

**Report of the**

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**PLANNING WORKSHOP FOR THE JOINT FRAME SURVEY  
FOR LAKE KARIBA**

**Siavonga, Zambia, 11–12 October 2007**



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## **PREPARATION OF THIS DOCUMENT**

This is the final version of the report of the Planning Workshop for the Joint Frame Survey for Lake Kariba held in Siavonga, Zambia, from 11 to 12 October 2007.

This document was prepared by the Subregional Office for Southern and East Africa.

FAO.

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### **ABSTRACT**

This document is the final report of the Planning Workshop for the Joint Frame Survey for Lake Kariba attended by participants from Zambia, Zimbabwe, the Natural History Museum of Zimbabwe and the University of Zimbabwe.

The workshop received presentations of the frame survey methods used in Zimbabwe and Zambia which included data analysis, fish taxonomy, socio-economics and fish diseases. A number of areas of concern regarding harmonization of methodology between the two countries were identified and the workshop made recommendations on improving the frame surveys in Lake Kariba.

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## **OPENING REMARKS**

1. Mr Charles Maguswi, the Director of Fisheries, Ministry of Agriculture and Cooperatives (MACO), Zambia, welcomed the participants to the Planning Workshop for the Joint Frame Survey for Lake Kariba.

2. He recalled the recommendations of the third Technical Consultation on the Development and Management of Lake Kariba held in Siavonga, from 26 to 27 October 2006. He emphasized the importance of the Joint Frame Survey for Lake Kariba. When concluding, the Director of Fisheries requested participants to introduce themselves.

## **ADMINISTRATIVE ARRANGEMENTS AND ADOPTION OF AGENDA AND TIMETABLE**

3. The Agenda was adopted and is presented as Appendix A.

4. The following rapporteurs were nominated to assist the Secretariat to come up with a report of the Workshop:

- Byron Zamasiya; University of Zimbabwe, Harare, Zimbabwe
- Bumango Musando; Director of Fisheries, Chilanga, Lusaka, Zambia
- Nqobizitha Siziba; LKRI, Kariba, Zimbabwe

## **PRESENTATION OF THE METHOD USED FOR THE LAST FRAME SURVEY BY ZIMBABWE**

### **Background information**

5. The Zimbabwean delegation gave an overview on the evaluation of the last frame survey conducted in 2000 highlighting the following;

- commercial gillnetting (inshore fishery) started in 1962 on the Zimbabwean side;
- catches have stabilized at around 1 200 tonnes per year;
- the number of people directly benefiting from this fishery is around 1 200; and
- the main purpose of the frame survey was to assess the size and structure of the fishery for the purposes of planning and management.

### **Limitations/challenges**

6. The workshop was informed about existing limitations, viz:

- shortage of human and financial resources needed to conduct frame surveys annually;
- the high turn over of trained staff, thus requiring periodical training;
- lack of synchronization of frame surveys (Zambia/Zimbabwe);
- absence of harmonized methodologies;
- need to gain an insight into the performance of the inshore fishery towards poverty eradication (Millennium Development Goal);
- problems in monitoring market capacity indicators such as:
  - Level of fish processing;
  - Levels of different forms of trading within this fishery

- Benefits from the traders
- Any marketing structures
- Fish consumption levels per household
- omission of alternative livelihoods in the previous surveys in terms of:
  - alternative sources of income;
  - the principal occupation;
  - time spent fishing;
- attitude regarding fishing (motivation):
  - whether fishing is a permanent or a part time activity/business;
  - whether the children inherit the fishing business; and
  - whether there is investment from proceeds.

### **Recommendations from the Zimbabwe sector**

7. The workshop recommended that:

- a frame survey and catch assessment be synchronized and conducted concurrently to reduce variance between the two countries;
- socio-economic data be collected on the artisanal inshore fishery;
- joint catch assessment survey be undertaken to improve knowledge on the exploited stocks.

## **PRESENTATION ON THE METHOD USED FOR THE LAST FRAME SURVEY BY ZAMBIA**

### **Background**

8. Forms for statistical surveys were those developed by FAO between 1975 and 1978. The forms captured data on the demography of fishers and their fishing equipment. Between 2002 and 2004, an attempt was made to standardize data collection methods for the four countries, Zambia, Zimbabwe, Botswana and Namibia through the support of Africa Wildlife Foundation (AWF). The site for testing the standardized sampling methods was Senanga, in the Batrose floodplain of the Upper Zambezi fishery in Zambia. Forms were modified for the following:

- frame survey;
- catch assessment survey;
- experimental gillnet;
- aquatic plant data collection (botany).

