

RESEARCH FOR THE MANAGEMENT  
OF FISHERIES ON  
LAKE TANGANYIKA

GCP/RAF/271/FIN-TD/88 (En)

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GCP/RAF/271/FIN-TD/88 (En)

November 1998

REPORTS OF TRAVEL 91 - 105 OF THE PROJECT

GCP/RAF/271/FIN.

by

G. HANEK

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FINNISH INTERNATIONAL DEVELOPPEMENT AGENCY

FOOD AND AGRICULTURE ORGANISATION  
OF THE UNITED NATIONS

Bujumbura, November 1998

The conclusions and recommendations given in this and other reports in the Research for the Management of the Fisheries on the Lake Tanganyika Project series are those considered appropriate at the time of preparation. They may be modified in the light of further knowledge gained at subsequent stages of the Project. The designations employed and the presentation of material in this publication do not imply the expression of any opinion on the part of FAO or FINNIDA concerning the legal status of any country, territory, city or area, or concerning the determination of its frontiers or boundaries.

## PREFACE

The Research for the Management of the Fisheries on Lake Tanganyika project (LTR) became fully operational in January 1992. It is executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by the Finnish International Development Agency (FINNIDA) and the Arab Gulf Program for the United Nations Development Organization (AGFUND).

LTR's objective is the determination of the biological basis for fish production on Lake Tanganyika, in order to permit the formulation of a coherent lake-wide fisheries management policy for the four riparian States (Burundi, Tanzania, Democratic Republic of Congo and Zambia).

Particular attention is given to the reinforcement of the skills and physical facilities of the fisheries research units in all four beneficiary countries as well as to the build-up of effective coordination mechanisms to ensure full collaboration between the Governments concerned.

**Prof. O.V. LINDQVIST**  
LTR Scientific Coordinator

**Dr. George HANEK**  
LTR Coordinator

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GCP/RAF/271/FIN PUBLICATIONS

Publications of the project are issued in two series:

\* a series of **technical documents (GCP/RAF/271/FIN-TD)** related to meetings, missions and research organized by the project;

\* a series of **manuals and field guides (GCP/RAF/271/FIN-FM)** related to training and field work activities conducted in the framework of the project.

For both series, reference is further made to the document number **(01)**, and the language in which the document is issued: English **(En)** and/or French **(Fr)**.

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RESEARCH FOR THE MANAGEMENT OF THE  
FISHERIES ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/91

Report of Travel

to

Dar es Salaam, Kigoma (Tanzania)

and

cruise no. 14

(02-21.04.1997)

by

P. Kotilainen, T. Huttula, M. Savinainen, I. Kimosa,  
R. Makere

*GCP/RAF/271/FIN.10*

cc. Mann, TCO4  
Everett, FIPP  
Kapetsky, FIRI  
Turner/Smith, FIIT  
Lindqvist/Mölsä, Kuopio  
Peltonen, Tampere  
LTR, Kigoma  
LTR, Mpulungu  
Chrono, LTR, Bujumbura  
Trams, LTR, Bujumbura  
Diary: Kotilainen

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GCP/RAF/271/FIN

April, 1997

## 1. INTRODUCTION

### 1.1 Objectives

The 14th cruise of *R/V TANGANYIKA EXPLORER* took place from 07 to 17.04.97. The objectives of the cruise were: 1) to collect data on water current flows around the lake in space and time with ADCP (Acoustic Doppler Current Profiler); 2) to collect data on water current flows off some river estuaries and in particular off Malagarasi River with ADCP and Workhorses (fixed current profilers); 3) to collect CTD (Conductivity, temperature and dissolved oxygen) -profiler data to determine vertical stratification of temperature, conductivity and oxygen along and across the lake during the rainy season; 4) to collect simultaneously data with current measurements on meteorological parameters with vessel's meteorological station; 5) to collect surface sediment samples for sediment transport modelling at certain river mouths; 6) to do the maintenance and data unloading of automatic recorders at LTR stations; 7) to give training on scientific instrumentation, data collection and analysis on board *R/V TANGANYIKA EXPLORER* and on Echobase software for cruise participants and at two LTR stations.

### 1.2 Itinerary

Messrs. Kotilainen and Savinainen, Electric engineer for hydrodynamics, arrived at Kigoma 04.04.97 to establish and test the instrument (ADCP) and its installation on board *R/V TANGANYIKA EXPLORER*. After the first part of the cruise (Kigoma-Malagarasi-Kigoma) Mr. Savinainen disembarked at Kigoma 10.04. Dr. Huttula arrived at Kigoma 07.04.97.

	<u>Arrival</u>	<u>Departure</u>
Nairobi		02.04.97
Dar es Salaam	02.04.97	04.04.97
Kigoma	04.04.97	07.04.97
Malagarasi	07.04.97	10.04.97
Kigoma	10.04.97	10.04.97
Mpulungu	14.04.97	14.04.97
Kigoma	17.04.97	18.04.97
Dar es Salaam	18.04.97	19.04.97
Nairobi	19.04.97	21.04.97
Bujumbura	21.04.97	

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### 1.3 Persons met

#### in Dar es Salaam

Mr. J. Yonazi, FAO Programme Officer in Tanzania  
Mr. Kabigumila, J. PO/FAOR in Tanzania  
Other FAOR/TANZANIA personnel  
Dr. A. Menz, Project Coordinator UNTS/RAF/007/GEF  
Dr. M. Mihta, Director General, Directorate of Meteorology, Dar es Salaam (with Dr. Huttula)  
Mr. R. Barmeda, Managing Director, Rapat Freight Ltd, Dar es Salaam

## in Kigoma

Ms. E. Bosma, APO, LTR/Kigoma  
Mr. P. Verburg, APO, LTR/Kigoma  
Mr. Chitamwebwa, Director, TAFIRI/Kigoma  
Mr. S. Prasad, General Manager, Hilltop Hotel, Kigoma  
other LTR/Kigoma and TAFIRI/Kigoma personnel

## in Mpulungu

Mr. V. Langenberg, APO, LTR/Mpulungu  
Ms. P. Paffen, APO, LTR/Mpulungu  
Mr. Mwape, O-i-C, DOF/Mpulungu  
other LTR/Mpulungu and DOF/Mpulungu personnel

## **2. RESULTS**

### 2.1 Dar es Salaam and Kigoma

A lost shipment of LTR was recuperated and customs clearance done 02-03.04.97 in Dar-es-Salaam with a kind help of Mr. Kabigumila and other FAOR/TANZANIA personnel. Dr. Menz, the coordinator of GEF project, was met and general matters of the cruise were discussed.

The preparations for the cruise were done 04-07.04.97 consisting of loading, installation, verification and testing of scientific equipment, and provisions of food together with LTR/Kigoma personnel and the crew of *R/V TANGANYIKA EXPLORER*.

The DGPS was installed at Hilltop Hotel next to LTR/Kigoma wind station with kind assistance of Mr. Prasad, the general manager of Hilltop Hotel.

### 2.2 Kigoma-Malagarasi

The cruise started as planned 07.04.97 and first ADCP measurements were carried out off Malagarasi estuary, 40 hours continuously. Two Workhorse stations, each logging data 40 hours non-stop, were deployed. A total of 11 CTD profiles were measured during the first part of the cruise (Appendix 1). Four bottom surface sediment samples were taken for grain size analysis in Finland. Scientific equipment was re-introduced and practical training given on the instruments for cruise participants. Vessel returned to Kigoma 10.04.97.

### 2.3 Kigoma-Mpulungu

Second part of the cruise started late on 10.04.97. After the departure for Mpulungu transects, a total length of 200 rim were measured with ADCP and 2 Workhorse stations at Kalambo River mouth. In that area also three bottom surface sediment samples were taken. A total of 36 water profiles were measured on the lake (Appendix 1)



## 2.4 Mpulungu

Due to the very tight schedule the cruise stayed in Mpulungu only 5 hours. Some provisions were done by the vessel's crew and LTR/Mpulungu personnel and a short training session was held with Mr. Langenberg on Echobase software.

## 2.5 Mpulungu-Kigoma

After departing Mpulungu intensive water current measurements were carried out in the southern part of the lake some transects measured on the way to Kigoma. Total length of measured transect was 65 nm. In deep areas (>700 meters) only CTD profiles were measured. A total of 24 CTD stations were done. Sediment samples were collected at Lufubu river mouth.

R/V TANGANYIKA EXPLORER arrived at Kigoma 17.04.97 where the cruise ended. The hydrodynamic equipment were listed, unloaded and stored at LTR/Kigoma station for the next cruise.

Echobase software with protection/connector and a manual were handed to LTR/Kigoma personnel.

Despite several hours search the buoy off Mpulungu could not be found.

## 2.6 Dar es Salaam

Dr. A. Menz, the GEF-project coordinator was met and he was shortly briefed on the latest cruise. The planned cruise in August 1997 and the final reporting for hydrodynamics according to the IAA (Inter-Agency Agreement) were also discussed.

## 3. CONCLUSIONS

3.1 The ADCP deck box from RD Instruments, since the deck box of project was malfunctioning. A warranty replacement could not be delivered for the cruise by the manufacturer, but will be shipped in the near future.

3.2 The results of the present lake circulation model were compared with ADCP results. The wind input for this model was taken from 10 wind model transects along the lake. It was found that collected ADCP results matched the circulation model results. The mesoscale (1-10 km) gyre formation was further validated with observations in several locations. The observed current speeds and directions matched with the calculated ones, in particular in shallow regions, like Malagarasi estuary and in the Karema-Utinta region. Later on, ADCP (ship and buoy) observations will be used for circulation model calibration.

3.3 Under good conditions the three ADCP could measure the currents down to 100-160 m *i.e.* epilimnion, thermocline and the upper part of hypolimnion were monitored.

3.4 The DGPS (Differential Global Positioning System) was tested in Kigoma and seemed to be working fine. Its range of operation and duration of two 12V 60 Ah batteries to run the station continuously could not be measured. The DGPS could not be deployed properly due to a break down of a PC used for the

instrument. After the unfortunate incident it was not possible to use DGPS input for vessel position and movement and for measurements in deep areas, i.e. > 650 m.

3.5 Apart from one heavy storm (measured wind speed 20 m/s) on the way to Mpulungu, at Mahale, measurements outside Malagarasi as well as during the rest of the cruise were executed as planned.

3.6 Several training sessions on board were held and participation and attitude of counterparts was satisfactory.

3.7 The lake meteorological buoys off Kigoma and Mpulungu could not be recovered and have been most probably lost.

3.8 It should be noticed, that due to recent unrest in Zaire, only a few measurements could be conducted in the Zairian waters.

3.9 For the coming H/A cruise hydroacoustic equipment were collected and put together in the port side cabin, cabin number 3. The equipment is the following: EY500 scientific echosounder and software diskettes, EY500 software and the protection key, manuals, calibration sphere, three rods and monofilament line, printer, 650 sheets of printer paper and B/W (7) and color cartridges (5), and cables. It should be noticed that some of the B/W and color cartridges for printer were expired and printer paper, approximately 650 sheets might not be enough to conduct a whole cruise. GPS interfacing cable is in the dry lab and ready-to-connect to the echosounder. All equipment should be connected through a UPS. Tape streamer and cassettes for data storage are in Bujumbura and should be sent to Kigoma before the cruise starts. A computer for the hydroacoustic cruise should be provided by LTR/Kigoma.

3.10 Write off of the project inventory the lost meteorological lake stations off Kigoma and Mpulungu.

#### **R/V TANGANYIKA EXPLORER**

Despite the storm the performance of the vessel was satisfactory. The problems that were encountered are listed below.

1) The voltage on board is still unstable and while switching on the oceanographic winch the power level decreases temporarily but considerably, causing 'lights flashing' aboard. The transformer for air condition burnt and was not functioning in the upper deck cabins during the cruise. Due to extra UPS (Uninterruptable Power Supply) on board, the performance of scientific equipment was satisfactory. All scientific equipment was grounded by Mr. Savinainen before the cruise since the voltage difference between the vessel frames and scientific equipment was observed to be 110-160V.

2) Some leakage of both starboard and port side windows as well as through the port side ceiling edge in the lounge was observed during the storm. There was a continuous leakage of

water in the corridor at lower deck.

3) Vessel's search light on the roof was out of order and no spare bulbs were available.

4) The railing on the starboard side was noticed to be bent. Due to the bend mounting of ADCP was difficult.

5) During stormy weather it was found difficult to tie up equipment and instruments properly on the main deck.

#### **4. FOLLOW-UP**

4.1 Warranty replacement of the ADCP deck box (Follow-up: Huttula)

4.2 During the next cruise the operating range and duration of the two 12V batteries for DGPS should be verified (Follow-up: Cruise leader of the next hydrodynamic cruise)

4.3 Tape streamer and cassettes for H/A data storing should be sent to Kigoma (Follow-up: LTR/Bujumbura).

4.4 Report of loss and damage of the lost Lake meteorological stations (Follow-up: LTR/Bujumbura)

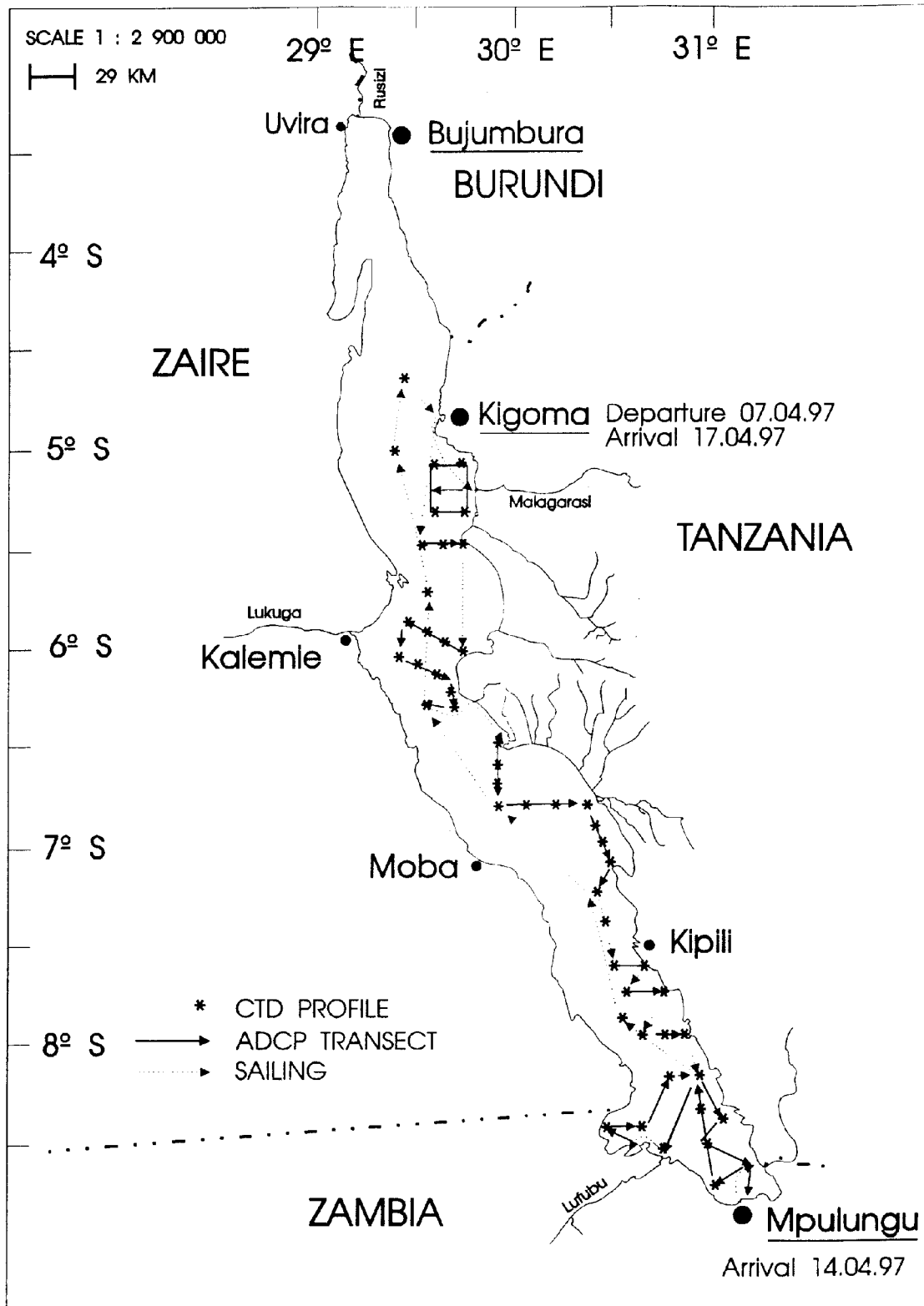
4.5 Reason for unstable voltage on board should be identified and endeavored to solve the problem (Follow-up: Constructor, Project Coordinator, Crew)

4.6 The windows in the lounge as well as in some of the cabins should be checked for leakage (Follow-up: Constructor, Project Coordinator, Crew).

