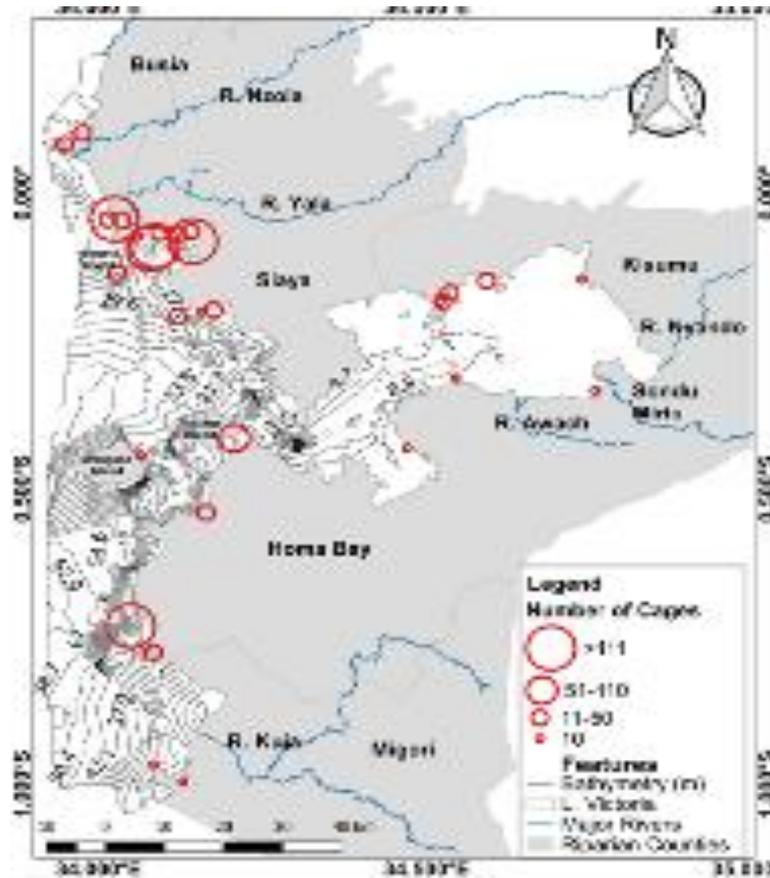


Figure 1: Map indicating study sites within Lake Victoria, Kenya

Results from surveys show that:

- The most used cage technology in Lake Victoria are the floating cage types and majority were constructed using metal.
- Most cage materials (metals and nets) were locally sourced
- The main agencies consulted during selection of suitable cage locations were BMUs, Fisheries Department and fellow cage farmers.
- Majority of cages were individually owned while the rest belonged to specific interest groups. However, the total number of cages owned by individuals were

relatively low compared to those owned by the interest groups. According to the respondents, ownership is only skewed towards the rich.



Plates 1&2: A researcher leading a Focus Group Discussion at Kaugege BMU office; 2-Courtesy call to the County Director of Fisheries Homabay. Photo taken by Winnie Owoko.



Plates 3&4: A researcher leading a Focus Group Discussion at Nyenye-Got Agulu BMU office; 4- A researcher conducting questionnaire interview at Anyanga Beach. Photo taken by Winnie Owoko.

- In Busia County, cages are managed by the Directorate of Fisheries while the BMU officials assist with networking in various cage sites within the County.
- The approximate number of cages recorded was 5,236. Siaya County led with 3,855, Homa-bay County 899, Kisumu County 342, Busia County 100, and Migori County 40 cages. Active cages were 718 while 181 were abandoned. Anyanga beach recorded the highest number of cages (>3000 cages), followed with Victory farm at 335 cages, and Ogal beach at 256 cages, which were all active.
- Majority of the cage managers were in the most productive age of Kenyan public workforce (25-45). While the highest number were primary level education holders (n=17, 47%) with no previous aquaculture training.
- Management position in cage culture was male dominated (n=34; 94%) with moderate knowledge and skills in cage aquaculture.
- Employee dynamics in cage culture establishments showed that casual workers were the majority.
- Monthly income of the cage managers varied with the majority earning between Kshs. 5000-10000 (n=14; 39%).
- The farmed fish was mainly tilapia with an average stocking density of 7042 fingerlings and a range of 350-43000 per cage, depending on the cage size. In contrary, harvesting time recorded lower range between 400-10000 fish per cage.
- The main sources of fingerlings were Jewlet (31%), Muga Fish farm (19%), Mabro (9%), Lake View farm (6%) and Pioneer farm (6%).