9. Zambia has gone ahead and used the standardized forms to collect frame survey data for various fisheries: Mweru-wa-Ntipa (2004); Tanganyika (2005); Lusiwasi (2006); Lukanga (2006); Kafue flats (2006); Kariba (2006); Itezhi-Tezhi (2006); Lower Zambezi (2006) and Bangweulu (2007)

### **Data entry and analysis**

10. Team members involved in interviewing fishers and data entry could be brought together to review the data collected in order to determine anomalies.

11. The format used on the frame survey conducted on Lake Kariba 2006 was presented for comments and discussions. The modified form (in three parts) and format to be used in future frame surveys was given in Appendix D.

### **Presentation on incorporating fish taxonomy into the frame survey**

12. A detailed historical background of the importance of taxonomy in fisheries was highlighted. Its incorporation into future frame surveys was given justification due to:

- introduction of the Nile tilapia which may have interbred with the indigenous tilapia (*Oreochromis*) possibly forming hybrids;
- the need to enhance the knowledge on species distribution in the lake;
- inflowing rivers from a wide watershed, other species might have found their way into Lake Kariba; and
- the frame survey could facilitate identification of any new species as well as identify those threatened.

### **Presentation on incorporating socio-economics into the frame survey**

13. A historical background to the formation of Lake Kariba, the development of the fishery and the introduction of Kapenta (*Limnothrissa miodon*) was given.

14. The meeting was informed that the lake is a source of nutritional food for communities living around the lake. Fishing activities have created employment for the communities around the lake on both the Zimbabwean and Zambian shores. Previous frame surveys have indicated that local fishing camps are absorbing a sizeable number of the economically active populace particularly in Kariba and Siavonga.

15. The presenter proposed the following economic aspects to be included in the frame survey:-

- sex ratios;
- age structure;
- food security,
- income generation;
- fish distribution;
- marketing channels;
- processing and storage facilities;
- value addition (salting, sun drying, smoking and filleting);
- social amenity indicators such as roads, schools, clinics, sanitary facilities and sources of clean drinking water.

16. The meeting noted that some of the above socio-economic aspects had been included in the Zambian frame survey to some extent. It was recommended that socio-economic information to be included in future frame surveys.

### **Incorporating monitoring of epizootic ulcerative syndrome (EUS) into the survey**

17. There is a perceived EUS disease in the Chobe River a tributary of the upper Zambezi River, hence it was considered necessary that enumerators carrying out a frame survey should be on the lookout for diseased fish. In view of this, the Governments of

Namibia, Zambia and Botswana have requested technical assistance to ascertain the type of the disease and its cause.

### **Harmonized methodology for fisheries frame surveys**

18. The planning workshop identified the following areas of concern:

#### ***Data sets:***

- need to be treated confidentially
- use of identity codes in place of real names

#### ***Socio-economic development indicators***

The following indicators should be recorded:

- roads
- clinics
- schools
- sanitary facilities and
- source of clean drinking water

#### ***Household characteristics***

The following should be highlighted:

- number of people involved in fishing;
- relationship to owner of the fishing gear (if any);
- number of children in school, and their level of education;
- literacy level of head of household.

#### ***Source of income***

The following parameters should be identified, such as fishing activities, auxiliary industries, external remittances, etc.

#### ***Fishing ground by species***

The location of fishing ground for different species should be specified, viz:

- kapenta (*Limnothrissa miodon*)
- various (*Oreochromis* spp.)
- tiger fish (*Hydrocynus* sp.)
- other species

#### ***Value addition*** (fish processing)

The available types of fish processing methods should be reported, for example, smoking, salting, filleting, sun drying and others.

## RECOMMENDATIONS

19. The planning workshop recommended that:

- surveys must run concurrently in both countries;
- data analysis should utilize an appropriate software (i.e. Microsoft Access database and SPSS statistical software);
- sensitization of fishers to report rare fish to local fishery authorities;
- each country should write a report;
- a synthesized joint report to be produced.

### **Harmonized use of human and financial resources for implementation**

20. The Planning Workshop identified the human and financial resources needed as outlined below and detailed in Appendix C:

#### ***Human resources***

Ecologists/ Research officers, Enumerators/ Technicians, GIS expert, a team of four for each stratum.

#### ***Other resources***

Capital for hiring speed boats, camping equipment, fuel, Stationery, Computer accessories, Geographical Positioning System(GPS), Digital cameras.

### **ANY OTHER BUSINESS**

21. The Planning Workshop noted that frame surveys are a three-year periodical ongoing activity which should be catered for in national recurrent budgets. Catch assessment surveys (off take) should be budgeted as a quarterly activity by national recurrent budgets.