4.7 Railing on the starboard side should be straightened before the next cruise in hydrodynamics (Follow-up: Constructor, Project Coordinator, Crew).

4.8 Some hooks inside, along the railing on the main deck should be welded to enable to tie up equipment and instruments not in use. (Follow-up: Constructor, LTR/Bujumbura, Crew),

4.9 Search light should be repaired before the next cruise (Follow-up: Captain, LTR/Bujumbura)



RESEARCH FOR THE MANAGEMENT OF THE  
FISHERIES ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/92

Report of travel  
to  
Bujumbura, Burundi  
  
(05.02.97 - 27.02.97)  
  
by

V. Th. Langenberg, APO Fishery Biologist

*GCP/RAF/271/FIN.10*

cc: Mann, TCO4  
Kapetsky, FIRI  
FAOR, Lusaka  
Mudenda, Director DOF, Chilanga  
All LTR stations  
Lindqvist/Mölsä, Kuopio  
Brauers, APR to FAO/WFP, Rome  
Chrono  
Trams

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GCP/RAF/271/FIN

March, 1997

## 1. INTRODUCTION

### 1.1 Objectives

The objectives of this travel to the LTR station in Bujumbura were (1) to finalize two Technical Documents (TDs) under supervision of LTR's coordinator, Dr. G. Hanek; (2) to discuss the new allotment advice and usage of budget lines for 1997 with LTR's accountant, Mr. M. Maboneza, and (3) to discuss operational and administrative matters with the LTR, Bujumbura staff. Furthermore, general operational and administrative matters were discussed with the FAO Representative for Zambia, Mr. G.K. Mburathi and other FAO staff in Lusaka, Zambia.

### 1.2 Itinerary

	<u>Arrival</u>	<u>Departure</u>
Mpulungu (Zambia)		05.02.97
Lusaka (Zambia)	05.02.97	08.02.97
Nairobi (Kenya)	08.02.97	10.02.97
Bujumbura (Burundi)	10.02.97	24.02.97
Nairobi (Kenya)	24.02.97	25.02.97
Lusaka (Zambia)	25.02.97	27.02.97
Mpulungu (Zambia)	27.02.97	

### 1.3 Persons met

#### In LTR, Bujumbura:

Dr. G. Hanek, Coordinator GCP/RAF/271/FIN  
Mr. P. Kotilainen, Expert Hydrodynamics  
Mr. M. Maboneza, Accountant  
Mr. J.m. Tumba, Researcher Hydrodynamics  
Mr. E. Nikomeze, Researcher Fisheries  
and other staff present at LTR, Bujumbura, Burundi

#### in FAOR, Lusaka, Zambia:

Mr. G. K. Mburathi, FAO Representative, Zambia  
Mr. Fortes, FAO Administration Officer  
Mrs. Rachel, FAO Administration  
Mr. A. Menz, Coordinator NRI/GEF Project

## **2. RESULTS**

### **2.1. Technical documents**

The first TD to be published, titled "the chemical composition of precipitation and its significance to the nutrient budget of Lake Tanganyika" could not be finalized due to differences between the software packages Excel Version 4.0 and 5.0. It was decided to redraw several figures and tables made with the Excel 5.0 Version and to forward them later to Bujumbura in Excel 4.0 Version. The finalisation of this TD was discussed with the two co-authors involved, Mr. P. Kotilainen and Mr. S. Nyamushahu.

A hardcopy of the software packages Wordperfect, Version 5.1, and Microsoft-Office was taken back to Mpulungu where these software packages had been malfunctioning.

Part of the raw data used for analyses in the second TD to be published was discussed and corrected with help of coauthor J-m. Tumba. The results in this TD will give insight in the vertical distribution of the main limnological parameters sampled lake-wide during scientific cruises of the R/V Explorer.

The production of a third TD, covering the limnological results of the LTR's SSP1, 2 and 3, was started.

### **2.2. Allotment advice**

The project's new allotment advice for 1997 were discussed with the accountant, Mr. M. Maboneza. The Mpulungu imprest of January 1997 was handcarried to Bujumbura and was adapted together with the accountant. Furthermore, a request for replenishment of the Mpulungu imprest account was discussed

### **2.3. General matters in Bujumbura**

Discussions were held with Mr. P. Kotilainen concerning the software problems and userfriendliness of the project's new software called Echobase, Version 2.5.

LTR's Temperature/Conductivity profiler (CTD) was updated, recalibrated and equipped with a new dissolved oxygen sensor recently, but showed some problems with the off-zeroing of the dissolved oxygen sensor and the new software provided by Applied Microsystems LTD. I advised to continue using the old software version (from 1992) which should work perfectly well, especially concerning the fact that most colleagues involved in limnology and hydrodynamics are fully trained in the old version. The off zeroing of the dissolved oxygen sensor was explained and the probe should be fully operational for our next hydrodynamical cruise in the beginning of April.

Lastly, some correspondence and parcels were handcarried from Mpulungu to Dr. G. Hanek and Mr. M. Maboneza.

#### 2.4. General matters in Lusaka

A new E-mail address for LTR/Mpulungu was established and all necessary equipment (cables, modem, software) was purchased. Furthermore, LTR/Mpulungu station's copymachine was repaired, new stationery and two computer mice were purchased.

Operational matters on the partial future cooperation between the NRI/GEF and FAO/LTR were discussed with Messrs. Mburathi and Menz. Close collaboration was suggested on the premises of DOF, where FAO has their offices and GEF is about to establish theirs.

Practical matters were discussed with Mr. Fortes, including the increasing difficulties concerning the Mpulungu imprest account at their actual bank and LTR/Mpulungu's wish to change to another bank (see page 7, point 3.20 in GCP/RAF/271/FIN/TRAM/90)

Lastly, I have handcarried some mail from LTR/Mpulungu to FAOR in Lusaka to be forwarded by them through pouch, including all the data necessary for the author's contract of consultant Mr. E. Coenen.

### 3. **CONCLUSIONS AND FOLLOW-UP**

- The limnological data of LTR/Kigoma, Tanzania, covering the period April to July 1996, has not yet been forwarded to Mpulungu. In order to finalise the synopsis covering LTR's SSP these data must be checked and forwarded SOONEST to Mpulungu. (Action: Mr. Chitamwebwa and Mrs. E. Bosma, LTR/Kigoma.)

- Finalising three TD's (SSP limno data of the cruises, precipitation and river inflow) and a synopsis covering SSP limno data of June 1993 to July 1996. (Action: Mr. Langenberg, Mr. Lukwesa, Mr. J-m. Tumba and Mr. Chitamwebwa.)

- There is a need of quicker data exchange between stations especially data collected during cruises with the *R/V Explorer* and hydrodynamics. (Action: Mr. Verburg.)

- Copies of the LTR data set, compiled by Dr. J. Craig (18.11.1996) should circulate in Finland, so that the Finnish scientists involved in Primary production and hydrodynamical studies can utilize it. (Action: Dr. G. Hanek.)



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GCP/RAF/271/FIN/TRAM/93

Report of Travel  
to  
Rome, HQ  
and  
Dar es Salaam, Tanzania  
(28.02.97-04.04.97)

by  
Piet Verburg  
and  
Els Bosma

**GCP/RAF/ 271/FIN**

cc: Kapetsky, FIRI  
Mann, TCO4  
FAOR, Tanzania  
Hanek, Bujumbura  
Lindqvist/Mölsä, Kuopio  
DGIS, The Hague  
Brouwer, Mission of The Netherlands to FAO  
LTR/Bujumbura  
LTR/Kigoma  
LTR/Mpulungu  
Chrono

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GCP/RAF/271/FIN

April, 1997

## 1. INTRODUCTION

### 1.1 Objectives

The objectives were to clear pending LTR, contract, and personnel matters with concerning officers and departments at FAO headquarters, DGIS, the Netherlands Mission to the FAO and the Dutch Embassy at Dar es Salaam. In Dar es Salaam the headquarters of TAFIRI and the Fisheries Department were visited.

### 1.2 Itinerary

	<u>Arrival</u>	<u>Departure</u>
Kigoma		28.02.97
Dar es Salaam	28.02.97	28.02.97
Napoli	01.03.97	03.03.97
Rome	03.03.97	06.03.97
Amsterdam	06.03.97	01.04.97
Dar es Salaam	01.04.97	04.04.97
Kigoma	04.04.97	

### 1.3 Persons met

Mr. M. Mann  
Mr. J. Kapetsky  
Mr. G. Everett  
Mr. A. Smith  
Mrs. S. McNaughton  
Mr. S. Venema, Project Manager GCP/INT/575/DEN  
Mr. C. Ruse, APO GCP/INT/575/DEN  
Mrs. L. Zappalenti  
Mrs. D. Di Biase  
Mrs. K. Kos, Permanent Mission of the Kingdom of the Netherlands to the FAO  
Mrs. J. Collins, Fisheries Library  
Mr. A. Gribling, Fisheries Library  
Mr. J. Yonazi, FAO Rep. Office Dar es Salaam

#### In The Netherlands

Mr. F. Roest, IAC  
Mrs. E. Wessels, DGIS

#### In Dar es Salaam

Mr. J. Yonazi, FAO Rep. Office  
Mr. J. Kabyemera, FAO Rep. Office  
Mr. Bwathondi, Director TAFIRI  
Mr. T. W. Maembe, Director of Fisheries  
Mrs. E. Lyimo, Head Statistics Fisheries Dept.  
Mr. W. V. Haule, Senior Fisheries Officer

Mr. R.B. Hoza, Fisheries Officer  
Mrs. F. Struys, Second Secretary Dutch Embassy  
mr. A.W. Kabourou, Member of Parliament for Kigoma  
Mr. A. Adam, Cyber Twiga, electronic mail provider  
Mr. A. Menz, Lake Tanganyika Biodiversity Project  
Mr. P. Kotilainen, LTR  
Mr. M. Savinainen, Technician IAA

## **2. RESULTS**

### **2.1 Rome**

During a long briefing session with Mike Mann, NTE of our present APO-contracts, 5th year extension APO contracts, possibility of attending Lake Biwa Ancient Lakes Conference in Japan, project funding status, signatory clearance of the Kigoma Imprest Account and LTR future plans were discussed. NTE of our present APO- contract is 8 Oct 1997, but should be February 1998. Work permits, exemption certificates and visa's should be extended to February 1998. Jim Yonazi, while on duty travel in Rome, promised to take care of the problem.

Andy Smith gave us his thoughts concerning the hydroacoustic equipment on board the Explorer.

Karin Kos, deputy of the Representative of the Dutch Mission to the FAO in Rome gave advise concerning our contracts and possible extensions and who to meet at DGIS.

As always lots and lots of books, papers and help were received from Jean Collins and Armand Gribling.

Siebren Venema was very enthusiastic about the possibility of organizing a training course, by GCP/INT/575/DEN, on fish stock assessment in the region. Venema had proposed a course at Lake Victoria, to H. v.d. Knaap, Project Manager of The Lake Victoria Fisheries Research Project. This course could be given for both projects combined and situated for instance at Mwanza, Tanzania. However, v.d Knaap had not replied as yet to the offer. Another possibility Venema considered was a course for LTR at Kigoma.

### **2.2 The Hague. DGIS**

Medical examinations (positive for Bilharzia) were taken. At DGIS, Mrs. E. Wessels informed us that our NTE should indeed be February 1998. The possibility of a fifth year extension was explained, based on cost sharing, 50 % FINNIDA/DGIS. APO Travel allowances can be raised annually by 1500 S. on the receipt of a request from the project manager, giving a cost assessment of duty travel by APO's and explaining the necessity for additional funds.

### **2.3 Dar es Salaam**

In the FAO quarters in Dar es Salaam, we met Mr. J. Yonazi again. Together with him and Mr J. Kabyemera we had a meeting

concerning the near future of our project. Mr. Yonazi promised to put an extra effort in extending our government clearance.

At TAFIRI HQ, Kunduchi, several people were unfortunately under attack of some vicious fever. Dr. Bwathondi was met briefly, while at sick leave at his home.

At the Dutch Embassy passports were renewed, and Mrs. F. Struys, Second Secretary of the Dutch Embassy, and responsible for APO's, was met.

### **3. CONCLUSIONS AND FOLLOW-UP**

- 3.1 Request for extension of the government clearance, work permits and visa (Action: J. Yonazi).
- 3.2 Request raise APO Travel Allowances (Action: Hanek).
- 3.3 A fifth year extension of APO contracts is possible, on the condition of 50 % cost sharing by FINNIDA or alternative source, through FAO, and 50 % by DGIS.
- 3.4 A Fish stock assessment course for LTR and national personnel can be organized by GCP/INT/575/DEN.

