

LAKE KARIBA FISHERIES RESEARCH INSTITUTE



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LAKE KARIBA FISHERIES RESEARCH INSTITUTE

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KARIBA

ZIMBABWE

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1. INTRODUCTION:

This report covers the period from July 1997 to December 1998. The year under review had several major differences from previous years. From the financial side, this year was 18 months long. This was due to the fact that the Government had decided to change the financial year. In the old system, the financial year was from 1 July to 30 June. In the new system, the financial year is from 1 January to 31 December. Thus the financial year during the transition was from 1 July 1997 to 31 December 1998. In the period under review, the Institute lost three members of staff who passed away. These staff members had a combined service of sixty-seven years.

Obituary:

It is with regret that we report the deaths of the following long-serving staff members:

- **Senior Ecologist Lawrence Karenge:-**
Senior Ecologist Karenge had been in the Department for ten (10) years. He joined the Department on 1 July 1987. He worked at Kyle Fisheries Research Station before he transferred to Lake Kariba Fisheries Research Institute (*LKFRI*) in 1995. He passed away on 15 November 1997. His research contribution especially in the inshore fishery, will be solely missed.

- **Senior Scout Luke Magarangoma:-**
Senior Scout Magarangoma passed away on 17 May 1998. He had worked at the Institute for thirty (30) years. During this period he had become very conversant with all aspects of the Institute's activities. He was in charge of all junior staff duties.

- **Handyman Charles Saruchera (*Rutsodzo*):-**
Charles Saruchera was Foreman in the Institute Workshop. He was responsible for the maintenance of the Institute's immovable assets. He passed away on 12 July 1998 having worked at the Institute for 27 years.

The Institute extends its sincere condolences to the Karenge, Magarangoma and Saruchera families.

The staffing situation, especially at Officer level, continued to be a cause for concern. In 1998, there were posts that were vacant. It is our fervent hope that steps will be taken to redress this situation in 1999.

The Zambia / Zimbabwe SADC Fisheries Project (ZZSFP) continued to be an important component of the Institute's activities. The long-term objective of this project is to establish joint fisheries management on Lake Kariba and the Transboundary waters of the Zambezi River. This is a prerequisite for effective management of these shared resources.

2. INSTITUTE FINANCES:-

As described earlier, the financial year ran for 18 months as it was the transition period. The Institute received a total of one million two hundred and thirty-two thousand three hundred and twenty-two dollars and eighty seven cents (Z\$1 232 322.87). These funds were for operations only and hence excluded salaries. These funds were inadequate to cater for all operations, more so given that the year was six (6) months longer than normal.

Now that the Department is self-financing (*as a Fund*), there is need to provide adequate funds for operations if the Institute is to effectively carry out its mandate of managing the aquatic resources of Lake Kariba. The recent fuel increase of 67% and its inevitable knock-on effect on prices, means that the budget for 1999 will have to take this into account.

The shortfall in the Institute's operational budget allocation was cushioned by the provision of funds from the Project (ZZSFP). The first phase of the Project will come to an end in mid-1999. Consequently, funding from this source will no longer be available. Thus, the Parks and Wildlife Fund will have to take up all operational costs. Negotiations are currently underway for a three-year extension (*Consolidation Phase*) of the Project.

Revenue Collection on Lake Kariba Recreational Park requires a clear policy. This is in view of the fact that the Recreational Park (*Lake*) spans two Provinces (*Mashonaland West and Matebeleland North*). The area includes the following stations:

Lake Kariba Fisheries Research Institute

Charara Safari Area

Matusadonha National Park

Chete Safari Area, and

Binga.

The policy should come up with a framework for efficient and coordinated revenue collection.

