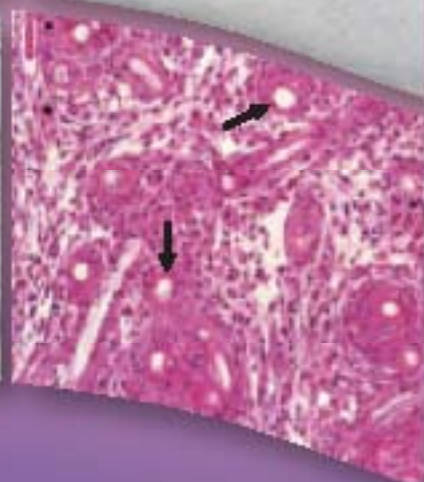
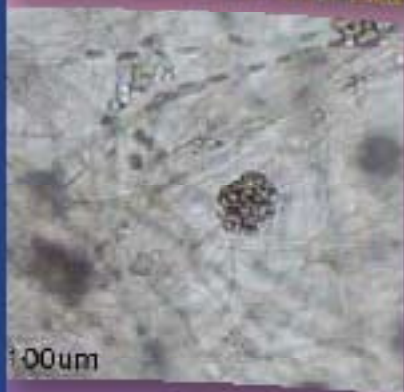


Report of the International Emergency Disease Investigation Task Force on a Serious Finfish Disease in Southern Africa

18–26 May 2007



Report of the International
Emergency Disease Investigation Task Force
on a Serious Finfish Disease in Southern Africa

18–26 May 2007

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

ISBN 978-92-5-106238-8

All rights reserved. Reproduction and dissemination of material in this information product for educational or other non-commercial purposes are authorized without any prior written permission from the copyright holders provided the source is fully acknowledged. Reproduction of material in this information product for resale or other commercial purposes is prohibited without written permission of the copyright holders. Applications for such permission should be addressed to:

Chief

Electronic Publishing Policy and Support Branch
Communication Division

FAO

Viale delle Terme di Caracalla, 00153 Rome, Italy

or by e-mail to:

copyright@fao.org

Preparation of this document

This document is the final report of the work carried out by the International Emergency Disease Investigation Task Force on a Serious Finfish Disease in Southern Africa, a joint undertaking by the Food and Agriculture Organization of the United Nations (FAO), Botswana's Department of Wildlife and National Parks (DWNP) and Department of Animal Health and Production (DAPH), the Aquatic Animal Health Research Institute (AAHRI) of Thailand's Department of Fisheries and the Network of Aquaculture Centres in Asia and the Pacific (NACA), as a result of a technical mission to Botswana undertaken from 18 to 26 May 2007 and the subsequent outcomes of laboratory analysis of field samples conducted by AAHRI.

Prior to the finalization of this report, preliminary results, through a report dated 13 June 2007, containing some of the findings of the Task Force, particularly the confirmation of the epizootic ulcerative syndrome (EUS) in Botswana and including recommended short-term actions to deal with this emergency, were conveyed to the Government of Botswana and other stakeholders through the FAO offices in Angola, Ghana, Malawi, Namibia, South Africa, Zambia and Zimbabwe, and relevant organizations such as AAHRI, NACA and the World Organisation for Animal Health (OIE).

The preparation of this report was spearheaded by Dr Melba B. Reantaso, Fishery Resources Officer (FAO) and head of the Task Force mission, with contribution from Task Force members (Dr Somkiat Kanchanakhan of AAHRI, Dr Rohana P. Subasinghe of FAO, Dr Michael J. Phillips and Dr C.V. Mohan of NACA, Dr Ben Van der Waal of Namibia, Dr Bernard M. Hang'ombe of Zambia and Mr Shaft M. Nengu of Botswana).