RESEARCH FOR THE MANAGEMENT OF THE  
FISHERIES ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/94

Report of Travel  
to  
Kigoma (Tanzania)  
(29.4 - 3.5.1997)

by

George Hanek  
LTR Coordinator

*GCP/RAF/271/FIN.10*

cc: Rijavec/Ziesler, RAFR  
Kapetsky, FIRI  
Everett/Gréboval, FIPP  
Ssentongo, FIPL  
Turner/Smith, FIIT  
Maembe/Bwathondi, URT  
Mudenda, ZAM  
FAOR's - BDI, URT and ZAM  
Menz, NRI/GEF  
All LTR Stations  
Chrono  
Diary: Hanek

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GCP/RAF/271/FIN

May, 1997

## 1. INTRODUCTION

### 1.1 Objective

The objective of this duty travel was to take part in closing ceremonies; of Socio-Economic Planning Workshop (Kigoma, 22-30.5.1997).

### 1.2 Itinerary

	<u>Arrival</u>	<u>Departure</u>
Bujumbura		29.4.97
Kigoma	30.4.97	2.5.97
Bujumbura	3.5.97	

### 1.3 Persons met

Mr. D. Chitamwebwa & all TAFIRI/Kigoma staff	Director a.i. TAFIRI/Kigoma
Dr. E. Reynolds & all participants of LTR's Socio-economy Workshop	Consultant (socio-economy)
officers & crew of <i>R/V Tanganyika Explorer</i>	
Dr. K. Banister	GEF/Lake Tanganyika project

## 2. RESULTS

These are now summarized in Appendix 1.

**SOCIO-ECONOMIC DIMENSIONS OF LAKE TANGANYIKA FISHERIES:  
PRELIMINARY TECHNICAL CONSULTATION & PLANNING WORKSHOP  
Tanzania Fisheries Research Institute (TAFIRI), Kigoma,  
Tanzania, 22 - 30 April 1997**

**DocRef: LTR/SEC/Kgm/09**

**WORKSHOP GROUP SUMMARY OBSERVATIONS & RECOMMENDATIONS**

**Date:30 April 1997**

**A. SUMMARY OBSERVATIONS**

In their last full group working session on the morning of Wednesday, 30 April 1997, participants in the LTR Socio-Economics Planning Workshop have **AGREED** on the following summary observations.

- 1) The preliminary technical consultation and planning workshop for LTR socio-economic investigations of Lake Tanganyika fisheries commenced on 22 April 1997 at the TAFIRI station in Kigoma, Tanzania. The objectives and timeframe for this exercise are defined in the Terms of Reference and LTR background briefing notes provided in the file of workshop documents (DocRef: LTR/SEC/Kgm/01).
- 2) A total of 19 participants were involved with the various workshop sessions (see DocRef LTR/SEC/Kgm/02)., including 14 who took part on a full-time basis. Unfortunately, due to civil unrest prevailing in some parts of the Lake Tanganyika region, it was not possible for delegates from Zaire and Burundi to travel to Kigoma to attend the workshop.
- 3) The Workshop Coordinator emphasised from the outset that his role would be one of facilitator to promote group interaction and maximum participation and individual contributions rather than as to serve as a lecturer delivering 'one-way' messages. In view of the general lack of background in or experience with socio-economic studies and fisheries management concerns amongst workshop members, the aim was to encourage rapid orientation and familiarisation through intensive group discussion and practical working sessions.
- 4) The workshop ran for seven consecutive days, and comprised a very full programme of activities (DocRef LTR/SEC/Kgm/03).
- 5) Initial sessions included basic introductory discussion of socio-context perspectives and data collection methods, and the presentation of suggested background reading material (DocRefs LTR/SEC/Kgm/04, LTR/SEC/Kgm/105 -various). Briefings from guest speakers representing the Lake

Tanganyika Biodiversity Project (LTBP) and the Tanganyika Catchment Reforestation and Education Project also took place. Both of these projects are concerned with socio-economic and fisheries issues in and around the lake, and the LTBP group in particular has strong interest in conducting socio-economic investigations and appraisals of lakeshore communities in various localities and is hoping to collaborate as much as possible with ongoing LTR work.

- 6) Subsequent workshop sessions were devoted principally to developing participant familiarity with socio-economic perspectives and to identifying and deliberating on key management issues for the fisheries of Lake Tanganyika and, in this context, devising appropriate strategies and tools for the conduct of LTR field investigations.
- 7) Over the course of several days, the overall workshop group divided and re-divided itself into various ways task focus teams, through which a number of draft discussion papers, data collection forms, and survey procedure notes were produced. These latter include several papers on 'The context of management' (DocRef LTR/SEC/Kgm/05.01), 'Review of previous studies' (DocRef LTR/SEC/Kgm/05.03), 'Draft field survey forms: working group on fishing units and operations' (DocRef LTR/SEC/Kgm/06), 'Draft field survey forms: working group on fishing communities and post-harvest' (DocRef LTR/SEC/Kgm/07), 'Draft notes on survey procedures: working group on sampling and operational planning' (DocRef LTR/SEC/Kgm/08).

## **B. RECOMMENDATIONS**

On the basis of the preparatory activities and group discussion sessions outlined above, workshop participants have **AGREED** on the following recommendations for follow-up actions.

- 1) An LTR SEC Survey Coordination Team should be designated to oversee final preparations for the fieldwork planned over the course of the next few months. The Coordination Team should be
  - composed of the following individuals:  
  
Dr. J.E. Reynolds (LTR Consultant -- Team Advisor)  
Mr. D.B.R. Chitamwebwa (Ag. Dir., TAFIRI/Kigoma)  
Ms. E. Lyimo (DOF/ Dar)  
Mr. R. Chitembure (DOF/Chilanga)  
Ms. P. Paffen (LTR/Mpulungu)
- 2) The immediate tasks of the Coordination Team should be to review and revise/finalise as necessary the draft survey forms and data collection protocols prepared during the



course of the workshop. The Team should organise pre-tests of forms and protocols as required in the Kigoma area, and finalise enumerator instruction manuals and coding guidelines.

- 3) Dr. Reynolds should, as anticipated in the technical consultation TORs, stay on in Kigoma for approximately one more week in order to oversee these tasks. Ms. P. Paffen should also stay on in Kigoma for this additional period in order to assist in the work and with a view towards returning to her station in Mpulungu to brief DOF Zambia personnel about final preparations and to organise the start of survey work there.
- 4) Field survey work should be scheduled to begin simultaneously in both the Zambian and Tanzanian sectors of the lake around the first of June 1997. As the survey of these sectors is expected to require a three to four week period to complete, and bearing in mind the current civil difficulties prevailing in some regions, plans for subsequent extension of the investigations into the Burundi and possibly the Zaire sectors of the lake should be made on a tentative basis. If the situation warrants, Ms. P. Paffen should be detailed to organise enumerator teams and other necessary preparations for the start of survey work in Burundi, and possibly along the Zaire shoreline, around the first of July 1997.
- 5) Survey strategy: It is desirable to execute the SE survey in the same way in the whole survey area, so in all lacustrine states. The methods employed therefore should be applicable in all sectors. Survey site selection should be carried out on the basis of geographically stratified random sampling of the villages! landing sites enumerated during the LTR sponsored Frame Survey carried out in March 1995. Following practices in earlier socio-economic investigations conducted under the IFIP project, sample size should be in the range of 5% of the total fisher population, although the final size determination should rest with the Coordination Team after all logistical details and final survey questionnaire formats have been settled.
- 6) Survey team set-up: 1 team in Zambia, 2 teams in Tanzania, each team to consist of 3 enumerators and one supervisor.
- 7) Survey team composition (tentative suggestions, to be confirmed by Coordination Team 1).
  - Zambia: Members from DOF/Mpulungu & LTR
  - Tanzania: Members from DOF/Kigoma & Rukwa Regions, TAFIRI/Kigoma & LTR
- 8) Transport for enumeration teams.

Zambia: R/V *Silver Shoal* with 1 or 2 inflatables.  
Tanzania: R/V *Explorer* with 2 inflatables for 2 teams to operate simultaneous DoF team may be changed per Region.

- 9) Survey follow-up: The planned follow-up work of the technical consultation, as anticipated in the TORs, should involve the convocation of a data analysis and reporting workshop comprised of members of the Survey Coordination Team and others who have been closely involved with the conduct of field activities. The workshop should be scheduled to take place in August 1997., venue and participant details to be confirmed by Dr. Eric Reynolds and the Survey Coordination Team in consultation with Dr. G. Hanek, LTR Coordinator.

RESEARCH FOR THE MANAGEMENT OF THE  
FISHERIES ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/95

Report of Travel  
to  
Bujumbura (Burundi)  
(28.6-8.7.1997)

by

Petra Paffen  
Fisheries Biologist

*GCP/RAF/271/FIN.10*

cc: Rijavec, RAFR  
Kapetsky, FIRI  
Everett/Gréboval, FIPP  
All LTR Stations  
Chrono  
Diary: Paffen

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GCP/RAF/271/FIN

July, 1997

## 1. INTRODUCTION

From 22 to 30 April 1997, Dr. E. Reynolds directed a preliminary technical consultation and planning workshop for LTR Socio-Economic (SE) investigations of Lake Tanganyika fisheries in Kigoma, Tanzania. This workshop could not be attended by delegates from the Dem. Rep. of Congo and Burundi. It was recommended that plans and preparations for SE investigations in the Dem. Rep. of Congo and the Burundi sectors of the lake should be made on a tentative basis in case the situation in these sectors could warrant such survey work.

### 1.1 Objectives

The objectives of this travel were: (a) to supervise the translation of the SE survey forms and guide lines into french, (b) to design a suitable sampling strategy for SE investigations in the Dem. Rep. of Congo and Burundi, (c) to finalize the SE survey logistics with the Dem. Rep. of Congo and Burundian survey teams, (d) to coordinate a small seminar on LTR SE investigations and a subsequent training session for the Dem. Rep. of Congo and the Burundian survey teams and (.) to design and organize the computer input of the SE results collected.

### 1.2 Itinerary

	<u>Arrival</u>	<u>Departure</u>
Mpulungu		25.06.1997
Bujumbura	28.06.1997	19.07.1997
Mpulungu	21.07.1997	

### 1.3 Persons met

From the Dem. Rep. of Congo:

Dr. Mulimbwa	Head Economy Section, Hydrological Research center (DRC)/Uvira
Mr. G. Kitungano	DRC/Uvira
Mr. E. Mukirania	DRC/Uvira
Mr. C. Bulambo	DRC/Uvira

In Burundi:

Dr. G. Hanek	Project Coordinator, LTR/Bujumbura
Mr. M. Maboneza	Accountant, LTR/Bujumbura
Ms. F. Gatungane	Secretary, LTR/Bujumbura
Mr. R. Kanyaru	Director of Fisheries, DOF/Bujumbura
Mr. B. Nyakageni	Sub Dir. of Fisheries, DoF/Bujumbura
Mr. F. Bashirwa	Researcher, DoF/Bujumbura
Mr. E. Nikomeze	Fisheries Assistant, DoF/Bujumbura
Mr. J.M. Tumba	Fisheries Assistant, DoF/Bujumbura
Mr. B. Ndimunzigo	Fisheries Assistant, DoF/Bujumbura

Mr. E. Gahungu	Fisheries Assistant, DoF/Bujumbura
Mr. C. Butoyi	Fisheries Assistant, DoF/Bujumbura
Mr. J.M. Niyibigira	Beach Enumerator, DoF/Karonda
Mr. G. Ndorimana	Beach Enumerator, DoF/Rumonge
Mr. M. Bangirimana	Beach Enumerator, DoF/Gitaza
Mr. S. Hakizimana	Beach Enumerator, DoF/Nyamugari
Mr. L. Sintuye	Beach Enumerator, DoF/Kadjaga
Mr. B. Kawasaki	Driver/Diver, DoF/Bujumbura

## 2. RESULTS

### 2.1 SE survey forms and guidelines

Prior to travel, the SE sampling forms 1 (community inventory), 2 (harvest sector info) and 3 (post-harvest sector info) and guide lines were send from LTR/Mpulungu to LTR/Bujumbura for translation by Ms. F. Gatungane in Word Perfect and E. Nikomeze in Excel. Upon arrival, all translations were controlled and adapted where necessary.

### 2.2 Sampling strategy for SE investigations in the Dem. Rep. of Congo and Burundi

The SE survey was supposed to be executed in the same way in the whole survey area, i.e. in all lacustrine states. However, due to political unrest, some areas in the Dem. Rep. of Congo and Burundi could not be monitored. The most restrained situation existed in Burundi where only 5 landing sites i.e. villages could be reached safely, namely: Kadjaga/Gatumba, Nyamugari and Gitaza in Bujumbura Province, and Rumonge and Karonda in Bururi Province. In the Dem. Rep. of Congo, the area from the Burundian border to Burton Bay in Sud-Kivu Province, and the Kalemie District in Shaba Province were considered suitable for SE investigations.

The sampling strategy for choosing landing sites (villages) for form 1 in the Dem. Rep. of Congo was similar to that in Tanzania and Zambia. The reachable shoreline was divided into the same areas as distinguished during the Simultaneous Frame Survey (FS) conducted in March 1995, namely: the 3 most northern areas in Sud-Kivu Province and the 3 most northern areas in Shaba Province.

The No. of fishermen (FM) classified during FS 95 was used to approximate a random selection of small and large landing sites per area. On basis of the frequency distribution of the No. of landing sites sorted by No. of FM classified during FS 95 in Tanzania, Zambia and the Dem. Rep. of Congo, there were 4 classes of landing sites distinguished, namely: class 1 with 1-24 FM, class 2 with 25-74 FM, class 3 with 75-149 FM and class 4 with >150 FM. One landing site per class, per area was selected randomly. The total No. of landing sites cf. villages selected was 9 in Sud-Kivu Province and 12 in Shaba Province.

The sampling strategy for choosing key informants for form 2 on fishers and form 3 on fish traders and processors in the Dem. Rep. of Congo and Burundi was similar to that in Tanzania and Zambia.

The numerical unit for choosing fishers for form 2 was considered to be the main gear operated by the fishing unit as it determines the unit structure and the involvement of FM in fishing operations. There were distinguished 5 categories of FM, namely: category 1 as the owner/operator of the main gear, category 2 as the owner/non-operator of the main gear, category 3 as the non-owner/operator, captain or head fisher of the main gear, category 4 as the non-owner/operator, labourer of the main gear and category 5 as the owner of labourer of an additional light boat if used. The survey would monitor as many different gear types used by the artisanal and traditional fisheries as possible as all gear types were considered to be important determinants of livelihood for the fisher population. For units operating artisanal gear types such as beach seines, lift nets and chiromilla seines it was expected to find more representatives of the above FM categories (estimate was 3 per unit) than for units operating traditional gear types such as lines, lusenga nets and gill nets (estimate was 1.5 per unit). The proportion of units operating artisanal vs. traditional gear types was estimated with FS 95 information, namely: for the Dem. Rep. of Congo 40 vs. 60% in Sud-Kivu Province and 20 vs. 80% in Shaba Province and for Burundi 70 vs. 30%.

