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F . A . M . E

Master's program on

**FUNDAMENTAL
AND APPLIED
MARINE
ECOLOGY**

VLIZ (vzw)
VLAAMS INSTITUUT VOOR DE ZEE
FLANDERS MARINE INSTITUTE
Oostende - Belgium

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Brussels, September 1991

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I. INTRODUCTION

Oceanographic research in Belgium has been developed since 1970. It is conducted in a interdisciplinary way: several university laboratories and institutes, working in specialized fields, interact in the framework of joint programs. The results are integrated into general, ecological management supporting models such as the "Mathematical Model of the North Sea".

Since 1978, the I.Z.W.O. (Institute for Marine Scientific Research), organized, with the financial support of the N.F.W.O. (National Foundation for Scientific Research), a Postgraduate program on marine ecology (I.Z.W.O. 3de cyclus Mariene Ecologie). This postgraduate program is given by specialists from the different Belgian universities and institutes and concerns various disciplines. It is designed to inform Belgian Ph.D. students on the principles and on-going progress in the various marine research fields.

Basically the same principle was developed into the postgraduate course F.A.M.E. which started in 1985.

F.A.M.E. is open to scientists (Bachelors or Masters in Science) wanting to specialize in the field of marine ecology. The program is sponsored by A.B.O.S., the Belgian Organization for Developments Co-operation.

The scope of F.A.M.E. is to offer a diversity of topics in marine ecology of interest to any scientist who wants to broaden his knowledge in general marine ecology or specialize in one of the fields covered by the program.

Students from EEC countries can take a selection of F.A.M.E. courses within the ERASMUS program. As many participants come from developing countries, tropical marine ecological courses are also well represented in the offer.

Belgian students can take the complete program or a number of selected courses in combination with the I.Z.W.O., postgraduate program.

The courses are given in English by specialists from different universities and institutes (see program), concerned with different disciplines (Biological, Physical and Chemical Oceanography). **A good knowledge of English is a prerequisite for participation.**

After two years successful students obtain the degree of "Master in Fundamental and Applied Marine Ecology". Further contacts and co-operation between the ex-F.A.M.E. students and the F.A.M.E. lecturers are pursued.

II. ORGANIZATION

Universities and institutes participating in the F.A.M.E. program are :
(in alphabetical order) :

- B.M.M. : Unit for the Management of the Mathematical Model of the North Sea and the Scheldt Estuary.
- D.I.H.O. : Delta Institute for Hydrobiological Research (Yerseke, The Netherlands)
- I.Z.W.O. : Institute for Marine Scientific Research
- K.U.L. : Catholic University of Leuven
- K.UN. : Catholic University Nijmegen (Nijmegen, The Netherlands)
- L.U.C. : University of Limburg.
- M.O.W. : Ministry of Public Works
- N.I.O.Z. : Nederlands Instituut voor Onderzoek der Zee (Texel, The Netherlands).
- R.N.H. : State Museum Natural History (Leiden, The Netherlands)
- R.U.C.A. : State University of Antwerp
- R.U.G. : State University of Ghent
- R.V.Z. : Belgian Fisheries Institute.
- U.I.A. : University of Antwerp
- U.Lg. : University of Liège.
- U.N. : University of Nairobi (Nairobi, Kenya)

The host institution is the V.U.B. : Free University of Brussels.

Co-ordination of the program, practical exercises and administration are carried out by the F.A.M.E. personnel (two assistants and one secretary).

Management is conducted by the daily committee. (2 V.U.B.-F.A.M.E lecturers and F.A.M.E. personnel).

Regular contacts with the students are part of the decision making process.

General management decisions are made by the general assembly (all F.A.M.E. co-operators) or by the F.A.M.E. committee (one representative of each university or institute).

The list of F.A.M.E. co-operators is given in appendix 1.

III. PROGRAM

The F.A.M.E. program starts each year in October

During the first year, the students take a number of compulsory and optional theoretical courses on various ecological topics. Practical exercises and excursions are given on a specific subject or during an integrated exercise (+15). Evaluation is based on exams on the different courses and reports on practical exercises.