Abstract

In response to a request for an emergency technical assistance from the Government of Botswana in connection with a serious disease affecting freshwater fishes in the Chobe-Zambezi River system reported since October 2006, the Food and Agriculture Organization of the United Nations (FAO) formed an International Emergency Disease Investigation Task Force. The overall objectives of the Task Force were to undertake an emergency assessment of the fish disease outbreak in order to identify, as far as possible, the causative agent, to provide recommendations to prevent further spread of the disease, to recommend control measures if applicable, to develop an emergency response and contingency plan for future outbreaks to concerned governments, and to develop a possible regional project. Members of the Task Force travelled to Botswana from 18 to 26 May 2007. The mission of the Task Force, in May 2007 and subsequent work, confirmed the occurrence of the epizootic ulcerative syndrome (EUS) in the southern African region. A preliminary report containing initial findings confirming the presence of EUS in Kasane, Botswana, was submitted in June 2007, immediately after confirmation, and provided the basis for initial short-term actions to address this significant fish disease emergency.

The EUS outbreak in the Chobe-Zambezi River system had exposed serious aquatic biosecurity weaknesses in the region. The mission identified various short-, medium- and long-term actions and recommended an aquatic biosecurity programme to strengthen capacity for fish disease diagnosis and control, quarantine, responsible movement of live aquatic animals, development of appropriate policy and regulatory frameworks, and implementation of better aquatic animal health management programmes in the region. In response to the mission's recommendations, FAO approved a regional technical assistance project – TCP/RAF/3111 *Emergency assistance to combat EUS in the Chobe-Zambezi River* involving seven countries bordering the Zambezi River, namely Angola, Botswana, Malawi, Mozambique, Namibia, Zambia and Zimbabwe.

This report provides comprehensive information on the outcomes of the 2007 Task Force investigation, building on earlier reports, and including further updates on EUS occurrence in southern Africa based on an active surveillance programme that was implemented by FAO and government partners in late 2007 until 2008. It also includes other ongoing activities and developments aimed at further enhancing aquatic biosecurity in southern Africa.

FAO.

Report of the International Emergency Disease Investigation Task Force on a Serious Finfish Disease in Southern Africa, 18–26 May 2007. Rome, FAO. 2009. 70p.

Contents

Preparation of this document	iii
Abstract	iv
Tables, figures, plates	vii
Acknowledgements	ix
Acronyms and abbreviations	x
1. Background	1
2. International Emergency Disease Investigation Task Force	3
3. Methodology: field observations and laboratory examinations	5
3.1 General planning of the Task Force work with local counterparts	5
3.2 Fish sampling	5
3.3 Collection of samples for laboratory analysis	8
3.3.1 Gross clinical signs	8
3.3.2 Parasitology	8
3.3.3 Bacteriology	8
3.3.4 Mycology	8
3.3.5 Virology	8
3.3.6 Histopathology	9
4. Results	11
4.1 General planning of the Task Force work with local counterparts	12
4.2 Fish sampling	12
4.3 Fish examination	13
4.3.1 Gross clinical signs	13
4.3.2 Parasitology	16
4.3.3 Bacteriology	16
4.3.4 Mycology	16
4.3.5 Virology	16
4.3.6 Histopathology	19
5. Diagnosis	23
5.1 Backgrounder to EUS	23
5.2 Confirmation based on internationally accepted methods for EUS diagnosis	26
6. Conclusions and recommendations	27
7. Further updates on EUS status in southern Africa	31

8. The way forward	39
8.1 FAO Regional Technical Cooperation Programme TCP/RAF/3111	39
8.2 FAO Regional Workshop on Development of an Aquatic Biosecurity Framework for Southern Africa	41
8.3 OIE Regional Workshop on OIE Standards, a Lever for Growth in the Fisheries and Aquaculture Sector in Southern Africa	41
8.4 FAO Special Programme for Aquaculture Development in Africa (SPADA)	43
8.5 FAO Training/Workshop on Basic Aquatic Animal Health Management and Introduction to Risk Assessment in Aquaculture	43
9. References	45
Annex 1 – Composition of the International Emergency Disease Investigation Task Force on a serious fish disease outbreak in the Chobe-Zambezi River system	47
Annex 2 – Procedures for investigating a disease outbreak	51
Annex 3 – Standardized procedures for parasitology, bacteriology, virology and histopathology	53
Annex 4 – EUS references	57
Annex 5 – Recommendations of the FAO Lilongwe Workshop	67
Annex 6 – Recommendations of the OIE Maputo Workshop	69