With this information, it was possible to estimate the number of fishing units operating artisanal and traditional gear types that could be monitored in the available time span for the SE survey in both countries, namely: 5% of all units classified in the reachable areas in the Dem. Rep. of Congo during FS 95 (107 units and 224 FM respondents in Sud-Kivu Province and 117 units and 211 respondents in Shaba Province) and 7.5% of all fishing units classified in Burundi during FS 95 (64 units and 163 FM respondents).

There was no prior information on the distribution of traders and processors for form 3 inhabiting the lake shore. It was therefore decided to use the percentage of fishing units chosen for form 2 to set the number of key informants for form 3. It was such decided to choose 1 trader or 1 processor per fishing unit sampled, namely: 107 respondents in Sud-Kivu Province, 117 respondents in Shaba Province and 64 respondents in Burundi.

### **2.3 Survey logistics of the Dem. Rep. of Congo and Burundian survey teams**

The time span necessary to execute the above strategy in the Dem. Rep. of Congo was estimated to be max. 25 days with a team of 6 DRC/Uvira enumerators traveling by hired planked transporter vessel along the shore line. In Burundi, 2 teams of 4 and 5 DoF/enumerators would work simultaneously at the Bujumbura and Bururi Province reachable sites for app. 1 week and would travel by car. The teams in both countries would start the SE survey as soon as possible after the seminar. All further

logistics were settled with the team supervisors (Dr. Mulimbwa for the Dem. Rep. of Congo, Mr. Bashirwa for Bujumbura Province and Mr. Kanyaru for Bururi Province) with help of LTR/Bujumbura's accountant Mr. Mamboneza.

#### **2.4 Seminar on LTR SE investigations and a subsequent training session for the Dem. Rep. of Congo and the Burundian survey teams**

From Wednesday 2 to Monday 7 July 1997, a seminar on SE procedures was organized for the Dem. of Congo and the Burundian survey teams at LTR/Bujumbura. The teams and other attendants were familiarized with the sampling procedures, forms and guidelines from Wednesday to Friday. A subsequent training session with the sampling forms was organized at Kadjaga beach and Gatumba village on Saturday 5 July 1997. On Saturday afternoon and Sunday morning, the trial results of each enumerator were controlled and handled separately by me and the enumerator in question. Any additional explanation necessary was provided until I was satisfied with the understanding of the form by the enumerator. On Sunday afternoon and evening, Mr. Tumba and myself copied all necessary forms for the survey teams of the Dem. Rep. of Congo and Burundi. On Monday morning the remaining questions were answered, the trial proceedings were reviewed and the final SE survey strategies were summarized. On Monday afternoon the seminar was officially closed, all remaining logistics were settled and a drink was provided.

#### **2.5 The computer input of the SE results collected in the Dem. Rep. of Congo and Burundi**

The Excel tables designed for SE results were translated into french. The DoF/Bujumbura personnel that would execute the computer input of results from Burundi and the Dem. Rep. of Congo were trained while handling the first results available from the Bujumbura Province team that returned to Bujumbura city every day after sampling and left the forms at the office. The computer team was expected to finish the input of all Burundian data before the second week of August when the Dem. Rep. of Congo team would return to LTR/Bujumbura and would submit their forms for computer data input. The team was advised to try to handle as much as possible results from the Dem. Rep. of Congo before the 18th of August when Dr. Reynolds and I would return to LTR/Bujumbura to coordinate SE data analysis.

### **3 FOLLOW-UP**

- 3.1 Complete computer input of Burundian results before second week of August 1997. (Action: Nikomeze, Tumba, Gahungu, Butoyi LTR/Bujumbura)
- 3.2 Complete computer input from the Dem. Rep. of Congo before 18 August 1997. (Action: Nikomeze, Tumba, Gahungu, Butoyi LTR/Bujumbura)

RESEARCH FOR THE MANAGEMENT OF THE  
FISHERIES ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/96

Report of travel  
to the  
Socio-Economic Cruise  
(01.07.97 - 18.07.97)

by

E.M. Bosma, F.A.S. Sobo and I.M. Kimosa

*GCP/RAF/271/FIN.10*

cc: Ziesler, RAFR  
Kapetsky, FIRI  
Gréboval, FIPP  
Turner, FIIT  
All LTR stations  
Chrono  
TRAMS

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GCP/RAF/271/FIN

August, 1997



## LAKE TANGANYIICA RESEARCH

## 1997 RESEARCH VESSEL PROGRAMME

## PROGRAMME: R/V TANGANYIKA EXPLORER CRUISE 15/97

NAME	POSITION
1. Bosma, E.M.	OiC LTR Kigoma / Zooplankton / Socio-Economics
2. Chitamwembwa, D.B.R.	OiC Tafiri Kigoma / Limnology / Socio-economics
3. Sobo, FAS.	Fisheries Officer / Fisheries Statistics DoF, Dsm
4. Katonda, I.	Fishery Researcher / Socio-economics
5. Kalangali, A.	Fishery Researcher / Socio-economics
6. Muhoza, S.	Fishery Technician / Socio-economics
7. Kadula, E.	Fishery Technician / Socio-economics
8. Nonde, L.	Fisheries Officer, DoF Kigoma
9. Verburg, P.	Field coordinator Hydrodynamics / Socio-economics

DURATION 01.07.97 - 18.07.97

## LOCALITY

1. Kigoma port	01/07/97	9. Sibwesa (stratum 6)	08/07/97
2. Samazi (stratum 12)	02/07/97	10. Kaparamsenga (stratum 5)	10/07/97
3. Mpulungu port	02/07/97	11. Kaseke-Sunuka (stratum 4)	11/07/97
4. Kala (stratum 11)	03/07/97	12. Mtanga-Ujiji (stratum 3)	13/07/97
5. Kizumbi (stratum 10)	04/07/97	13. Kigoma port	14/07/97
6. Kipili (stratum 9)	06/07/97	14. Kagunga (stratum 1)	16/07/97
7. Kambwe (stratum 8)	06/07/97	15. Mwangongo (stratum 2)	17/07/97
8. Karema (stratum 7)	07/07/97	16. Kigoma port	18/07/97

PLAN (all times are Greenwich Mean Time + 2)

LTR Coordinator Date

INITIALED

GH

**CRUISE PLAN****FORM TE/4****SHIP: R/V TANGANYIKA EXPLORER****CRUISE NUMBER: 15/97****CRUISE ITINERARY REQUIRED: (start, stop, port call(s), track chart)**

- |  |  |
|--|--|
| 1. Departure from Kigoma port 01/07/97     |  |
| 2. Arrival in Samazi area 02/07/97         | and departure from Samazi area 02/07/97        |
| 3. Arrival in Mpulungu port 02/07/97       | and departure from Mpulungu port 02/07/97      |
| 4. Arrival in Kala area 03/07/97           | and departure from Kala area 04/07/97          |
| 5. Arrival in Kizumbi area 04/07/97        | and departure from Kizumbi area 06/07/97       |
| 6. Arrival in Kipili area 06/07/97         | and departure from Kipili area 06/07/97        |
| 7. Arrival in Kambwe area 06/07/97         | and departure from Kambwe area 07/07/97        |
| 8. Arrival in Karema area 07/07/97         | and departure from Karema area 08/07/97        |
| 9. Arrival in Sibwesa area 08/07/97        | and departure from Sibwesa area 10/07/97       |
| 10. Arrival in Kaparamsenga 10/07/97       | and departure from Kaparamsenga 11/07/97       |
| 11. Arrival in Kaseke-Sunuka area 11/07/97 | and departure from Kaseke-Sunuka area 13/07/97 |
| 12. Arrival in Mtanga-Ujiji area 13/07/97  | and departure from Mtanga-Ujiji area 16/07/97  |
| 13. Arrival in Kigoma port 14/07/97        | and departure from Kigoma port 16/07/97        |
| 14. Arrival in Kagunga area 16/07/97       | and departure from Kagunga area 17/07/97       |
| 15. Arrival in Mwangongo area 17/07/97     | and departure from Mwangongo area 18/07/97     |
| 16. Arrival in Kigoma port 18/07/97        |  |

**SENIOR SCIENTIST: Els M. Bosma LTR/Kigoma****SCTENTWIC STAFF LIST: (including affiliation)**

				<u>DATES</u>
<b>Name</b>	<b>Laboratory</b>	<b>Institution, etc.</b>	<b>Boarding</b>	<b>Disembarking</b>
Bosma, E.M.	Socio-Economics, Zooplankton	LTR/Kigoma, Cruise Leader	Kigoma 01/07/97	Kigoma 18/07/97
Chitamwembwa, D.	Socio-Economics, Limnology	LTR/Kigoma, Oic-TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Sobo, FAS.	Socio-Economics, Fishery Statistics	DOF Dar es Salaam	Kigoma 01/07/97	Kigoma 18/07/97
Katonda, I.	Socio-Economics, Fishery	LTR/Kigoma TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Kalangali, A.	Socio-Economics, Zooplankton	LTR/Kigoma TAIFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Muhoza, S.	Socio-Economics, Zooplankton	LTR/Kigoma TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Kadula, E.	Socio-Economics, Fishery	LTR/Kigoma TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Nonde, L.	Socio-Economics, Fishery	DOF Kigoma	Kigoma 01/07/97	Kigoma 18/07/97
Verburg, P.	Socio-Economics, Hydrodynamics	LTRJKigoma	Kigoma 16/07/97	Kigoma 18/07/97

EQUIPMENT TO BE USED:

1. Equipment supplied by LTR/Kigoma

Inflatable dinghy with outboard engine 25 hp  
AST Computer ± laser printer (plus 2 cartridges)  
Paper, 9 ream  
8 sets of clipboards, protection bags, pencils, erasers,  
sharpeners

2. Equipment supplied by TAFIRI/Kigoma

Extra outboard engine 25 hp

SCIENTIFIC OR SURVEY OBJECTIVES:

Socio-economic Survey of Lake Tanganyika was aimed to provide necessary information for identification of the main socio-economic factors and trends in fishing villages along the coast line of Lake Tanganyika. These factors and trends include<sub>3</sub>

- \* Population settlement and their economic developments.
- \* Fisheries livelihood and fishing practices.

In order to obtain this information, 3.8 % of all fishermen in Kigoma region and 3.4% of all fishermen in Rukwa region were to be interviewed, this is a total of 456 fishermen. These fishermen represents 5% of all fishing units in Tanzanian waters. Apart from the fishermen 185 processors/traders and 41 village executives were to be interviewed as well.

CRUISE SUMMARY - SENIOR SCIENTIST

SHIP: R/V TANGANYIKA EXPLORER

CRUISE NUMBER: 15/97

SENIOR SCIENTIST: E.M. Bosma

LTR/Kigoma

LIST OF SCIENTIFIC STAFF ACTUALLY PARTICIPATING

				<u>DATES</u>
<u>Name</u>	<u>Laboratory</u>	<u>Institution, etc.</u>	<u>Boarding</u>	<u>Disembarking</u>
Bosma, E.M.	Socio-Economics, Zooplankton	LTR/Kigoma, Cruise Leader	Kigoma 01/07/97	Kigoma 18/07/97
Chitamwembwa, D.	Socio-Economics, Limnology	LTR/Kigoma, OiC-TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Katonda, I.	Socio-Economics, Fishery	LTR/Kigoma TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Sobo, FAS.	Socio-Economics, Fishery Statistics	DoF Dar es Salaam	Kigoma 01/07/97	Kigoma 18/07/97
Kalangali, A.	Socio-Economics, Zooplankton	LTR/Kigoma TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Muhoza, S.	Socio-Economics, Zooplankton	LTR/Kigoma TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Kadula, E.	Socio-Economics, Fishery	LTR/Kigoma TAFIRI	Kigoma 01/07/97	Kigoma 18/07/97
Nonde, L.	Socio-Economics, Fishery	DOF Kigoma	Kigoma 01/07/97	Kigoma 18/07/97
Verburg, P.	Socio-Economics, Hydrodynamics	LTR/Kigoma	Kigoma 16/07/97	Kigoma 18/07/97

ITINERARY ACCOMPLISHED: (including actual track chart)

- 1) Kigoma port, boarding of scientists and material, departure 01/07/97
- 2) Start socio-economics study, Samazi area, stratum 12, 02/07/97
- 3) Mpulungu port, 3000 l fuel bunkering, 02/07/97
- 4) Continuation of socio-economics study, stratum 12, 03/07/97
- 5) Kala area, stratum 11, 03/07/97
- 6) Kizumbi area, stratum 10, 04/07/97
- 7) Kipili area, stratum 9, 06/07/97
- 8) Kambwe area, stratum 8, 06/07/97
- 9) Karema area, stratum 7, 07/07/97
- 10) Sibwesa area, stratum 6, 08/07/97
- 11) Kaparamsenga area, stratum 5, 10/07/97
- 12) Kaseke-Sunuka area, stratum 4, 11/07/97
- 13) Mtanga-Ujiji area, stratum 3, 13/07/97
- 14) Kigoma port, food replenishment, arrival 14/07/97, departure 16/07/97

- 15) Continuation of socio-economics study, Kagunga area, stratum 1, 16/07/97
- 16) Mwangongo area, stratum 2, 17/07/97
- 17) Arrival Kigoma port, 18/07/97

SCIENTIFIC OR SURVEY ACCOMPLISHMENTS:

(with brief statements explaining failures to achieve objectives)

A total number of 40 villages from 12 different strata were visited for socio-economy study. In these villages 477 fishermen, 177 processors/traders and 40 village executives were interviewed about their personal history, fishing income status, opinions + views concerning rules/ regulations and possible future changes.

PROBLEMS ENCOUNTERED, SUGGESTED IMPROVEMENTS. ETC.

Goal was to visit 41 villages, one village (Kangwena) could not be visited because of the bad weather, danger to be grounded. The selection of fishermen to be interviewed depended on 1995 frame survey which is outdated. Some fishermen have already shifted to other places where better catches are expected, thus forcing the researchers to sample non selected landing sites, changing the planned pattern of the sample.

Number of traders were hard to find, due to the nature of their living. They travel with the purchased fish not only over the lake but also upcountry.