During the second year, students take a number of optional courses and carry out a research program, which is reported upon in a thesis. After successfully completing the program, students obtain the degree of "Master in Fundamental and Applied Marine Ecology".

First year.

1. Compulsory courses :

	<u>Hours</u>		
	<u>Theoretical courses</u>	<u>Practical exercises</u>	<u>Professor (Institute)</u>
<u>Mathematics</u>	15 h	15 h	Ronday (ULg)
<u>General Oceanography :</u>			
Partial Biological Oceanography	15 h	15 h	Heip (DIHO)
Partial Physical Oceanography	15 h	15 h	Ronday (ULg)
Partial Chemical Oceanography	15 h	15 h	Dehairs (VUB)
<u>Statistics</u>	15 h	15 h	Bergmans (VUB)/ Herman (DIHO)
	<u>75 h</u>	<u>75 h</u>	

General practical exercises & excursions :

120h

Total

270h

compulsory hours 1st. year.

2. Optional courses :

- Number of courses and hours required : Minimal 10 courses of 15h :

Total optional hours 1st year 150h (+ specific practical exercises)

Total 1st year	420 h
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The optional courses can be chosen amongst the list below, arranged in different units (a-e).

At least one course has to be chosen from each unit.

The optional courses are :

	<u>hours</u> <u>theoretical</u>	<u>hours</u> (*) <u>practical</u>	<u>Professor</u> (Institute)
a) <u>Mathematics + Modelling</u>			
Introduction to Computer Sciences	15 h	+15h	Plastria (VUB)/ Tassin (VUB)
Introduction to Computer Programming (Fortran)	15 h	+15h	Plastria (VUB)
Introduction to Computer Programming (Pascal)	15 h	+ 15h	Vanden Berghe (UN)
Legislation and Ocean	15 h		Somers (RUG)
Exercise in Applied Mathematics	15 h		Daro (VUB)
b) <u>Marine Biology</u>			
Population Dynamics	15 h	(+15)	Bergmans (VUB) Herman (DIHO)
Marine Bacteriology	15 h	(+15)	Vosjan (NIOZ)
Phytoplankton	15 h	(+15)	Mommaerts (BMM)
Zooplankton	15 h	(+15)	Daro (VUB)
Marine Macrophytes	15 h	(+15)	Coppejans (RUG)
Marine Invertebrates	15 h	(+15)	Schockaert (LUC)
Benthos (I)	15 h	(+15)	Vincx (RUG)
Ecophysiology	15 h	(+15)	Van der Linden/ Decleir (RUCA)
Endocrinology of growth and reproduction in fish	15 h	(+15)	Kuhn (KUL)

c) Marine Chemistry + Pollution

Biogeochemical cycles	30 h +15h	Van Grieken (UIA)/ Dehairs (VUB)
Water-sediment Interaction	15 h	Baeyens (VUB)
Chemical aspects of Pollution (I)	15 h	Van Grieken (UIA)/ Dehairs (VUB)
Ecotoxicology (I)	15 h (+15)	Joiris (VUB)

d) Physical Oceanography + Geology

Hydrodynamics of Estuaries	15 h	Peters (MOW)
Sedimentology (I)	15 h	Monty (ULg)
Applied Oceanology	15 h	Bastin
Courses from the IFAQ program		

e) Fisheries + Aquaculture

Importance and evolution of fisheries and fishery techniques.	15 h	Hovart (RVZ)
Population dynamics of exploited fishstocks.	15 h	De Clerck (RVZ)
Population dynamics of commercial invertebrates	15 h	Redant (RVZ)
Mariculture (I)	15 h +15h	Sorgeloos (RUG)
Culturing of Fishes	15 h +15h	Ollevier (KUL)
Tropical Fisheries	15 h	Hamerlynck (RUG)

+ Expansion : namely in the non-biological directions

(*) : (+15) = practics completely or partially taken up in general practical exercises and excursions.