Kapenta permit fees have to be reviewed soon. As indicated in the 1996 Annual Report (*Institute Report Number 90*), the annual permit fee is currently 0,5% of gross returns per fishing vessel. Given that the gross annual return for the Kapenta fishery on the Zimbabwean side was approximately Z\$200 000 000.00 (*two hundred million Zimbabwe dollars*), there is justification to increase the annual permit fees to Z\$10 000,00 (*ten thousand dollars*) in 1999 and to Z\$15 000,00 (*fifteen thousand dollars*) in 2000. This would bring the permit fees to about 1.5% of gross returns.

3. STAFFING AND STAFF TRAINING

The current low staffing levels are compromising the station's ability to carry out its core functions. In 1998, there were 11 vacant posts. These posts need to be filled urgently in order to bring all station activities to the desirable levels. A proposal to have a new staff establishment which would include a mechanic, laboratory technician and data capturers was approved. It is therefore imperative that these posts be filled during 1999.

Training: During the review period, Ranger Paul Mwera was on study leave. He was enrolled at Bunda College in Malawi where he was studying for a Bachelor of Science Degree in Aquaculture. He completed his studies in December 1998. His degree will be awarded during the first quarter of 1999. The inclusion of an aquaculturist in the

Institute's staff is a welcome addition as this increases the diversity of specialization. The Institute already has a fisheries biologist, hydrobiologist and gear technologist. As the importance of aquaculture increases, Mr Mwera's training will boost the station's capacity to respond to the needs of this particular sector of the fishing industry.

Ecologist Newman Songore attended a one-week course on Rapid Rural Appraisal (*RRA*) in Harare. This course should prove useful as he continues to work with the artisanal (*small scale*) fishers in the inshore fishery of Lake Kariba.

He also attended a four day training course (23 - 26 November 1998) in Maputo, Mozambique. The course, on fisheries co-management was organized by IFM (*Institute for Fisheries Management*) which is based in Denmark.

Senior Ecologist Wilson Mhlanga attended a two week course (30 November - 11 December 1998) on strengthening of Fisheries and Biodiversity Management in African, Caribbean and Pacific (*ACP*) countries. The course was held in Swakopmund, Namibia.

Junior Staff:

Senior Scouts Garapo, Jokonya and Ngorezha attended a course on Occupational Safety, Health and Environmental Management Standards in Chinhoyi on 30 September 1997.

Takesure Ruzvidzo attended a one-month training course (March 1998) for Satellite Workshop staff at Masvingo Technical College. The course focused on the repair and maintenance of Land Rovers (mainly the Defender, Tdi).

S. Moyo attended a one week (2 - 6 February 1998) Phase 'A' Course at Highlands National Training Centre. She passed the test with a typing speed of 51 words per minute.

She also attended a two-week (11 - 22 May 1998) Phase B and C (*Private Secretaries*) course which she passed.

4. INFRASTRUCTURE:-

Only one infrastructural development project was carried out during the review period as no funds were made available under the Public Sector Investment Programme (*P.S.I.P*). A boat-shed was constructed using funds from the Project. Following the abolition of tied houses, the Institute is facing an acute shortage of junior staff accommodation in Kariba. Proposals have been made for the construction of junior staff houses in the 1999 financial year.

In Binga, the official hand-over of assets (*including houses*) from the Management Division is still pending. Discussions have been held between the Provincial Heads of Mashonaland West and Matebeleland North and the Officer-in-Charge, (*LKFRI*) over the issue. The administrative framework for the staff at Binga will need to be worked out. Following the creation of the Parks and Wildlife Conservation Fund, there is need to generate additional finances to fund recurrent expenditure.

One way of raising funds is through the construction of lodges. LKFRI proposes to build an up-market holiday cottage for revenue generation purposes. Proposals have already been submitted. A proposal for the construction of an office complex has also been made. The new complex would house the three divisions, namely Aquatic, Management and Investigations which are represented here in Kariba.

5. VEHICLES AND VESSELS

5.1 Vehicles:-

The station had five vehicles in running order. These were the Toyota lorry (520-076Z), Toyota Land Cruiser II (GNP 334), Toyota Land Cruiser (610-622T), Land Rover Tdi (GNP 376) and Land Rover Tdi (GNP 452). The Toyota Hilux (518-014H) was off the road due to a mechanical fault, while the Toyota Land Cruiser (520-089N) was under repairs following an accident.