RESEARCH FOR THE MANAGEMENT OF THE  
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GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/97

Report of Travel  
to  
Bujumbura (Burundi)  
(19.8-29.9.1997)

by

Petra Paffen and Els M. Bosma  
Fisheries Biologists

GCP/RAF/27 1/FIN. 10

cc: Ziesler, RAFR  
Kapetsky, FIRI  
Everett/Gréboval, FIPP  
All LTR stations  
Chrono  
TRAMS  
Diary: Paffen and Bosma

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GCP/RAF/271/FIN

September, 1997

## 1. INTRODUCTION

In July 1997, the Lake Tanganyika Research project (LTR) together with the riparian governments executed the first lake-wide Socio-Economic survey (SE) at Lake Tanganyika. Between the end of July and 15 August 1997, the enumerator teams of all countries except the Democratic Republic of Congo (DRC) finalized the computer data input of results at the respective LTR stations in Bujumbura, Kigoma and Mpulungu. Data from the DRC were filed by the Burundian enumerator team responsible also for the filing of the Burundian information.

### 1.1 Objective

The objectives of this travel were: (a) to process the data already filed by the country teams into a format useful for further investigations, (b) to design a suitable output of summarized data in table format, (c) to finalize two Technical Documents (TD 65 and 66) on the preparations and procedures of the SE survey, and (d) to organize the publication of SE results into four Technical Documents (TD 67-70). In mid-August, the LTR consultant for SE procedures and investigations, Dr. E. Reynolds, arrived in Bujumbura to co-ordinate the above mentioned analysis.

### 1.2 Itinerary

	<u>Arrival</u>	<u>Departure</u>
<u>Petra Paffen:</u>		
Mpulungu		15.08.1997
Kigoma	17.08.1997	19.08.1997
Bujumbura	20.08.1997	29.09.1997
Kigoma	29.09.1997	
<u>Els M. Bosma:</u>		
Kigoma		19.08.1997
Bujumbura	20.08.1997	29.09.1997
Kigoma	29.09.1997	

### 1.3 Persons met

From FAO:

Dr. E. Reynolds LTR/Oregon, USA

From the Dem. Rep. of Congo:

Dr. Mulimbwa Head Economy Section,  
Hydrological  
Research Centre (DRC)/Uvira

In Burundi:

Dr. G. Hanek Project Coordinator,  
LTR/Bujumbura  
Mr. M. Mamboneza Accountant, LTR/Bujumbura  
Ms. F. Gatungane Secretary, LTR/Bujumbura  
Mr. R. Kanyaru Director of Fisheries,  
DoF/Bujumbura  
Mr. B. Nyakageni Sub Dir, of Fisheries,  
DoF/Bujumbura

Mr. F. Bashirwa	Researcher, DoF/Bujumbura
Mr. E. Nikomeze	Fisheries Assistant, DoF/Bujumbura
Mr. J.M. Tumba	Fisheries Assistant, DoF/Bujumbura
Mr. B. Ndimunzigu	Fisheries Assistant, DoF/Bujumbura
Mr. E. Gahungu	Fisheries Assistant, DoF/Bujumbura
Mr. C. Butoyi	Fisheries Assistant, DoF/Bujumbura
Mr. J.M. Niyibigira	Beach Enumerator, DoF/Karonda
Mr. G. Ndorimano	Beach Enumerator, DoF/Rumonge

## **2. RESULTS**

### **2.1 Data processing for further investigations**

The riparian enumerator teams responsible for SE data input used Excel files with a predetermined format for data input. As there were three different survey questionnaires used, there existed three differently formatted Excel tables for results, each table especially designed to file data from the survey questionnaires. The survey questions that were not open-ended, had been pre-coded and filed such by the enumerator teams. For the open-ended questions, codes were given during the first part of our stay. All unclear matters encountered in the files were reviewed and adapted.

### **2.2 Design of a suitable output of summarized data in table format**

For each question, the coded responses were summarized (count, percentage or average) per category and country distinguished. For the harvest sector fishers (survey questionnaire 2), there were 4 categories distinguished, namely: artisanal main gear owners, artisanal crew, traditional main gear owners and traditional crew. For the post-harvest sector processors and traders (survey questionnaire 3), there were 2 categories distinguished, namely: females and males. The results handled such were summarized in table format. The total number of cases and the missing cases were provided for each question per category and country.

### **2.3 Finalisation of TD 65 and 66 on the preparations and procedures of the SE survey**

Most of the preparations necessary for the publication of TD 65 and 66 had been finalized during the preparatory phase of the field work in May and June 1997. TD 65 reviews the proceedings of the two workshops organized to plan and prepare SE field work in the riparian states. The first workshop, in English, was co-ordinated by Dr. E. Reynolds in April in Kigoma and was attended by delegates from Tanzania and Zambia. The second workshop, in French, was co-ordinated by P. Paffen in July in Bujumbura and was attended by delegates from the DRC and Burundi. TD 66 provides details on the planned the survey



procedures and strategy per country.

#### **2.4 Publication of SE results into TD 67-70**

The SE results filed, processed and summarized were published into TD 67 on Zambia, TD 68 on Tanzania, TD 69 on the DRC and TD 70 on Burundi.

### **3. FOLLOW-UP**

3.1 Suitable distribution of TD 65-70 to representative and interested parties in the four riparian states. (Action: Hanek, LTR/Bujumbura)

RESEARCH FOR THE MANAGEMENT OF THE  
FISHERIES ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAP/271/FIN/TRAM/98

Report of travel

to

Dar es Salaam and Kigoma (Tanzania), Bujumbura (Burundi) and  
Mpulungu (Zambia) and to Lake Tanganyika (cruise No. 16)  
13.8. -14 .9. 1997

by

P. Kotilainen, A. Peltonen (consultants in hydrodynamics), M.  
Savinainen (electric engineer), I. Kimosa, R. Makere

**GCP/RAF/271/FIN. 10**

cc. Ziesler, RAFR  
Everett, FIPP  
Kapetsky, FIRI  
Turner/Smith, FIIT  
LTR/Kuopio  
SzcZucka, Poland  
all LTR stations  
Chrono, Bujumbura  
Trains, LTR, Bujumbura

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GCP/RAF/271/FIN

October 1997

## 1. INTRODUCTION

### 1.1 Objectives

The 16th cruise of *R/V TANGANYIKA EXPLORER* was carried out between 19.08 and 04.09.1997. It was the last cruise in the hydrodynamic sub-component but also in the IAA (Inter-Agency Agreement).

The main objectives of the mission were: 1) to measure the flow fields around the lake in space and time with Acoustic Doppler Current Profiler (ADCP) in order to figure out the flow patterns during the dry season and to compare the flow fields with results of previous cruises; 2) to measure the vertical stratification of physical parameters of the lake during the dry season along and across the lake with a Conductivity, Temperature and Dissolved Oxygen probe (CTD); 3) to collect simultaneously meteorological data around the lake; 4) to measure flow pattern of the main inflowing rivers - Malagarasi, Rusizi and Lufubu rivers with ADCP and Workhorses (WH); 5) to collect surface sediment sampling near the river inlets; 6) to maintain hydrodynamic recording devices around the lake; and 7) to give additional training on instrumentation and data collection in hydrodynamics to cruise participants. Five counterparts, two from Burundi and one from the other three riparian countries, took part in the cruise.

### 1.2. Itinerary

	<u>Arrival</u>	<u>Departure</u>
Joensuu (Savinainen, MS)		
13.08.97		
Tampere (Peltonen, AP)		
13.08.97		
Helsinki (Kotilainen, PK)		
13 . 08.97		
Dar es Salaam	14.08.97	16.08.97
Mbeya	16.08.97	17.08.97
Mpanda	17.08.97	18.08.97
Kigoma	18.08.97	19.08.97
Bujumbura	20.08.97	22.08.97
Kigoma	23.08.97	
Kigoma (PK, AP)	24.08.97	
Kigoma (MS)	26.08.97	
Mpulungu	31.08.97	01.09.97
Kigoma	04.09.97	08.09.97
Dar es Salaam	08.09.97	11.09.97
Nairobi	11.09.97	13.09.97
Helsinki	14.09.97	

Due to canceled flight Dar es Salaam - Kigoma the trip was done by car.

### 1.3. Persons met

#### in Dar es Salaam:

Dr. A. Menz, Project Coordinator, LTBP, UNTS/RAF/007/GEF  
Dr. D. Dettman, consultant, LTBP

#### In Bujumbura:

Dr. G. Hanek, Project Coordinator, LTR  
Personnel of LTR/Bujumbura

#### in Kigoma:

Mr. D. Chitamwebwa, Director, TAFIRI/Kigoma  
Ms. K. West, Liaison Officer, LTBP  
**Mr.** P. Verburg, APO, LTR/Kigoma  
Ms. E. Bosma, APO, LTR/Kigoma  
Ms. Petra Paffen, APO, LTR/Mpulungu  
Mr. L. Makassa, Technician in Hydrodynamics, DOF/Mpulungu  
**Mr. M.** Kakogozo, Technician in Hydrodynamics, CRSN, Uvira, DRC  
**Mr.** J.-M. Tumba, Technician in Hydrodynamics, LTR/Bujumbura  
**Mr.** E. Nikomeze, Technician in Hydrodynamics, LTR/Bujumbura  
Mr. Muhoza, Technician in Hydrodynamics, LTR/Kigoma

#### in Mpulungu:

Mr. Victor Langenberg, APO, LTR/Mpulungu  
  
Personnel of LTR/Mpulungu

## **2. RESULTS**

Dr. A. Menz was met twice in Dar es Salaam on the way to Kigoma and after returning from the lake. He was briefed on the planned cruise and the obtained results, respectively.

### 2.1 Mission to the lake. 21.08. – 22.08. and 23.08.– 4.09.97

The mission started in Kigoma. R/V TANGANYIKA EXPLORER sailed first to Bujumbura, Burundi. First intensive ADCP, WH and CTD measurements were conducted off Rusizi delta and some ADCP transects and CTD profiles were measured and taken on the way back to Kigoma. This was the first time that ADCP measurements were done in the northern part of the lake. The second part of the cruise started in Kigoma and continued to Mpulungu. R/V TANGANYIKA sailed back to Kigoma along the Congolese coast off Kalemie, wherein ADCP measurements were also carried out for the first time. During the cruise special attention was paid to measurements of the main inflowing rivers of the study area: Rusizi, Malagarasi and Lufubu rivers' delta areas (Appendix 1).

#### 2.1. Wind field and water stratification measurements

The meteorological station on R/V TANGANYIKA EXPLORER collected data non-stop during the expedition.

A total of 100 CTD profiles were collected. The most frequent sampling was carried out in the Malagarasi region (13 profiles/day). This was done in order to focus on the short-term time variation in conductivity, water temperature and dissolved oxygen in the region.

## 2.2 ADCP measurements

A total of 117 ADCP transects, and of 400 Nm, were measured during the cruise. Intensive measurements were conducted in two areas, Rusizi and Malagarasi delta areas. In the delta areas as well as in Lufubu delta intensive WH measurements of 48 hours were carried out.

## 2.3 Sediment traps

Three sediment traps were deployed near the Malagarasi and Lufubu river outlets to gain information about the grain size of falling sediment.

## 2.4. Maintaining of the recording units around the lake

The following recording units in hydrodynamics were visited and unloaded: in Kigoma, wind station and water level station; in Mpulungu, weather station and water level station; and in Bujumbura, weather station and water level station. The wind speed sensors of meteorological station in Bujumbura seemed to malfunction. The station should be lowered and sensors cleaned and oiled. In case the failure remains a replacement should be ordered from the manufacturer, Aanderaa Instruments. Some spare bearings for wind speed sensor should be ordered as well.

New batteries for the three water level stations were distributed at each station.

## **3 • CONCLUSIONS, RECOMMENDATIONS AND FOLLOW-UP**

### 3.1 Conclusions and recommendations in general and about technical matters

The mission on the lake was the last one in hydrodynamics in the IAA and the most successful. As the last data were collected the remaining matter for the IAA in hydrodynamics is reporting. A complete set of collected data was copied and mailed to Dr. G. Hanek. Another copy was left for Mr. P. Verburg, field coordinator in hydrodynamics.

The scientific equipment, i.e. ADCP, WH, CTD, Differential Global Positioning System (DGPS), was functioning well. Anyhow, the vessel's speed has to be filtered out of the deep water measurements. Furthermore, two car batteries (together 60 Ah) which are used to run the DGPS last 36-40 hours when fully charged. Therefore, if the equipment will be used in the future

it is recommended to purchase a solar cell power unit to run it independently on time. Due to intensive use of CTD-profiler the voltage of the CTD-batteries was fairly low at the end of the cruise. They should be changed before the next cruise.

As reported earlier (TRAM/91, para 3.10), the meteorological lake stations of f Mpulungu have been discovered to be lost and therefore, they should be written off of the project's inventory list.

The usage of the high frequency radio (ICOM-700) on board cut off vessel's meteorological station data collection. It had to be restarted after each radio contact.

The voltage on board *R/V TANGANYIKA EXPLORER* is still very unstable and scientific equipment can only be used when branched to an uninterruptable power unit (UPS).

For the remaining cruises due to the difficult political situation in the region, it is recommended to endeavor to enter to the Kigoma port during office hours i.e. 08-17 hrs local time. Port immigration and customs authorities should be informed accordingly and in advance to avoid any problems.

### 3.2 H/A equipment SIMRAD EY500 echosounder

By the request of the LTR project coordinator, project's H/A equipment on *R/V TANGANYIKA EXPLORER* was tested after the cruise. For an unknown reason it didn't work ("SP-1 TRANSCEIVER HW ERROR"). The connections, voltage to each unit, computer, cables and the fuse of EY500 were tested as far as it was possible. They seemed to function without problem. There are several possibilities for the malfunction: 1) the transducer; 2) transducer cable; or 3) the unit EY500. Another transducer (a towed body project as) should be tested with the equipment to disregard the possibility of the malfunctioning transducer and manufacturer contact for a thorough check-up of the equipment.

Furthermore, an upgrade of EY500 software were tested, but wasn't working. The old software was used during the tests. The manufacturer should be contacted in the matter.

The needed accessories for hydroacoustics are on board in the port side cabin number 3 (listed earlier in TRAM/91). Before the next cruise printer paper for echograms should be purchased. Some of the color and black/white printer cartridges were expired and should be purchased.

### 3.3 Follow-up

3.2.1 Final reporting (Action: LTR hydrodynamic team).

3.2.2 Write off the two lost meteorological lake stations (one off Kigoma and one off Mpulungu) of the project's inventory list (Action: Project Coordinator).

3.2.3 Verify the malfunction of the H/A equipment and the problem with the upgrade of the software and to purchase paper and cartridges for HP color PaintJet printer (Action: Project Coordinator, LTR/Bujumbura, Manufacturer).

3.2.4 To change batteries of CTD-profiler (alkaline batteries) before the next cruise (Action: Field coordinator in hydrodynamics in LTR/Kigoma).