Tables

1. List of fish species collected by gillnet	12
2. List of fish species collected by scoopnet	13
3. Details of fish species subjected to further laboratory tests	14
4. Examples of EUS risk factors	25
5. Fish species susceptible to EUS in southern Africa	33
6. List of fish species susceptible to EUS (OIE, 2006)	34

Figures

1. Map of Zambezi River	11
2. Map showing the current global distribution of epizootic ulcerative syndrome	32

Plates

1. Task Force members and EUS experts at work	4
2. Experimental gillnet and scoopnet used to collect fish during the Task Force mission in Chobe-Zambezi River, Kasane, Botswana, May 2007	6
3. Make-shift laboratory in the premises of the hotel	7
4. Parasites observed from fish sample	17
5. <i>Aphanomyces</i> sporangia (Japanese, Botswana and Philippine isolates)	18
6. Histopathology of EUS-infected Thamalakane barb, <i>Barbus thamalakanensis</i> , collected by scoopnet on 22 May 2007 in the shallow waters of Chobe-Zambezi River in Kasane, Botswana	20
7. Histopathology of EUS-infected dashtail barb, <i>Barbus poecheii</i> (Steindachner, 1911), collected by scoopnet on 22 May 2007 in the shallow waters of Chobe-Zambezi River in Kasane, Botswana	21
8. EUS-infected fish from the Philippines, Japan and Australia	24
9. Examples of diversity of fish species in the Chobe-Zambezi River, Kasane, Botswana	30
10. Additional photographs of EUS positive fish species from Namibia and Zambia, southern Africa	35
11. Examples of fish from Namibia with lesions that have not confirmed by laboratory analysis as related to EUS	36
12. Maps showing EUS occurrence in southern Africa	37

13. First workshop of the FAO TCP/RAF/3111 [E] *Emergency assistance to combat EUS in the Chobe-Zambezi River*, Lusaka, Zambia, 7-11 November 2007 40
14. FAO Workshop on Development of Aquatic Biosecurity Framework for Southern Africa, Lilongwe, Malawi, 22-24 April 2008 42
15. FAO Training/Workshop on Basic Aquatic Animal Health Management and Introduction to Risk Assessment in Aquaculture, University of Zambia, Lusaka, Zambia, 9-15 February 2009 44

Acknowledgements

The members of the local task force from Gabarone and Kasane are gratefully acknowledged for their kind assistance throughout the field mission as well as the fish farmers and fish traders who provided some information during the mission. We also gratefully acknowledge epizootic ulcerative syndrome (EUS) experts Drs Kamonporn Tonguthai and Supraanee Chinabut for their guidance in the Task Force work and confirmation of EUS. Dr Flavio Corsin (World Wildlife Fund, Viet Nam) prepared the maps in Plate 12; while Mr Jeff Jenness (FAO Consultant) and Dr José Aguilar-Manjarrez of the Aquaculture Management and Conservation Service (FIMA) of the FAO Fisheries and Aquaculture Department prepared the maps for Figures 1 and 12 – they are all gratefully acknowledged. Mr José Luis Castilla and Ms Elda Longo (desktop publishers), Ms Sylviane Borghesi of FIMA, Ms Françoise Schatto and Ms Tina Farmer of the FAO Fisheries and Aquaculture Information and Statistics Service are acknowledged for their kind assistance in the final publication. Last but not least, we thank Drs Ezzedine Boutrif (Nutrition and Consumer Protection Division), Mike Robson and Peter Kenmore (Plant Production and Protection Division) of the FAO Agriculture and Consumer Protection Department and Mr Jia Jiansan of FIMA for encouragement and for facilitating funding support to the mission and subsequent work under FAO's Programme Cooperation Agreement with Norway.