3. Seminars

Concerning selected topics and disciplines to be taught in the second year.
± 4-8 hours, possibly in combination with a visit to the laboratory concerned.

4. Practical exercises and excursions.

General practical exercises and excursions (organized according to practical possibilities).

A multi-purpose syllabus is at the student's disposition for all general practical exercises.

Topics

- | | |
|--|---|
| * Three weeks of laboratory work and exercises at V.U.B. | Basic methodology of various courses (1st. year). |
| * Three days of field work at the "Spuiikom" (marine lagoon in Ostend) | In situ exercise on pelagic systems (1st. year). |
| * 2 days visit to Zeeland (The Netherlands) (°) | Aquaculture - Delta works (1st year or 2nd year). |
| * 1 day on board of the research vessel "Luctor" (°) | Fisheries (1st or 2nd year). |
| * one week of field work at the "Station Marine" of Wimereux France. | Intertidal benthic studies (1st or 2nd year). |

(°) These excursions are organized in co-operation with the Delta Institute for Hydrobiological Research in Yerseke - The Netherlands.

Specific practical exercises and excursions are organized for some of the courses as indicated on the list.

Second year.

	<u>courses & hours</u>	<u>Total hours</u>
Thesis		90h
Optional courses :	4 x 15h	60h theoretical + possible specific practices.
Specific theoretical courses in agreement with the promoter (thesis)	3 x 15h	45h
Specific practical exercises with the promoter (thesis)	4 x 15h	60h
General practical exercises & excursions		120h
Total 2nd year		375h

Optional courses second year.

	<u>hours</u>	<u>Professors</u> (Institute)
Ecological Modelling (I)	15h	Mommaerts (BMM)
Ecological Modelling (II)	15h	Van den Berghe (UN)
General ecology	15h	Bouquegneau (U.Lg)
Workshop Statistics	15h	Herman (DIHO)/ Bergmans (VUB)
Ecotoxicology (II)	15h	Delbeke (VUB)
Coral Reef Ecology	15h	van der Velde (KUN)/ Nienhuis (DIHO)/ Best (RNH)
Benthos (II)	15h	Vincx (RUG)
Seston	15h	Tackx (VUB)
Seminar Tropical Fisheries	15h	Hamerlynck (RUG)
Chemistry of Estuaries	15h	Baeyens (VUB)
Chemical Aspects of Pollution (II)	15h	Van Grieken (UIA)/ Dehairs (VUB)
Sedimentology (II)	15h	Monty (ULg)
Sediment transport in estuaries and coastal zones.	15h	Wartell (VUB)
Mariculture (II)	15h	Sorgeloos (RUG)

+ Courses of other master's programs taught in English at various universities : IFAQ (Applied Quaternary Geology, V.U.B.); IUPHY (Hydrology, V.U.B.), Tropical Molecular Biology (V.U.B.); Human Ecology (V.U.B.); Aquaculture (R.U.G.); and Nematology (R.U.G.).

IV. SOCIO - CULTURAL PROVISIONS

To ensure good conditions for a postgraduate training, not only scientific know-how and infrastructure, but also social provisions are required. For this purpose, the F.A.M.E. daily committee cooperates with the social services of ABOS and the V.U.B. Section Foreign students of UCOV (Center for Development and Peace).

F.A.M.E. also promotes contacts with scientists from developing countries studying in neighbouring countries. For example in 1986, a joint seminar session was organized in co-operation with the IHE (International Institute for Hydraulic and Environmental Engineering) in Delft, The Netherlands.

In co-operation with the GBRS (Belgian Group for Submarine Scientific Research), swimming and diving courses are organized. For entertainment, a number of socio- cultural activities, such as visits to museums, folkloristic happenings and parties are organized.

V. F.A.M.E. - FOLLOW UP

It is envisaged that having obtained the Master's degree, F.A.M.E. trainees return to their country to become employed in marine ecological research or management activities.