Cage Capital Investment

- The average cost associated with starting up and running a cage investment was Ksh. 1,140,283, while the main source of capital for cage establishment were, personal savings (72%), bank loan (14%) and grants (5%).

Table 1: Main expenses incurred in Cage Investment (n = 36)

Main Cage Expenses	Mean	Standard Error	Minimum	Maximum
Start Up Cost (Kshs)	589,575	125,408	2,500	3,000,000
Feed per cycle (Kshs)	316,729	114,551	2,500	2,736,000
Wages per Cycle (Ksh)	233,979	107,143	2,000	2,500,000
Total	1,140,283		7,000	8,236,000

Marketing

- The harvesting cycle for caged fish was 1 year per cage while the preferred fish market size at harvesting was 0.5kgs, although the sizes ranged between 0.3kgs - 2kgs depending on the prevailing market demand.

Table 2: Market analysis

	Mean	Std. Error	Minimum	Maximum
Number of cycles done	1	0.3	0.0	8
Preferred fish market size (kgs)	0.5	0.1	0.3	2
Weight fish at harvesting (kgs)	0.6	0.1	0.2	2
Amount of harvested fish annually (Kgs)	1,062,537.7	929,436.5	50.0	19,500,000

Table 3: Product destination of cage fish

Destination	Statistics
Eldoret	3%
Homabay	22%
Kisumu	28%
Migori	6%
Nairobi	11%
Siaya	22%
Other	8%

The main market constraint

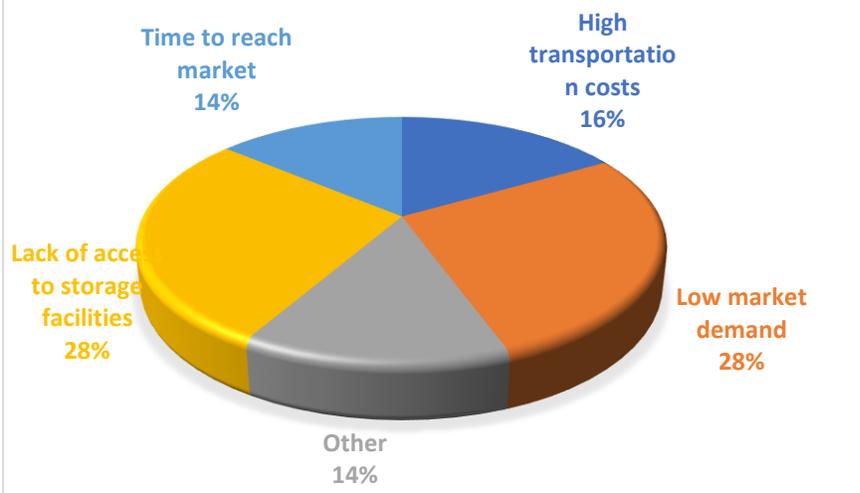


Figure 1: The main market constraint

Conclusion

The data collection exercise was done very professionally and the sample is expected to provide early indications of the contribution of cage culture to the socio-economic development of the riparian counties within Lake Victoria, Kenya in order to improve governance of cage culture for food security and poverty alleviation.

Implications and Recommendations

- Management of cage fish farming is dominantly skewed towards male thus requires diversification in terms of gender
- The startup cost is too high for a small-scale fish farmer, thus need for reduction in tax charged on materials for making cages and other inputs.
- Need for further sensitization to all stakeholders engaging in cage fish farming around the riparian Counties of Lake Victoria, Kenya, with a view of making them understand their roles for better community empowerment, poverty alleviation and job creation.