RESEARCH FOR THE MANAGEMENT  
OF THE FISHERIES ON LAKE TANGANYIKA

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GCP/RAF/271/FIN

GCP/RAF/271/FIN/TRAM/99

Report of Travel  
to  
Rome, Italy  
(11-16.10.1997)

by

George Hanek  
LTR Coordinator

**GCP/RAF/271/FIN.10**

Cc: Robbel, TCOD  
Tesda/Ziesler, PAFR  
Kapetsky, FIRI  
Everett/Gréboval, FIPP  
Turner, FIIT  
Shotton, FIPM  
Venema, FIRM  
FAOR's-BDI,DRC,URT, ZAM  
Kanyaru, BDI  
Kahozzi, DRC  
Mudenda, ZAM  
Maembe, URT  
Laamanen, FINNIDA  
All LTR Stations  
Chrono  
Diary: Hanek

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GCP/RAF/271/FIN

October, 1997





Mr. Ziesler. Briefly, the funds recently transferred by FINNIDA (app. US\$ 560,000) will be used to 'clear' the project's deficit and to cover the planned activities during 1997 and 1998. It was also agreed that additional FIM 1,000,000 is to be transferred by FINNIDA to FAO end January 1998 and a request for funding LTR activities during 1998 will be transmitted to FINNIDA mid-1998.

- **LTR work programme for 1997-1999** - was agreed upon and distributed to all concerned. The required inputs were specified and agreed upon as follows:
  - **TOR for consultant Reynolds** - were proposed and accepted. As these summarize LTR's key activities and their timing during 1998 I now attach them as Appendix 1.
  - **TOR for Coenen's Author's Contract** were proposed and accepted (Note: CPUE study is well underway and his report is due end November 1997)
  - **TOR for Mannini's Author's Contract** were proposed and accepted (Note: some minor modifications may be required; these will be made once the next acoustics cruise is completed. Consequently, the likely timing is early 1998).
  - **TOR for Dr. Szczucka** (acoustics expert) - were also proposed and accepted (for details see below)
  - **LTR's APO's** - as the contracts of the 4 existing LTR's APO's will come to the end during February/March 1998 the TOR's for three new APO's were proposed. If their recruitment cannot be completed on time it was agreed to manage the LTR research stations in Kigoma (URT) and Mpulungu (Zambia) by the nationals trained by LTR during the last six years i.e. Mr. Chitamwebwa for Kigoma and Mr. Mwape for Mpulungu.

In addition it was agreed that the next Joint Meeting of LTR Coordination Committee should take place in June 1998 (likely venue: Zambia) (key objective: to discuss and approve the Draft Fisheries Management Plan for Lake Tanganyika).

- **Acoustics** - Dr. Kapetsky organized a meeting on LTR 'ongoing problem area.' Dr. Szczucka first report was discussed and a number of recommendations made by Messrs. Shotton and Venema. These were already transmitted to the author. Secondly, the inputs for the next acoustics cruise were specified and agreed that Dr. Szczucka works first with Simrad's engineer (to verify acoustics equipment, to calibrate it, etc) before starting the cruise on 14.11.1997. Lastly, it was agreed that LTR should try to run yet another acoustics cruise early 1998.
- **R/V Tanganyika Explorer cruise schedule** - the following tentative schedule was agreed upon: November/December 1997: acoustics cruise; January 1998: sub-charter by NRI; February 1998: acoustics cruise; March 1998: multidisciplinary cruise

by University of Kuopio; April 1998: return R/V Tanganyika Explorer to her owners.

- Disposal of LTR equipment - in particular the one installed onboard of R/V Tanganyika Explorer was discussed. It was agreed that since this sophisticated and expensive equipment (acoustics, navigational, hydrodynamics) is of no use to the beneficiary Governments it should be disposed (sold) following exactly the instructions given in FAO Manual.
- **Associated project (UNTS/RAF/007/GEF)** - the progress to-date was given and the following actions taken:

CSA Nos. 11 & 12 were finalized and signed;

FPO for computer hardware was signed and given to Dr. Mölsä; and

TOR for Kotilainen's Author's Contract were proposed and accepted.

It should be noted that the Terminal Report under this IAA is due in FAO-HQ by mid-December 1997.

### 3. CONCLUSIONS AND FOLLOW-UP

- 3.1 Prepare Work Programme for LTR's 'soft-landing phase' (Action: LTR Coordinator)
- 3.2 Propose LTR's Monitoring Programme (Action: LTR Coordinator)
- 3.3 Propose Author's Contract to Mr. Coenen (Action: Mr. Ziesler and TCOX/P)
- 3.4 Propose consultant contact to Dr. Szczucka and place 'work order' with Simrad as soon as possible noting ETA Kigoma for both is 10.11.1997 (Action: Mr. Ziesler and TCOX/P)
- 3.5 Modify the TOR for Mr. Mannini (Action: Dr. Kapetsky and LTR Coordinator)
- 3.6 Determine if the recruitment of the three new APO's could be finalize by March 1998 (Action: Mr. Ziesler)
- 3.7 Start mobilization for LTR scientific cruise No. 17 (Action: LTR Coordinator)
- 3.8 Finalize Memorandum of Understanding with NRI (Action: LTR Coordinator)
- 3.9 Arrange duty travel to Bujumbura for April 1998 (Action: Mr. Turner)
- 3.10 Request AFSP to dispose LTR equipment (Action: LTR Coordinator).
- 3.11 Urgent: propose and finalize Author's Contract for Mr. Kotilainen (Action: Mr. Ziesler and TCOX/P)

**TERMS OF REFERENCE**

**Consultant: Fisheries Planning**

Under the general supervision of the Technical Division (FIPP/FAO HQ) and in close cooperation with the LTR Co-ordinator (GCP/RAF/271/FIN) in Bujumbura (Burundi), and his project colleagues at the University of Kuopio in Finland, this consultant shall:

1. With close reference to the findings of the recently completed LTR lakewide socio-economic survey, LTR reports on present legal and institutional contexts of management within the respective lacustrine states, and to the findings of LTR acoustics investigations of biomass distribution and CPUE studies soon to become available, prepare a draft framework fisheries management plan for Lake Tanganyika. In accordance to principles and recommendations laid out in relevant sections of the FAO Guidelines for Responsible Fisheries, the draft plan should:

(a) review options for an integrated regional approach to the management of the lake's resources with regard to measures which, singly or in various combinations, would:

- \* regulate fishing through restrictions on gear types, specifications, and/or operation;
- \* protect resource components (spawning adults, juveniles) through area-based and/or time/season-based restrictions on fishing; and
- \* reduce fishing mortality on life stages of stocks needing special protection.

(b) give further specific consideration to the possibilities, advantages, and disadvantages associated with:

- \* various forms of effort control including licensing restrictions and imposition of quotas (operating times, vessel and/or gear type use restrictions, etc.);
- \* various forms of catch control (total allowable catch and TAC allocations, individual catch quotas); and
- \* existing and possible alternative use right regimes for limiting resources access. And finally,

(c) pay particular attention to the need to involve local fishing community members in decision-making regarding the formulation of fishers regulatory frameworks and mechanisms through 'management in partnership' ('co-management') approaches, and on the basis of the best available scientific, technical, and socio-economic knowledge and direct experience with local conditions, identify the most feasible technological/developmental options that could be employed to

technological/developmental options that could be employed to minimize negative impacts of newly proposed management measures and to encourage their acceptance and support within local fishing communities.

2. Organize and lead the secretariat for a meeting (date and venue to fixed, probably for around mid-1998) of the LTR Co-ordination Committee. The meeting would be convened in order to:

a) review, and modify as appropriate the draft framework plan as described in point (1) above;

b) decide on the most effective and practicable way of presenting the draft plan for review and comment by members of local fishing communities within the respective national sectors, including provision for systematic collection of local reactions to and alternative suggestions for the management work plan for carrying out the community referenda exercises.

3. Assemble, collate, and analyze the information collected on local responses to and alternative suggestions for proposed management measures, and on this basis prepare a final version of the draft framework regional fisheries management plan for submission and adoption by the respective national fisheries authorities, at a second meeting of the LTR Co-ordination Committee, to be convened for this purpose (time and venue to be fixed, probably early 1999)

4. Prepare a series of technical reports documenting the above activities and outcomes in the standard LTR format.

**Duration:** approx. Four months (on WAE basis) in three segments - the first from around Feb. 1998 (2 months), the second in approx. June 1998 (1 month), and the third in early 1999 (1 month)

**Duty station:** Desk study (home base) with duty travel to Rome (FAO HQ), Bujumbura (Burundi) or other travel as required for meetings and consultations with relevant LTR project and national agency personnel.

**Language:** English (for reporting); knowledge also French and Swahili desirable.

RESEARCH FOR THE MANAGEMENT OF THE FISHERIES  
ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/100

Report of Travel  
Cruise No. 17  
(22.11-9.12.1997)

by

J. Szczucka, I. Kimoza, R. Makere and N. Chale

*GCP/RAF/271/FIN.10*

Cc: Tesha, RAFR  
Kapetsky, FIRI  
Turner/Smith, FIIT  
All LTR Stations  
TRAMS  
Chrono  
Diary :Szczucka

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GCP/RAF/271/FIN

December 1997

## 1. INTRODUCTION

### 1.1 Objectives

The 17<sup>th</sup> cruise, entirely devoted to acoustics/fisheries, started in Bujumbura on 22.1.1997 and ended in Kigoma on 9.12.1997.

The main objectives were to estimate the total ichthyomass and of the 3-dimensional distribution of fish in the whole of Lake Tanganyika. In addition, the collection of CTD profiles, fisheries data from trawl hauls and complementary zooplankton and fish larvae were planned.

### 1.2 Itinerary

For details see Figure 1.

### 1.3 Participants

Dr. J. Szczucka, cruise leader  
Ms. P. Paffen, leader of fisheries group  
Mr. Chitamwebwa, fisheries biologist  
Mr. Nikomeze, fisheries biologist  
Mr. Ndumunzigo, fisheries biologist  
Mr. Butoy, fisheries biologist  
Mr. Tumba, fisheries assistant  
Mr. Mwenda, fisheries assistant  
Mr. Zulu, fisheries assistant  
Mr. Kimosa, captain  
Mr. Makere, chief engineer  
Mr. Chale, gear technologist  
Mr. Suleiman, second engineer  
Mr. Bamporumukeko, crew  
Mr. Mpawenimana, crew  
Mr. Hassan, crew  
Mr. Bigirimana, cook

## 2. RESULTS

Throughout the cruise, acoustics sampling was carried out continually using the SIMRAD EY500 echosounder working at a frequency of 120 kHz. The following values were recorded : sound scattering strength, integration values and target strength distribution in 10 arbitrarily chosen layers to a depth of 700 m. Fish trawl data spanned the length frequency distribution, sex and maturity of the three target pelagic species:

*Stolothrissa tanganicae*, *Limnothrissa miodon* and *Lates stappersii*. Temperature and oxygen profiles were measured at 23 stations by a CTD-12 sonde to 300 m depth. Zooplankton samples were taken both by vertical sampling to 100 m and towed torpedoes. A towed GULF torpedo collected large zooplankton and fish larvae from the 250 m water column.

A large amount of data has been collected. In total we made 54 acoustics transects (total length 1,185 Nm), 26 trawl hauls, 23 CTD profiles and took vertical zooplankton samples from 29 stations (Figure 1).

The results will be published in the final report on acoustics, using LTR Technical Document format.



RESEARCH FOR THE MANAGEMENT OF THE FISHERIES  
ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/101

Report of Travel  
to  
Lusaka & Mpulungu (Zambia) and Kigoma (Tanzania)  
(3-14.1.1998)

by

George Hanek  
LTR Coordinator

*GCP/RAF/271/FIN.10*

CC: Tesha, RAF  
Kapetsky, FIRI  
Everett/Gréboval, FLPP  
Turner, FIIT  
Satia, FIIPL  
West, RAF  
Ssentongo, SAFR  
FAOR's - BDI, DRC, URT, ZAM  
Kanyaru, BDI  
Kahozzi, DRC  
Maembe, URT  
Mudenda, ZAM  
All LTR Stations  
Chrono  
Diary:Hanek

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GCP/RAF/271/FIN

January, 1998

## 1. INTRODUCTION

### 1.1 Objective

The objective of this duty travel was to visit DOF/Chilanga and LTR stations in Mpulungu and Kigoma in order to explain LTR's Work Plan for 1998 and to initiate the required actions to put in place the national execution of both LTR/Mpulungu and LTR/Kigoma.

### 1.2 Itinerary

	<u>Arrival</u>	<u>Departure</u>
Lusaka (from AL)	3.1.98	6.1.98
Mpulungu	6.1.98	10.1.98
Kigoma (with M/V Liemba)	12.1.98	13.1.98
Nairobi (with free IRC plane)	13.1.98	14.1.98
Kigali	14.1.98	15.1.98
Bujumbura	15.1.98	

### 1.3 Persons met In Chilanga & Lusaka

Mr. G. Mudenda                      Director of Fisheries  
Mr. H. Ikonen                        Ambassador of Finland to Zambia  
Staff of FAO Representation in Lusaka

#### In Mpulungu

Ms. P. Paffen                        APO-Fisheries Biologist, GCP/RAF/271/FIN  
Mr. V. Langenberg                APO-Fisheries Biologist, GCP/RAF/271/FIN  
All staff of DOF & LTR/Mpulungu

#### In Kigoma

Dr. G. Patterson                    NRI-LTBP  
All staff of TAFIRI & LTR/Kigoma

## 2. RESULTS

### 2.1 in Chilanga and Lusaka

A series of meetings was held with the Director of Fisheries, staff of FAO Representation in Lusaka and the Ambassador of Finland to Zambia. Full briefing on LTR progress was given, copies of LTR Progress Report No. 12 distributed and the key activities listed in LTR's Work Plan for 1998 were outlined. In addition, the possibilities of organizing the 8<sup>th</sup> Session of CIFA Sub-Committee for Lake Tanganyika, together with the 6<sup>th</sup> Joint Meeting of LTR Committees, in the Mulungushi International Conference Centre, during June/July 1998, were discussed. All were interested and promised full cooperation.

The Director of Fisheries promised to arrange for the official invitation by his Government noting that one was already extended by the Zambian delegation during the 7<sup>th</sup> Session of CIFA Sub-Committee (Rome, November 1996). He further requested that the Agenda and the List of Participants for our planned June meetings are sent to him not later than end March 1998. Initial contact was made with the Mpulungushi International Conference Centre; while there should not be any problem in obtaining the conference room for our meetings, a firm reservations should be made by mid-April 1998 at the latest. Lastly, the Director of Fisheries also promised to make the necessary arrangements to ensure that either his Minister or the PS will take part in the opening and closing ceremonies.

Further, it should be noted that the restructuring/decentralization of the Zambia's civil service is well advanced. While this exercise is due to be completed by May 1998 there are already many signs clearly showing that this will be quite a drastic change. Many posts, principally those at different Ministries headquarters, are to be eliminated and majority of those remaining in the civil service are to be transferred to the Province/District levels. It would seem that the Fisheries Department as such will cease to exist (no HQ in Chilanga, no Director, etc); the Director of Fisheries promised to provide me with the details as soon as possible.