The following vehicles were sold by tender following recommendations by a Board of Survey; Daihatsu, 2-ton truck (423-752Z), Land Rover III series pick-up (95 304Q), Land Rover 110 Station Wagon (406-274B) and a Peugeot Station Wagon (487-044V). A total of one hundred and thirty-one thousand five hundred dollars (\$ 131 500:00) was realized from the sales. This money was deposited in the Research Fund.

5.2 Vessels

Two vessels were in running order during the whole period of the review. These are R/V “Pelican” and R/V “Aquarius.” The fast launches (Mbale and Mcheni) were on and off the water as they suffered breakdowns mainly as a result of propeller damage (due to submerged trees). The reduction in the funds from the project meant that there was less money available for repairs. The fast launches require a lot of funds for their maintenance. Currently, they are both off the water. The jet-boat “Mvenga” requires some minor repairs before it can be back in service. The relatively old boat (Nchila) is now operational following refurbishment. This vessel will be based in Binga once a coxswain for Binga is appointed.

In order to have a fully operational fleet, there is need to dispose of one of the fast launches and purchase at least two speed boats with outboard engines (commercial-type) as these have lower running costs. The maintenance of these outboard engines will be sustainable.

6. FISHERIES MANAGEMENT

6.1 *Kapenta Management*

Monitoring of Kapenta catches continued during the review period. However, the theft of fish on-board the vessels continued to be a problem. These thefts result in under-reporting of catches since the stolen kapenta does not reach the companies. Efforts to curb this problem can only be successful if both the operators and the law-enforcement agents co-operate fully.

The implementation of the Kapenta management plan had limited progress due to the lack of a single Producers’ Association. However, several meetings were held with the operators to discuss issues relating to the industry. These issues included the formation of a single association, the impact of Kapenta from Cabora Bassa on the viability of the Kapenta industry on Lake Kariba and the low catches experienced in November and December 1998. It is envisaged that more meetings will be held during 1999 so that more progress is made in the implementation of the Kapenta Management Plan. A management plan for the Zimbabwe side is a prerequisite for discussions on a joint management plan with Zambia.

6.2 Inshore Fisheries Management

Monitoring of catches from the inshore (artisanal) fishery continued during the review period. Enumerators went out monthly to selected fishing villages to collect catch statistics. Two of the enumerators are now based at the Binga sub-station and they collect data from the Western side of the lake (Binga/Mlibizi and Mujere areas). Three other enumerators cover the area from Sibilobilo to the Sanyati (Eastern) Basin. In order to increase the area sampled, it is necessary that more villages be covered. This can only be done if the station has its full staff compliment.

Progress was made in the program to implement a co-management system in the inshore fishery. In 1997, a socio-economist contracted by the Zambia/Zimbabwe SADC Fisheries Project coordinated these activities. The institutions involved in the programme included LKFRI, Agritex, Zimbabwe Trust (Zimtrust), Ministry of Health, NyamiNyami and Binga District Councils, Training, Extension and Interpretation Branch (TEI), Ministry of National Affairs, Employment Creation and Cooperatives (MNAECC) and the Centre for Applied Social Sciences (CASS) at the University of Zimbabwe.

The strengthening of Sub-Area Fishers Associations (SAFAs) continued through training programs identified by the fishers themselves. More progress was achieved in the Nyami Nyami District than the Binga District. Efforts are now under way to expedite progress in the Binga District.

The proposals for changes in the fishing zones (Exclusive Fishing Zones) have not yet been implemented since the Lake Kariba Combination Masterplan has not yet been gazetted. It is anticipated that the Masterplan will be gazetted during 1999.