Integration of their work, when possible as a continuation of the Master's thesis, into regional and international programs is pursued.

When possible, further contacts and co-operation are established between the institutes where the ex-F.A.M.E. students work and their European colleagues. For example, four F.A.M.E. students from the first cycle (1985-1987) are presently integrated in the Kenyan-Belgian project at the Kenyan Marine Fisheries Institute in Mombasa, Kenya. Close co-operation is also taking place between the ex-F.A.M.E. students working at SEAFDEC (South Asian Fisheries Development Center) and the Artemia Reference Center in Ghent. Contacts can also be made with institutes about a co-operation program involving Ph.D. theses of former F.A.M.E. students.

A limited number of scholarships for Ph.D. theses are provided by ABOS.

VI. PERSPECTIVES

The experience gathered during the previous years has allowed the F.A.M.E. co-operators to develop a coherent, well organized program. The intention is nevertheless to keep an open mind to any changes and/or extensions which can improve the quality of the program. Among these possibilities are e.g. the invitation of guest lecturers on topics, presently not covered.

VII. APPLICATION PROCEDURES

All applications must be accompanied by a certified copy of your diploma and mark-sheet : a copy of the original document bearing an original stamp of an institution authorized to validate copies (University or government - administration). Without these certified copies we cannot take your application into consideration.

Scientists from all countries can apply to the F.A.M.E. course.

Send your curriculum vitae, accompanied by a recommendation letter of your employer or director, to the F.A.M.E. office, before June 15 of the year in which you want to participate (starting of course : October).

The necessary financial resources can be obtained as scholarships from governmental or international organizations, or candidates can use their own financial resources. Information on financial requirements is given below.

Scientists from developing countries can apply for the F.A.M.E. program and an ABOS scholarship. ABOS application forms can be obtained at the Belgian diplomatic post in your country. The forms should be sent to ABOS before April 15 of the year in which the candidate wants to participate (starting of courses : October). If you have absolutely no possibility to obtain ABOS forms, follow the instructions for all scientist, and mention if you want to apply for an ABOS scholarship, or want to take the program selfsupporting or apply for a scholarship to a governmental or international organisation. Also inclose a letter of agreement for your study leave from your government.

Students from EEC countries can take a number of courses in the framework of the ERASMUS program. ERASMUS applications should reach the F.A.M.E. office before September 15 of the year prior to the academic year (starting in October) in which you want to participate (e.g. before September 15 1992, if you want to participate in the period between October 1993-June 1994).

VIII. FINANCIAL REQUIREMENTS

(amounts per year).

Social cost student

	<u>BFr.</u>	<u>US</u>	<u>ECU</u>
Insurance	10 000	303	232
Inscription fee	13 000	394	302
Inscription exam	2.000	61	46
Scientific equipment	5 000	151	116
Total	30 000	909	696

Operational cost F.A.M.E. (participation fee)

Traveling-boarding expenses (excursion + courses at different universities).	45 000	1.363	1.046
Documentation cost (courses, books)	29.000	879	674
Administration (telephone, mail, thesis)	16.000	485	372
Practical exercises (small apparatus, chemicals)	30 000	909	698
Other (reception, emergencies)	10 000	303	232
Total	130 000	3.939	3.022

TOTAL : (social cost student + operational cost F.A.M.E.)
(Amounts per year)

<u>BFr.</u>	<u>US</u>	<u>ECU</u>
30 000	909	696
130 000	3.939	3.022
160 000	4.848	3.718

Appendix 1

List of F.A.M.E. co-operators.

Director : Dr. N. Daro - V.U.B.

International coordinator : Prof. Dr. Polk - V.U.B.