Lastly, and while still in Lusaka, I was informed that Mr. M.A. Katundu, Zambia's Chief Fisheries Research Officer and the member of LTR International Scientific Committee for the last two years, passed away on 5.1.1998.

### 2.2 in Mpulungu

A meeting was held with all LTR and DOF/Mpulungu staff. The highlights of the LTR Progress Report No. 12 were presented, so was the LTR's 1998 Work Plan and somewhat delayed New Years party for all staff organized. Further, a detailed inventory of LTR equipment now under custody of LTR/Mpulungu was made. Lastly, initial steps were taken to ensure an effective national execution of LTR/Mpulungu as of 1.3.1998 (for details see Attachment 1).

### 2.3 in Kigoma

Due to absence of Mr. Chitamwebwa, O-i-C, TAFIRI/Kigoma (on DANIDA training course in Jinja) and both LTR's APO's (both on HL) it was decided that the required tasks (identical to those carried out at LTR/Mpulungu) will be completed during mid-February; these will coincide with the last acoustics cruise i.e. movement of R/V *Tanganyika Explorer*. Consequently, I had only the opportunity to verify the progress of the time-charter of R/V *Tanganyika Explorer* to the NRI and the University of Arizona (note: all is well) and discuss various matters with Dr. Graeme Patterson (NRI) before taking advantage of a free flight of the IRC to Nairobi noting there were no other possibilities to return to Bujumbura.

### **3. CONCLUSIONS AND FOLLOW-UP**

- 3.1 Propose the Agenda for the 8'' Session of CIFA Sub-Committee for Lake Tanganyika and the 6'' Joint Meeting of LTR Committees and subsequently inform Mr. Mudenda (Action: Ssentongo and Hanek).
- 3.2 Follow-up on Gov't of Zambia invitation to host both meetings (Action: Ssentongo and Hanek)
- 3.3 Propose the list of participants for both meetings and inform Mr. Mudenda (Action: Hanek)
- 3.4 Follow-up on my Office Memorandum of 8.1.98 re: national execution of LTR/Mpulungu station (Action: APO's Langenberg and Paffen)
- 3.5 Organize duty travel to LTR/Kigoma during February 1998 (Action: Hanek)

Appendix 1

Date:8.1.1998

To: Ms. Petra Paffen, LTR/Mpulungu  
Mr. Victor Langenberg, 0-i-C LTR/Mpulungu

From:George Hanek  
LTR Coordinator

SUBJECT:LTR/Mpulungu: national execution

In order to prepare the national execution of our research station in Mpulungu the following steps are to be taken between now and the end of February 1998:

1. Assist Mr. Maboneza in the preparation of inventory of LTR equipment now under your responsibility ; this list must be prepared following the standard procedures i.e. listing every item and provide its LTR inventory number, ledger number detail description, date of purchase, original value (in US\$), condition, utilization and location. You must ensure that the responsibility for this equipment must be given to Mr. L. Mwape, 0-i-C, DOF/Mpulungu, who must sign the equipment inventory list. Thus accepting the responsibility for LTR equipment, by 28.2.1998. The original and two copies must be sent to LTR/Bujumbura immediately thereafter while one copy must be retained by Mr. Mwape and another sent to FAO Representation in Lusaka and to the Director of Fisheries at DOF/Chilanga.
2. In addition you must prepare a list of all other LTR equipment and materiel which is not given on FAO year-end Inventory Report i.e. items which cost less than \$500. This will thus include items like office furniture, equipment, materiel and/or documents/data must be also signed for by Mr. Mwape and original and copies sent or distributed exactly as per 1 above.
3. E-mail - you must ensure that e-mail modem is installed on Mr. Mwape computer and that he is given appropriate training in its use noting that Mr. Mwape will become the 0-i-C of LTR/Mpulungu, on part-time basis, as of 1.3.1998.
4. LTR imprest a/c in Mpulungu - the last imprest return will be that of February 1998; at that point you must close the LTR bank account and complete all documentation exactly as at the end of the year.
5. LTR Monitoring Programme - in close cooperation with Mr. Mwape be good enough and propose me a list of DOF/Mpulungu colleagues who you feel should be part of our Monitoring Programme. In addition kindly specify the required inputs by the national colleagues over the next three months noting this refers specifically to those analyses which may

be necessary following our last acoustics cruise now scheduled for February 1998.

6. Personal matters – as your respective contracts will unfortunately expire on 28.2.1998 you should be informed by either FAO Rome or Accra re: authorizations for your repatriation travel, shipment of your personal effects and debriefing. As both of you wish to stay in Mpulungu for several months after the completion of your contract it is up to you to inform yet to be determined service (Rome or Accra) providing the required details re: repatriation travel, etc.

RESEARCH FOR THE MANAGEMENT OF THE FISHERIES  
ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/102

Report of Travel  
to  
Kigoma (Tanzania)  
(16.17.02.1998)

by

George Hanek  
LTR Coordinator

*GCP/RAF/271/FIN.10*

Cc: Hayashi, ADG-FI  
Garcia, FIR  
Tessa, RAF  
Kapetsky, FIRI  
Everett/Gréboval, FIPP  
Turner, FIIT  
Satia, FIPL  
West, RAF  
Ssentongo, SAFR  
FAOs . BDI, DRC, URT, ZAM  
Kanyaru, BDI  
Kahazi, DRC  
Maembe, URT  
Mudenda, ZAM  
All LTR Stations  
TRAMS  
Chrono  
Diary: Hanek

---

GCP/RAF/271/FIN

February 1998

## 1. INTRODUCTION

### 1.1 Objective

The objective of this duty travel was to visit TAFIRI and LTR stations in Kigoma (Tanzania) in order to: (1) assist to FINNIDA's Evaluation Mission; (2) explain LTR's Work Plan for 1998; (3) initiate the national execution of LTR/Kigoma; and (4) meet with the Coordinator and the Scientific Liaison Officer of LTBP (UNDP-GEF Biodiversity project).

### 1.2 Itinerary

	<u>Arrival</u>	<u>Departure</u>
Bujumbura (with free WFP plane)		16.2.98
Kigoma (with free WFP plane)	16.2.98	17.2.98
Bujumbura	17.2.98	

### 1.3 Persons met

HE. I. Rantakari	Finnish Ambassador to URT
Hon. D. Mzuzuri	Regional Commissioner (Kigoma Region)
Prof Carl Widstrand	Leader of Evaluation Mission
Prof A. Kajumulo Tibaijuka	Member of Evaluation Mission
Ms. P. Uski	Member of Evaluation Mission
Dr. A. Menz	Coordinator, LTBP
Dr. K. West	Scientific Liaison Officer, LTBP
Ms. E. Bosma	APO-Biologist, LTR/Kigoma
Mr. P. Verburg	APO-Biologist, LTR/Kigoma
Mr. D.B.R. Chitamwebwa	Director, TAFIRI/Kigoma
Dr. J. Szczucka	LTR consultant in acoustics
All TAFIRI staff	

All officers and crew of *R/V Tanganyika Explorer*

## 2. RESULTS

### 2.1 Evaluation Mission

The Department for International Development Cooperation of the Finnish Ministry of Foreign Affairs proposed the TOR for the Evaluation Mission on 'A State-of-the Art Analysis on the Effects and Impacts of the Research Funded through the Finnish Development Cooperation Budget'. I now summarize its purpose, issues to be covered and provide other details. Purpose: (1) to produce a review of the past performance of development research



funded from the Finnish development cooperation budget; and (2) to give recommendations for the improvement of future development research based on the lessons learnt. Issues to be covered: relevance, effectiveness, efficiency and sustainability. Coverage: all projects funded through Finnish development cooperation budget. Mission members: Prof Carl Widstrand (leader), Prof Anna Kajumulo Tibaijuka (member) and Ms. Paula Uski (member). Of note is the fact that H.E. the Ambassador of Finland and other staff of his embassy accompanied the mission.

The Ambassador, his staff and Mission members were met by Mr. Chitamwebwa and by Ms. Bosma who made, as always, all the required arrangements. The mission was shown TAFIRI/LTR facilities, LTR research programme was explained and the mission's morning programme terminated by visiting the Regional Commissioner and his key staff. All afternoon was devoted to detailed discussions to which assisted all Mission members and all TAFIRI/LTR staff. I have provided Mission members with copies of documents prepared for the occasion *i.e.* (1) Baseline document detailing LTR's activities and outputs during 1992-1997 and (2) Catalogue of LTR's First 100 Publications. In addition, LTR's Work Programme for 1998 was explained. Most of the time was however devoted to outlining the principles of the Management Plan for Lake Tanganyika Fisheries, providing the details *re*: planned activities and their timing and, particularly, how this plan will be put in place. Consequently, I provided the outline of the 'Accompanying Measures' of our Plan by detailing its four key components *i.e.* (1) institutional; (2) legal; (3) developmental; and (4) research and monitoring. After a brief break all participants as well as invited guests all met onboard *R/V Tanganyika Explorer*; during some 4 hour long cruise, the presentation of LTR activities was completed by Dr. Joanna Szczucka (LTR Consultant-acoustics) and the traditional but somewhat delayed LTR New Years party followed.

The Ambassador, his staff and Mission members left Kigoma very early the following day satisfied with LTR accomplishments while ensuring all of us of their continuous support. Other tasks were carried as follows:

## 2.2 National Execution of LTR/Kigoma

Detailed discussions *re*: national execution of LTR/Kigoma were held with Mr. Chitamwebwa and Ms. Bosma. As considerable progress was already made by both we have concentrated on administrative and operational details. It was agreed that (1) a comprehensive guidelines (administrative & operational) will be developed by myself, (2) stations' budget will be proposed and

finalized during the next week when (3) yet another visit by LTR Admin. Officer will take place to conclude all required tasks (mainly to close the project's imprest a/c and to finalize the inventory) in order to ensure that the national execution of LTR/Kigoma can start on 1.3.1998.

### 2.3 Discussions with LTBP

Taking advantage of the presence in Kigoma of the LTBP Coordinator and his Scientific Liaison Officer a very productive meeting took place. It was agreed that (1) LTBP staff will take an active part in LTR Working Groups i.e. on Monitoring and Management since both are of interest to both projects and (2) both project will do their best to facilitate the upcoming visit to the lake of Dr. Mölsä and his group (a separate communication on this late this afternoon).

## **3. CONCLUSIONS AND FOLLOW-UP**

- 3.1 Prepare the administrative and operational guidelines for LTR stations in Kigoma and Mpulungu (Action: LTR Coordinator).
- 3.2 Propose and finalize the budget for LTR/Kigoma (Action: Chitamwebwa, Bosma & Hanek).
- 3.3 Finalize all administrative and operational aspects at LTR/Kigoma and LTR/Mpulungu (Action: LTR Admin Officer).
- 3.4 Finalize the details of cooperation re: LTR Working Groups on Monitoring and Management between the LTBP and LTR (Action: Coordinators of LTBP and LTR).
- 3.5 Detail logistics support for the upcoming visit to the lake by Dr. Mölsä and his team (Action: LTR Coordinator).

RESEARCH FOR THE MANAGEMENT OF THE FISHERIES  
ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/103

Report of Travel  
to  
Kigoma (Tanzania)  
(16-17.03.1998)

by

George Hanek  
LTR Coordinator

*GCP/RAF/271/FIN.10*

Cc: Hayashi, ADG-FI  
Garcia, FIR  
Tessa/Dagg, RAFR  
Kapetsky, FIRI  
Everett/Gréboval, FIPP  
Turner, FIIT  
Satia, FIPL  
West, RAF  
Ssentongo, SAFR  
FAOs - BDI, DRC, URT, ZAM  
Kanyaru, BDI  
Kahazi, DRC  
Maembe, URT  
Mudenda, ZAM  
All LTR Stations  
TRAMS  
Chrono  
Diary: Hanek

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GCP/RAF/271/FIN

March, 1998



of the members of WGM received so far (by Dr. Kapetsky, Messrs. Coenen, Langenberg and Misses. Bosma, Kurki and Paffen) were acknowledged; (2) the input of Finnish colleagues was promised for 24.3.98 (by e-mail from Kigoma to all members of WGM); (3) since our key donor (FINNIDA) wishes to ensure LTR's 'continuity' well into the next century and since our Monitoring Programme will be an integral part of the Lake Tanganyika Fisheries Management Plan, there is a need for a proper preparation of our Monitoring Programme and thus (4) I was requested to propose the TOR to carry out this assignment (our only candidate: Mr. Eric Coenen) which basically includes (a) a preparation of LTR technical Document specifying the Monitoring Programme's objectives, scope, sampling methodology and procedures, data treatment, supervision and budget, all by mid-April 1998 and (b) to run a training course (tentatively in Kigoma during November 1998) which should both re-train our national colleagues from all four participating countries and field test the Monitoring Programme (for details see Appendix 1).

## 2.2 LTR scientific cruise No. 20 (= the very last cruise of LTR)

Logistics for this cruise (= this is a multidisciplinary cruise designed mainly to verify the already collected data and reported results; it is led by Profs. Mölsä and Sarvala and executed by a large team of Finnish instructors and students) were worked out. This involved mainly to make the necessary arrangements to ensure that (a) fuel, oils, etc. for *R/V Tanganyika Explorer* are purchased (not an easy task since replenishment of our a/c's was not made..) and (b) to convince the officers and the crew of *R/V Tanganyika Explorer* to take part in this very last cruise of this project. All required arrangements were made (please do not ask how..).

## 2.3 R/V Tanganyika Explorer

A meeting with all officers and the crew of *R/V Tanganyika Explorer* took place. It was agreed that (1) all will take an active part in the cruise No. 20; (2) *R/V Explorer* will leave the harbor of Kigoma on 17.4. 1998 and arrive to Bujumbura on 18.4.1998 and (3) all will effect the final maintenance, cleaning, etc. and finally (4) assist Mr. Jeremy Turner (FIIT) during his upcoming visit to Bujumbura (tentatively 19-25.4.1998) which has one objective i.e. to return the vessel to her owners noting our three year long charter with La Tanganyikaise SARL (=owners of *R/V Tanganyika Explorer*) will expire on 27.4.1998.

As stated in previous reports all officers and the crew of *R/V Tanganyika Explorer* have all done an excellent job under very difficult conditions (civil war, insecurity, embargo, etc). As their services will not longer be required by this project after 27.4.1998 they are of course concerned since the previously hoped for continuation of this vessel charter by our sister project (=Lake Tanganyika Biodiversity Project) is unlikely. Consequently, they all hope that this project will be able to

'compensate' for the effective and accident free operation of this vessel during the last three years (NOTE: *R/V Tanganyika Explorer* has a clean record, not a single claim was made) by offering all a gratuity (bonus) and/or compensate for over-time. It is hoped that Mr. Turner can resolve these issues during his upcoming visit.

