FISHERIES AND AQUACULTURE DEVELOPMENT IN SABAH

Implications for Society, Culture and Ecology

FISHERIES AND AQUACULTURE DEVELOPMENT IN SABAH

Implications for Society, Culture and Ecology

Editors

FADZILAH MAJID COOKE
EJRIA SALEH
LEE HOCK ANN

PENERBIT UNIVERSITI MALAYSIA SABAH
Kota Kinabalu • Sabah • Malaysia
http://www.ums.edu.my
2017

A Member of the Malaysian Scholarly Publishing Council (MAPIM)

Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Fisheries and Aquaculture Development in Sabah: Implications for Society, Culture and Ecology / Editors: Fadzilah Majid Cooke, Lee Hock-Ann, Ejria Saleh.
Includes index
ISBN 978-967-0521-85-5
1. Aquaculture--Social conditions--Sabah. 2. Aquaculture--Sabah.
I. Fadzilah Majid Cooke. II. Lee, Hock-Ann. III. Ejria Saleh.
639.80959521

Frontcover Photography:	Nur Atiqah Binti Saifulbahri, Nivashini Tamothran, Alameen Bin Abdul Majeed Joyiemin Min and Google Images
Typeface for text:	Myriad Pro
Text type and leading size:	11/13.2 points
Published by:	Penerbit Universiti Malaysia Sabah Tingkat Bawah, Perpustakaan Universiti Malaysia Sabah Jalan UMS 88400 Kota Kinabalu, Sabah
Printed by:	Percetakan Keningau Sdn. Bhd. Lot 26, Phase 1, HSK Industrial Centre, Km 8 Jalan Penampang, 88300 Kota Kinabalu, Sabah.

CONTENTS

LIST OF FIGURES

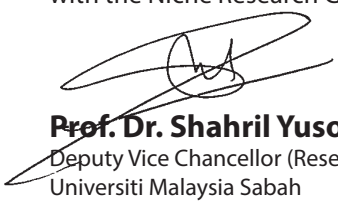
LIST OF TABLES

LIST OF APPENDICES

FOREWORD

Sociologists, economists and marine scientists working together to produce a book on the sociological context and implications of aquaculture production is a welcome addition to socio-ecological knowledge and to the general literature on Sabah's development. The chapters in this book are empirically-based, focussing on social-cultural, economic and ecological change of the Marudu Bay, a large part of which lies within the Tun Mustapha Marine Park, which is the Malaysian side of what is known as the Coral Triangle. Well documented are the macro aspects of change in economy and climate that have relevance to the long term sustainability of the aquaculture industry in Sabah. Experiencing change at a micro level the practical adaptation of livelihoods by coastal communities are examined through extended fieldwork. Such fieldwork enables valuable in-depth analyses of micro level experiences of livelihood change by coastal communities through aquaculture production. The changes in livelihood, when analysed by the team, do not happen in a vacuum, nor are they inevitable. They are driven by opportunities and limits that are, in nature, ecological (carrying capacity and climate change effects), socio-cultural (availability or otherwise of social capital) and economic (capacity to meet, keep abreast or negotiate demands of the aquaculture industry or be excluded from the industry altogether).

More importantly, such empirically-based work (in terms of data collection and analysis), from the perspective of Universiti Malaysia Sabah (UMS), is an important contribution to Sabah's development in the building of human capital. Led by a senior sociologist, internationally known for her work on natural resource governance, the team is composed of mid-career economists and marine scientists as well as postgraduate students of UMS who will form the next generation of social scientists. Building the next generation of researchers who can work in a multi-disciplinary manner is one of the key aims of the Ministry of Education Malaysia in providing UMS with the Niche Research Grant 0007. In this instance, it is money well spent.



Prof. Dr. Shahril Yusof
Deputy Vice Chancellor (Research and Innovation)
Universiti Malaysia Sabah
December 2016

PREFACE

This book is innovative in the way in which it views adopted paths of economic development not as an inevitable given but as a dilemma. First, it views the development of the aquaculture industry in Sabah in terms of a dilemma for governance and social life. In the book, governance dilemmas emerge in the management of border issues created by the live reef fish trade, given that the trade depends on social networks, business linkages and labour relations that transcend national boundaries so that strict border regimentation (over labour flows and citizenship issues) have to be relaxed.

Second, chapters in the book view technology as a source of social dilemma. Ecological degradation from the new technology of shrimp farming and from cultivating the hybrid grouper create dilemmas for local community governance. In this regard, the destruction of mangrove for shrimp farming has created social division within communities which can only be resolved through counter-discourses and practices on development that provide alternatives to environmental destruction.

Third, the diversification of local economies through adoption of hybrid grouper generates long term implications for the sustainability of fisheries in terms of changes in ecology. One concern is over the extent to which fisheries stock from the wild could sustain demand for live feed for the cultivation of the hybrid. The dilemma is clear because small scale artisanal fishers are increasingly dependent on aquaculture for their livelihoods as part of household economic diversification strategy. The ecological change associated with aquaculture production coupled with the industry's own potential vulnerability to climate change raises questions concerning its long term sustainability.

Lastly, conservation practices as translated in the formation of the Tun Mustapha Marine Park in the area, originally meant for the public good through the protection of biodiversity is often accompanied by concerns over exclusion for populations living in and around the newly gazetted Park.

In the Tun Mustapha Park area certain exclusionary processes have begun to emerge through the appointment of 'guardians' of a coastal area at the exclusion of other potential users. Yet, in conservation language this practice serves as a 'model conservation area' that deserves emulation.

Lastly, this book is one in a series of publications to come from Universiti Malaysia Sabah's research into 'ecological aquaculture' – the socio-economic component. The contributing authors of this book have benefited from the creativity that comes from collegial teamwork and good leadership.

Editors

Fadzilah Majid Cooke
Ejria Salleh
Lee Hock Ann
Universiti Malaysia Sabah
Kota Kinabalu, Sabah, Malaysia
December 2016

ACKNOWLEDGEMENTS

The authors are grateful for the grant awarded by the Institute of Higher Education, Ministry of Education Malaysia 2013 – 2018, under its Niche Research Grant Scheme (Ecological Aquaculture – NRGS 0007) which enabled the research, writing and production of this book. No book is possible without its champions and facilitators. In this instance there are administrative as well as field supporters.

In terms of administration we wish to thank Universiti Malaysia Sabah's Centre for Research and Innovation as represented by Deputy Vice Chancellor Research and Innovation, Professor Dr Shahril Yusof; the Director of Research and Innovation, Associate Professor Dr Lee Ping Chin as well as her staff. Their encouragement in facilitating the quick publication of this book is exemplary, for which we are truly grateful.

Our supporters in the field are many. To the villagers of Marudu Bay in the districts of Kudat and Kota Marudu, as well those in Pitas District, and the fisheries business establishments at Kudat, all of whom were our mentors and partners in research, we thank you for sharing your time and understanding. We hope the partnership will continue because our project is ongoing. We further wish to express appreciation of help given to us in many different ways by the Sabah Fisheries Department, Sabah Parks and Worldwide Fund for Nature, Malaysia, for access to statistics and documents.

The book chapters have been peer reviewed; suggestions for improvement have been much appreciated and included in the final versions. To the reviewers we are grateful.