6.3 Law Enforcement

Staff from the Institute continued to conduct anti-poaching patrols in both the kapenta and inshore fisheries. In the kapenta fishery, a number of companies were fined for fishing in prohibited areas. This violation of the regulations has negative impacts in that the operators will be catching fish in the breeding areas and hence reducing the number of juveniles that can enter

the fishable stock. Stiffer penalties will need to be imposed so that a few unscrupulous companies do not disadvantage those law-abiding operators.

In the inshore fishery, fishing by unlicensed fishers was a problem, especially in the area near Kariba town. Several individuals were apprehended and they paid the requisite fines. However, the fines are evidently not deterrent enough since most of those who are fined, go back and continue to poach.

The possibility of setting up a Lake Kariba anti-poaching unit should be looked into so as to increase the effectiveness of the anti-poaching programme.

7. KARIBA LAKESHORE COMBINATION MASTERPLAN

The Masterplan which is being co-ordinated by the Department of Physical Planning was put on public display in August 1998. The plan was on public display for two months. The plan aims to provide guidelines for activities in the area along the Kariba shoreline (on the Zimbabwean side) from Kariba Town to Deka River Mouth.

Once the Combination Authority has met and discussed the representations from the public, the necessary amendments will be made before the final draft is submitted for gazetting under the Regional, Town and Country Planning Act.

8. JOINT PROTOCOL

One of the major objectives of the Zambia/Zimbabwe SADC Fisheries Project is the setting up of a Joint Protocol (Protocol on Economic and Technical Cooperation between the Government of the Republic of Zimbabwe and the Government of the Republic of Zambia concerning Management and Development of Fisheries on Lake Kariba and the Transboundary Waters of the Zambezi River).

The protocol will pave the way for the setting up of a Joint Fisheries Technical Committee (JFTC). The JFTC will be responsible for the management of the shared fisheries resources on Lake Kariba and the Zambezi River.

The protocol has now been approved by the Government of Zambia, while in Zimbabwe the protocol now awaits approval by Cabinet following the submission of a Cabinet Memo by the Ministry of Mines, Environment and Tourism.

It is anticipated that once the Zimbabwean Cabinet has approved the protocol, the signing ceremony will take place during the first half of 1999.

9. RESEARCH WORK

9.1 W. MHLANGA

PROJECT I

PRELIMINARY ASSESSMENT OF THE WATER QUALITY OF THE UPPER REACHES OF THE SANYATI RIVER

Objectives

The main aims of the project were to;

- (1) study the phosphorus and sediment loading,
- (2) determine the concentrations of metals in both water and sediment
- (3) determine whether the water quality of the Sanyati River is within the legal limits as stipulated in the Water Act of 1976.

Work accomplished

Field Work was completed in 1998 and a draft report was compiled. The final report is to be written up during 1999.

PROJECT II

A STUDY OF THE FISH POPULATION OF THE SANYATI RIVER

Objectives

The aim of this study is to provide baseline data on the fish population of the Sanyati River.

Previous studies have focused on the lake itself and not on the rivers, although the latter are an important component of the lake's ecosystem as they act both as a breeding ground for some fish species, as well as a nutrient source for the open waters of the lake.

Work Accomplished

Monthly gill-net surveys were conducted during 1998. The data were entered into a spreadsheet. Data were also collected from the Fothergill area of the lake for purposes of comparison between a lake station (Fothergill) and a river station (Sanyati).

Work to be Done

Monthly gill-netting will continue at the two sites during 1999. A draft report will be prepared by July 1999. The possibility of using other sampling techniques will be explored during the year.

PROJECT III

AN ASSESSMENT OF THE OCCURRENCE OF 2,4D IN WATER AND FISH FOLLOWING SPRAYING FOR THE CONTROL OF WATER HYACINTH

Objectives

This study was carried out during the spraying of 2,4D in the Eastern Basin of Lake Kariba. The objective was to monitor the impact of 2,4D on the fish during and after spraying.

Work Accomplished

Monitoring was carried out during the September 1998 spraying exercise. Samples of water, sediment and selected fish species were collected and analyzed for 2,4D concentrations. No fish kills were observed during the monitoring exercise.