#### 2.4 National execution of LTR/Kigoma

As the contracts of APO's Bosma and Verburg expired on 28.2.1998, and as stated previously, we were forced to start the national execution of LTR/Kigoma as of 1.3.1998. Mr. Chitamwebwa is our 0-i-C, LTR/Kigoma. The regularization of his status (as a part-time national expert) and that of Mr. L. Mwape, 0-i-C of LTR/Mpulungu is urgent. I have their respective PH forms, duly completed, and also the official UNDP rates for national experts both in URT and Zambia BUT still await the results of their respective medical exams. Once these are received I shall propose their contracts to Mr. Dagg (RAFR). In addition, it should be clear that, in addition to regularization of Messrs. Chitamwebwa and Mwape statuses there is an urgent need to approve operating budget for both stations. These were proposed only during this duty travel to Kigoma. These and other items will be on the agenda for my planned duty travel to RAFR.

### **3. CONCLUSIONS AND FOLLOW-UP**

- 3.1 Complete the summary of LTR Scientific Report (Action: Profs. Mölsä and Sarvala; deadline: 15.5.1998);
- 3.2 Suggest postponement of the 8<sup>th</sup> Session of CIFA Sub-Committee and the 6<sup>th</sup> Joint Meeting of LTR Committees, tentatively for August/September 1998 (Action: Hanek; taken on 18.3.1998; Follow-up: Mr. Ssentongo (SAFR) and FAOR-Zambia);
- 3.3 Provide input to LTR Working Group on Monitoring by specifying the parameters to be collected, sampling frequency, etc. (Action: Profs. Mölsä and Sarvala; deadline: 24.3.1998);
- 3.4 Propose the TOR for WAE basis contract on LTR Monitoring Programme (Action: Hanek; taken, pls. note Appendix 1);
- 3.5 Make the necessary arrangements to sail *R/V Tanganyika Explorer* from Kigoma on 17.4.1998 (arrival to Bujumbura: on 18.4.1998) and start the last maintenance/cleaning, etc. immediately (Action: Capt. Kimoza);
- 3.6 Confirm ETA to Bujumbura (Action: Mr. Turner, FIIT)
- 3.7 Send the results of medical exams to LTR/Burundi (Urgent action: Messrs. Chitamwebwa and Mwape);
- 3.8 Propose national contracts, on part-time basis, for Messrs. Chitamwebwa and Mwape (Action: Hanek, Approval: Mr. Dagg, RAFR);
- 3.9 Propose operating budgets for LTR research stations in Kigoma and Mpulungu (Action: Hanek; Approval: Mr. Dagg, RAFR).

**TERMS OF REFERENCE**  
**Consultant: Fisheries Biologist/Planner**  
**GCP/RAF/271/FIN**

Under the general supervision of the Technical Divisions (FIRI and FIPP, FAO-Rome) and in close cooperation with the LTR Coordinator (GCP/RAF/271/FIN) in Bujumbura, Burundi and his colleagues at the University of Kuopio in Finland, this consultant shall:

1. on the basis of contributions made by the members of LTR Working Group on Monitoring prepare a Technical Document on LTR Monitoring Programme, detailing its objectives, scope, sampling procedures, methodology, frequency and determine the sampling sites, data analyses procedures and schedules, training and supervisory components and budget while keeping in mind that (a) the LTR Monitoring Programme will be an integral part of the Lake Tanganyika Fisheries Management Plan and (b) the LTR donor wishes to ensure the LTR continuity, under national execution, by ensuring the financial and limited technical (*i.e.* for supervision) assistance well into the next century; and
2. organize and lead a training course for selected LTR national colleagues during which the necessary re-training and particularly the field testing of the LTR Monitoring Programme will take place.

**Duration and timing: approx.** 1.5 m/m (on WAE basis) in two segments: (1) approx. m/m to prepare the Technical Document as per 1 above; start: immediately and (2) approx.. 10 m/days travel inclusive in November 1998 (in LTR/Kigoma).

**Duty station:** desk study (at home) for the first segment and Kigoma (U.R.T.) for the second segment.

**Language:** English (for reporting) and English and French (for training course).

**Candidate:** Mr. E.J. Coenen

RESEARCH FOR THE MANAGEMENT OF THE FISHERIES  
ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/104

Report of Travel  
to  
Accra (Ghana)  
(2803- 03.041998)

by

George Hanek  
LTR Coordinator

GCP/RAF/271/FIN.10

Cc: Dada, RAF  
Tessa, RAFR  
West/Moehl, RAFI  
Satia, FIPL  
Kapetsky, FIRI  
Turner, FIIT  
Everett/Gréboval, FIPP  
Ssentongo, SAFR  
FAO, Burundi  
FAO, Zambia  
Lindqvist/Mölsä, Univ. of Kuopio  
TRAM  
Chrono  
Diary: Hanek

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GCP/RAF/271/FIN

April 1998





#### 4. Summary of Discussions with RAFR

##### 4.1 General

It was an extremely useful duty travel as I had finally chance to brief Mr. Dagg (recently appointed CPO responsible, among other things, for regional fisheries projects) on LTR and, with his effective assistance, to resolve many pending project matters. In addition, I received very clear instructions from Messrs. Tesha and Dagg. The following summarizes our discussions and actions taken under GCP/RAF/271/FIN and its associated projects *i.e.* GCP/RAF/221/AGF, UNTS/RAF/007/GEF and TEMP/INT/845/MUL.

##### 4.2 GCP/RAF/271/FIN

**Budget** - even though we accessed the FINSYS only on Wednesday (on 01.04.1998) the draft project budget revision 'R' was finalized and proposed. Inexplicably, the FINSYS shows a very low 'cash balance'. Result: not possible to even consider the urgently needed approval of hand-carried Allotment Advice 98/02. Action taken: concerned services in FAO-HQ were informed urging to verify, as a matter of urgency, if the due funds (1M FIM) were received from the donor and recorded in FINSYS. As a result of the above no new project activities *i.e.* those not listed in LTR Annual Work Programme for 1998 can even be considered. This effects the LTR full-scale technical meeting and, resultantly, the planned for 8th Session of CIFA Sub-Committee for Lake Tanganyika. Action taken: its postponement for 1999 was already proposed.

**R/V Tanganyika Explorer** - our charter will come to the end on 27.4.1998. Action taken: the TOR for Mr. Turner (FIIT) mission were proposed and ETA Bujumbura agreed upon (17.4.1998). Status: Mr. Turner confirmed his arrival to Bujumbura on 24.4.1998.

**Consultants** - due to lack of backstopping during January-March 1998 the urgently needed recruitment of project consultants (Dr. Szczucka, Dr. Reynolds and Dr. Mannini) was not completed. As two of these (Szczucka and Mannini) are strictly desk studies it was agreed that Author Contracts (AC) will be used. Action taken: Szczucka and Mannini were both requested to send their updated PH forms to Mr. Dagg (RAFR) while I shall complete the required ADM/196 and request their approval by Mr. Tesha, Chief (RAFR). Lastly, the assignment of Dr. Reynolds will require a combination of AC and WAE contract; both to be approved by the Chief (RAFR) after initiating action by me.

**Contractual Service Agreements (CSAs)** - a total 12 of CSA's was issued. A detailed Note for the Files (some were also issued under UNTS/RAF/007/GEF - see point 4.4) was prepared. The pending ones under GCP/RAF/271/FIN are two *i.e.* GSA No. 7 and CSA No. 9. It was agreed that (a) there is no further obligation on the part of FAO or the project with respect to CSA No. 7 while (b) the Recipient Organization is owed a total of FIM 120,732 to clear GSA No. 9. Action taken: provision has been made for this in draft Project Budget Revision R forwarded to FAO HQ on 2 April 1998.

**National execution** – since all remaining APO's left the project on 28.2.1998, the project had no choice but to propose two responsible national colleagues to assume O-i-C's role in respectively LTR/Kigoma and LTR/Mpulungu. I hand-carried the PH forms, duly completed, of Messrs. Mr. Chitamwebwa and Mwape to RAFR together with TOR to initiate their respective recruitment noting a part-time assignment was proposed for both. Conclusion: A When-Actually Employed type Service Contract will be proposed under the local recruitment facility. Action: I will forward full details, including EOD dates, duration, number of days to be worked, etc. to RAFR in the near future.

#### 4.3 GCP/RAF/221/AGF

**Preamble** – the Arab Gulf Programme for United Nations Development Organizations (AGFUND) has agreed to contribute \$337,000, through FAO project GCP/RAF/221/AGF for supplies and materials, equipment and related costs toward the management and development of fisheries in Lake Tanganyika, providing that matching contributions are provided by the present project (GCP/RAF/271/FIN). As a result there is no PRODOC for GCP/RAF/221/AGF as all details concerning this contribution are given in GCP/RAF/271/FIN PRODOC (pages 8, 23 and 24 refer).

**Status** – this project should have been closed a long time ago since apparently all funds were spent (not possible to verify on FINSYS in Accra) and its Terminal Report was sent to then TC04 (on disc and 6 hard copies) in December 1995; the report was not formally distributed. It was agreed that another version will be sent, by e-mail, to RAFR soonest. Action: RAFR to determine from TCDM if a formal report is required/expected by the donor.

#### 4.4 UNTS/RAF/007/GEF

**Preamble** – this is FAO symbol for Inter-Agency Agreement between FAO and UNOPS No. 95073.

**Status** – the final report of this IAA entitled 'Flow, Thermal Regime and Sediment Transport Studies in Lake Tanganyika' was completed and technically cleared by Dr. Kapetsky (FIRI). The problem is that there are several CSAs pending i.e. GSA No. 10, 11 and 12 (details given in The Note for the Files on CSAs). Conclusion: the donor may have to be approached for additional funds. Action: the report to be formally transmitted to UNOPS by TCO.

#### 4.5 TEMP/INT/845/MUL

**Preamble** – this account was opened to receive funds earned by the time-charter of *R/V Tanganyika Explorer*.

**Status** – only one payment, concerning time charter of *R/V Tanganyika Explorer* by the NRI, UK (5-31.1.1998) is due. As NRI requires an official FAO Invoice before the final payment (total amount \$28,500) now due can be made, the Chief (RAFX) was requested to issue one soonest. Action taken: the invoice was faxed to NRI on 6 April 1998.

RESEARCH FOR THE MANAGEMENT OF THE FISHERIES  
ON LAKE TANGANYIKA  
GCP/RAF/271/FIN

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GCP/RAF/271/FIN/TRAM/105

Report of Travel  
Cruise No.19  
(05-20.02.1998)

by

I. Kimosa, R. Makere and N. Chale

*GCP/RAF/271/FIN.10*

Cc: Tesha, RAFR  
Kapetsky, FIRI  
Turner/Smith, FIIT  
All LTR Stations  
TRAMS  
Chrono  
Diary: Hanek

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GCP/RAF/271/FIN

March 1998

## CRUISE DECK SUMMARY REPORT

VESSEL: TANGANYIKA EXPLORER

CRUISE No. 19

MASTER: I. M. KIMOSA

LIST OF CREW ON BOARD:

NAME:

POSITION:

R. MAKERE	CH. ENGINEER
N. CHALE	MAST. FISHERMAN
A. SULEMAN	SEC. ENGINEER
A. HASSAN	DECK HAND
P. BAMPOROMUKENO	DECK HAND
P. BIGIRIMAN	DECK HAND
L. MPAWENIMANA	COOK

TESTS AND CHECKS OF NAVIGATIONAL EQUIPMENT BEFORE DEPARTURE:

WHAT IS WORKING OR NOT:

* GPS	WORKING
* RADAR	WORKING
* AUTO PILOT	WORKING
* ECHO SOUNDER	WORKING
* SONAR	WORKING
* STEERING	WORKING
* RADIO	WORKING IN SHORT DISTANCES, AND WITH INTERFERENCES FROM AIR CONDITIONS, SCIENTIST EQUIPMENTS ETC

PORT OF REGISTRATION BUJUMBURA

DEPARTURE: 09<sup>55</sup> From KIGOMA 05-02-1998

ARRIVAL: 08<sup>30</sup> KIGOMA PORT 20-02-1998

PORTS OF CALL: MPULUNGU 10-02-1998

.....  
BUJUMBURA 19-02-1998  
.....  
.....  
.....  
.....  
.....  
.....  
.....

ANCHORAGES: MGAMBO 06-02-98 LAT: S 05 58 21

LONG E 029 50 93

SIBWESA 07-02-98 LAT: S 06 29 92

LONG E 029 56 98

MSALABA 07-02-98 LAT: S 07 06 06

LONG E 030 30 74

KALA 09-02-98 LAT: S 08 08 13

LONG E 030 57 82

WAMDEMBE 11-02-98 LAT: S 07 58 34

LONG E 30 50 96

KIPILI 11-02-98 LAT: S 07 26 71

LONG E 030 35 96

SIBWESA 13-02-98 LAT: S 06 29 50

LONG E 029 56 53

KALILANI 14-02-98 LAT: S 06 00 03

LONG E 029 46 08

KIRANDO 14-02-98 LAT: S 05 23 46

LONG E 029 45 87

KASELELA 17-02-98 LAT: S 04 40 31

LONG E 029 37 18

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WEATHER

THE WEATHER WAS GOOD

MALFUNCTIONS OF

NAVIGATIONAL

EQUIPMENT

NIL

INCIDENTS AFFECTING

SAFE NAVIGATION

NIL

MALFUNCTION BREAKAGE .....

OF VESSEL .....

NIL

REPAIRS TO BE DONE

TWO FOLDING CHAIRS. WE LEFT THEM IN BUJA FOR REPAIR. DRY LABORATORY CARPET, AND STARBOARD CABINE BRIDGE DECK. LOWER CABINES TOILET ENTRANCE, FORE EXTINGUISHERS TO BE RE-FILLED THE VESSEL TO BE PAINTED.

PERFORMANCE OF CREW

LEAKAGES FROM THE MASI LIGHT BRIDGE DOORS ARE NOT WATER TIGHT, AS A RESULT WATER WAS DRIPPING THROUGH TO THE LOWER CABINES

GOOD

VESSEL DISCIPLINE

GOOD

HUMAN INJURIES

CASUALTIES

NONE



GENERAL REMARKS AND OBSERVATIONS

..... GENERALLY THE CRUISE  
..... WAS SUCCESSFUL WITH GOOD  
..... COOPERATION BETWEEN US AND  
..... THE SCIENTISTS.  
.....

..... ONE OF THE LOWER CABINE KEYS IS  
..... MISSING IN THE LAST CRUISE (NO 18.)  
..... THE SUSPECT MAY BE ONE OF THE SCIENTIST  
..... WENT WITH KEYS BY MISTAKE  
.....

ATTACHMENTS: DECK LOG SHEET

FISHING LOG SHEET