

A STUDY ON THE BIOLOGY AND STATUS OF  
THREADFIN BREEM (FAMILY: NEMIPTERIDAE)  
WITH SPECIAL REFERENCE TO *N. peronii*  
CAUGHT IN WATERS OFF TERENGGANU COAST

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DOCTOR OF PHILOSOPHY (FISHERIES)  
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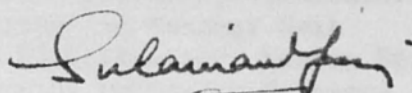
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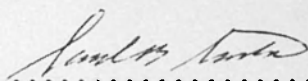
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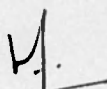
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CAUGHT IN WATERS OFF THE TERENGGANU COAST

by

MOHD ZAKI MOHD SAID

Dedication

This work is dedicated to all the members in my family

A thesis submitted in partial fulfilment of the  
requirements for the degree of Doctor of Philosophy  
in the Faculty of Fisheries and Marine Science,  
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May, 1988

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I would like to express my greatest appreciation to Dr. Abu Chair Mohammad Mohsin who has been very patient in the supervision of this study. I am also indebted to Dr. Mohd. Azmi Azbak, the Dean of the Faculty of Fisheries and Marine Science, for his comments and suggestions.

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Finally, my thanks to UPM for the research funding and facilities for carrying out the research.



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CHAPTER 1 - INTRODUCTION

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FOOD AND FEEDING HABITS

LENGTH-WEIGHT RELATIONSHIP AND CONDITION FACTOR

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## LIST OF ABBREVIATION

Cuv. & Val.	-	Cuvier and Valenciennes
C	-	Centigrade
cm	-	centimeter
CPUE	-	catch per unit effort
E	-	east
EEZ	-	Exclusive Economic Zone
ELEFAN	-	Electronic Length Frequency Analysis
Fig.	-	figure
g	-	gram
G.S.I.	-	gonadosomatic index
Hp	-	horse-power
km	-	kilometer
L	-	length
LKIM	-	Lembaga Kemajuan Ikan Malaysia (Fisheries Development Authority of Malaysia)
m	-	meter
max	-	maximum
min	-	minimum
ml	-	milliliter
mm	-	millimeter
m/s	-	minute per second
N	-	north
NA	-	not available
VBGF	-	von Bertalanffy Growth Function
wt	-	weight

An abstract of the thesis presented to the Senate of Universiti Pertanian Malaysia in partial fulfilment of the requirements for the Degree of Doctor of Philosophy.

THE STUDY OF THE BIOLOGY AND STATUS OF THREADFIN  
BREAM (FAMILY: NEMIPTERIDAE) WITH SPECIAL REFERENCE TO  
P. PERONII CAUGHT IN THE WATERS OFF THE TERENGGANU COAST

by

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In this study 11 species of threadfin bream, namely Nemipterus mesoprion, N. bathybus, N. tolu, N. marginatus, N. delagoe, N. nematophorus, N. hexodon, N. peronii, N. tambuloides, N. nemurus and N. japonicus were identified. N. bathybus was reported for the first time from waters around Malaysia. Descriptions and a key to the 11 species were presented.



Relationship of several morphometric characters and standard length/head length ratios for six dominant species were described and the meristic characters were also presented.

The length-weight relationships of *N. peronii*, *N. nemurus*, *N. marginatus*, *N. tambuloides*, *N. nematophorus* and *N. bathybus* were given. The length-weight relationship between male and female *N. peronii* were calculated separately and were found to be significantly different. Formulae for inter-conversions of lengths were also given for the six species.

Condition factor for both male and female *N. peronii* were found to be similar. The food of *N. peronii* consisted of five groups, namely fishes, shrimps, crabs, squids and miscellaneous. Monthly variation in food items seemed to coincide with the availability of the item in the environment. Food taken by the fish does not show any difference with season. Shrimps were found to be preferred by the smaller fish and fish as a food item was favoured by larger fish.

The overall sex ratio did not deviate from 1:1. The fecundity estimate varied from 10,179 to 91,029. The gonadosomatic index (GSI) and the percentage of mature females suggested that the fish spawn during an extended period, with peaks in the months of January and February.

The von Bertalanffy growth parameters,  $L_{\infty}$ ,  $K$  and  $t_0$  were estimated for male and female N. peronii.  $L_{\infty}$  and  $K$  values are recorded higher in males than females. The total mortality rate ( $Z$ ) was found to be 1.4 while the exploitation rate is 36% of the present stock. Selection of fish by the sampling gear occurs over a wide range of lengths. Recruitment occur from October to January. Three age groups were estimated for N. tambuloides and four age groups for N. nemurus and N. marginatus. The  $L_{\infty}$  and  $K$  values for the three species are also given.

In the three subareas, juveniles of several species dominated the Inshore Region, while N. peronii dominated the Middle Region and N. nemurus dominated the Offshore Region. The threadfin bream accounted for from 9.7% (Offshore Region) to 11.2% (Inshore Region) of the total demersal landings. Catch per unit effort is lower in the Offshore than the Middle Region.

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