Work to be Done

The final report of the study is to be written up during 1999.

PROJECT IV**THE FOOD AND FEEDING HABITS OF TIGERFISH (*Hydrocynus vittatus*)****Objective**

The objective of this study was to assess the diet of Tigerfish and determine whether there have been any changes in its feeding habits, especially with respect to Kapenta predation.

Work Accomplished

The final report was written up during 1998. This report will be included in the proposed book of the Zambia/Zimbabwe SADC Fisheries Project.

9.2 N. SONGORE**PROJECT I****CAPACITY-BUILDING FOR THE FISHERIES CO-MANAGEMENT PROGRAMME****Objective**

The objective of this project is to strengthen the capacity among the fishers so as to ensure the successful implementation of the inshore fisheries co-management programme.

Work Accomplished

Several training programmes were carried out in conjunction with other relevant government departments. The courses carried out were;

- (1) Training of fishers in fisheries data collection and resource monitoring,
- (2) Leadership skills and basic bookkeeping and,
- (3) Basic Sea Survival and First Aid

PROJECT II

DATABASE MANAGEMENT

Objective

The objective of the programme is to compile annual statistics on the fish landings from both the pelagic (kapenta) and inshore (gill-net) fisheries.

Work Accomplished

The old database software (Open Access III) was replaced by the more user-friendly Microsoft Access database software. All the data were corrected for errors (cleaning). The data were then used in the compilation of the annual statistics reports (The Zimbabwe report and the joint Zambia/Zimbabwe report).

PROJECT III

A FRAME SURVEY OF THE ARTISANAL FISHERY ON THE ZIMBABWE SIDE OF LAKE KARIBA

Objective

The objective of this study was to obtain socio-economic data on the artisanal fishers. These data include the number of fishers and the number of fishing gear (boats and nets).

Work Accomplished

The survey covering all the fishing villages was conducted. A report was produced (see publications).

10. PUBLICATIONS AND PRESENTATIONS

Mhlanga, W.; Mwase, M.; Jiah, R. 1997. Post-treatment recovery of fish. In Grant, I.; Jiah, R.; Lauer, S.; Mhlanga, W. Moiana, M.; Muacanhia, T. ; Mwase, M.; Nagel, P.; Ngwata, C.; Trigg, J. Post-treatment recovery of non-target organisms affected by Endosulphan and Deltamethrin aerosols used to control Tsetse fly in Zimbabwe. Scientific Environmental Monitoring Group (SEMG) Report. p 33-39.

Mhlanga, W. 1998. Observations on Gillnet Catches of Kariba Tilapia, *Oreochromis mortimeri*, from the Bumi Basin of Lake Kariba, Zimbabwe. *Naga* 21(1): 57-60.

Mhlanga, W. 1998. The Food and Feeding habits of Tigerfish, *Hydrocymus vittatus* in Lake Kariba, Zimbabwe. Lake Kariba Fisheries Research Institute. Project Report No. 93. 6p.

Mhlanga, W. 1998. An overview of fisheries and aquatic biodiversity in Zimbabwe. Poster presented at the ACP-EU Fisheries and Biodiversity Management Training Course. Swakopmund, Namibia, 30 November - 11 December 1998. 4p.

Songore, N.; Mugwagwa, M.; Moyo, A. 1998. 1997 Fisheries Statistics. Lake Kariba - Zimbabwe Shore. Lake Kariba Fisheries Research Institute. Project Report No. 91. 31p.

Songore, N.; Mugwagwa, M.; Chitembure, R.M. 1998. 1997 Joint Fisheries Statistical Report. Lake Kariba. Zambia/Zimbabwe SADC Fisheries Project. Project Report No. 56. 31p.

Songore, N.; Mugwagwa, M.; Moyo, A. 1998. Results of the 1998 Frame Survey. Lake Kariba. Zimbabwe Shore. Lake Kariba Fisheries Research Institute. Project Report No. 92. 40p.