### **ADOPTION OF REPORT OF THE PLANNING WORKSHOP OF THE JOINT FRAME SURVEY FOR LAKE KARIBA**

22. This report, and its appendixes, were adopted by the Planning Workshop on a Joint Frame Survey for Lake Kariba at the Safari Lodge on 12 October in Siavonga, Zambia.



**APPENDIX A****Agenda**

1. Opening ceremony
2. Presentation of the method used for the last frame survey by Zimbabwe
3. Presentation of the method used for the last frame survey by Zambia
4. Fish taxonomy and socio-economics
5. Monitoring of epizootic ulcerative syndrome
6. Working group on harmonized methodology and Working Group on harmonized use resources for implementation
7. Discussion on agreed elements of the frame survey of Lake Kariba
8. Finalization of the report and recommendations of the Planning Workshop
9. Adoption of the report and closure of the Workshop

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## APPENDIX C

## Proposed Lake Kariba joint frame survey budget – Zambia and Zimbabwe

Activity	Inputs	Costs (US\$) and responsible	
		National Governments	Request
1. Survey design workshop	5 officers x 5 days x US\$ 76.4	1 910	
	Transport of participants to venue	250	
	venue and conference costs		875
2. Training of enumerators	23 participants x 2 days x US\$76.4	3 514	
	Venue		150
	Transport of participants to venue		1 150
	10 GPS sets		2 220
3. Administering survey	20 men x 20days x US\$ 76.4	30 560	
	Hire of 5 boats (Zimbabwe)		5 000
	Camping equipment	12 500	
4. Database development	Consultancy fees		1 000
5. Data entry	Sundries/data storage and back-up		200
6. Data analysis	14 participants (4 ecologist, 1 GIS expert, 9 enumerators)	5 348	
	Transport to venue		650
	Venue		875
7. Report writing	Publishing and consultancy fees		10 000
8. Stakeholder workshop	Venue (25 participants x 1 day)		2 500
9. Stationery	Stationery		1 150
<b>Total costs</b>		<b>54 082</b>	<b>25 770</b>

**APPENDIX D**

**Design of a new frame survey form**

**CONFIDENTIAL**

**1. FISHERY FRAME SURVEY DATA SHEET**

Name of Recorder \_\_\_\_\_ Village/Camp name: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
 (dd/mm/yy) Stratum \_\_\_\_\_

1. Village Code: \_\_\_\_\_   2. Camp code \_\_\_\_\_

3. Population of Village/Camp     4. Age of Village/Camp \_\_\_\_\_

5. GPS Readings: S: \_\_\_\_\_  
 E: \_\_\_\_\_

6. Name of Headman: \_\_\_\_\_ 7. (a) Name of Chief: \_\_\_\_\_ 7b Basin \_\_\_\_\_

**8. Number of fishing boats by type:**  
 Number

- 1. Dugout canoes.....
- 2. Plank boats.....
- 3. Fibreglass.....
- 4. Others (specify) \_\_\_\_\_

**9. Number of fishers by type:**

- 1. Both boat and net owners.....
- 2. Net owners only.....
- 3. Boat owners only.....
- 4. Others (specify) \_\_\_\_\_

**Camp/Village status:** Temporal  Permanent

How many months in a year is the camp occupied? \_\_\_\_\_

Is there any agricultural activity? Yes  No

If YES, when is this practiced? Mainland  Floodplain

**Type of agriculture:** Crop  Livestock  Both

Maize  Cassava  Millet

Sorghum  Beans  Pumpkin

Vegetable \_\_\_\_\_ Rice

Others (specify as) \_\_\_\_\_  
**Livestock kept:** Cattle  Goats  Pig  Sheep  Poultry

Others (specify): \_\_\_\_\_

Notes: (such condition of village, behaviour of people interviewed): \_\_\_\_\_

**SOCIAL AMENITIES (ECONOMIC DEVELOPMENT INDICATORS)**

Are there any roads? Yes  No

Can vehicles access your camp? Yes  No

Are there any clinics? Yes  No

How far is the nearest clinic? \_\_\_\_\_

Are there any schools Yes  No

How far is the nearest school? \_\_\_\_\_

Are there any toilets? Blair  Bush

Source of drinking water shallow well  tapped water  other (specify) .....

**HOUSEHOLD CHARACTERISTICS**

Household size

Number of people actively involved in fishing

Relationship to owner if any.....

Number of children in school

Level of education of children in school primary  secondary  tertiary

Any illness in family? Yes  No  If yes specify disease

Source of income: Remittances  fishing  other (specify).....

**FISH DISTRIBUTION**

List 5 species that are common in the area in order of abundance

- 1.
- 2.
- 3.
- 4.





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