F.A.M.E. committee:	Dr. N. DARO	-	V.U.B.
	Prof. P. POLK	-	V.U.B.
	Prof. P. SORGELOOS	-	R.U.G.
	Dr. E. COPPEJANS	-	R.U.G.
	Prof. R. VAN GRIEKEN	-	U.I.A.
	Prof. W. DECLEIR	-	R.U.C.A.
	Prof. F. OLLEVIER	-	K.U.L.
	Prof. E. SCHOKAERT	-	L.U.C.
	Prof. C. MONTY	-	U. Lg.
	Prof. W. BAEYENS	-	V.U.B.

Daily committee : Dr. N. DARO (president)

Dr. W. BAEYENS/Dr. F. DEHAIRS

Dr. K. DELBEKE/Dr. M. TACKX

FAME personnel : Dr. K. DELBEKE (assistant)

Dr. M. TACKX (assistant)

Ms. C. VAN ONGEVALLE (secretary)

Lecturers :

Prof.W. BAEYENS

Labo voor Analytische Scheikunde

Faculteit Wetenschappen

V.U.B. Pleinlaan 2

1050 BRUSSEL

Dr. A. BASTIN

Korbeekstraat 36

3031 OUD-EVERLEE

Dr. M. BERGMANS

Labo Systematiek en Ecologie

Faculteit Wetenschappen

V.U.B. Pleinlaan 2

1050 BRUSSEL

Dr. M.R.R.B. BEST
Rijksmuseum Natuurlijke Historie
PB 9517
2300 RA LEIDEN
NEDERLAND

Dr. J.-M. BOUQUEGNEAU
GHER
ULG, Sart Tilman
4000 LIEGE

Dr. E. COPPEJANS
Labo voor Morfologie, Systematiek & Ecologie
der Planten
R.U.G., Ledeganckstraat 35
9000 GENT

Dr. N. DARO
Labo voor Systematiek en Ecologie
Faculteit Wetenschappen
V.U.B., Pleinlaan 2
1050 BRUSSEL

Dr. K. DELBEKE
Labo voor Systematiek en Ecologie
Faculteit Wetenschappen
V.U.B., Pleinlaan 2
1050 BRUSSEL

Prof. W. DECLEIR
Labo voor Biochemie en Algemene Dierkunde
R.U.C.A., Groenenborgerlaan 171
2020 ANTWERPEN

Dr. Ir. R. DE CLERCK
Rijksstation voor Zeevisserij
Ankerstraat 1
8400 OOSTENDE

Dr. F. DEHAIRS
Labo voor Analytische Scheikunde
Faculteit Wetenschappen
V.U.B., Pleinlaan 2
1050 BRUSSEL

Dr. O. HAMERLYNCK
Labo voor Systematiek en Morfologie der Dieren
R.U.G., Ledeganckstraat 35
9000 GENT

Dr. C. HEIP
Delta Instituut voor Hydrobiologisch Onderzoek
Vierstraat 28
4401 EA YERSEKE
NEDERLAND

Dr. P. HERMAN
Delta Instituut voor Hydrobiologisch Onderzoek
Vierstraat 28
4401 EA YERSEKE
NEDERLAND

Dr. P. HOVART
Rijksstation voor Zeevisserij
Ankerstraat 1
8400 OOSTENDE

Dr. C. JOIRIS
Labo voor Algemene Plantkunde
Faculteit Wetenschappen
V.U.B., Pleinlaan 2
1050 BRUSSEL

Prof. E. KUHN
Labo voor Vergelijkende Endocrinologie
K.U.L., Naamsestraat 61
3000 LEUVEN

Dr. J.P. MOMMAERTS
Beheerseenheid (BMM)
Gulledelle 100
1200 BRUSSEL

Prof. C. MONTY
Université de Liège
Place du Vingt-Août 7
4000 LIEGE

Prof. P. NIENHUIS
Delta Instituut voor Hydrobiologisch Onderzoek
Vierstraat 28
4401 EA YERSEKE
NEDERLAND

Prof. F. OLLEVIER
Zoologisch Instituut
K.U.L., Naamsestraat 59
3000 LEUVEN

Prof. J.J. PETERS
Philippe de Champagnestraat 44
1000 BRUSSEL

Prof. F. PLASTRIA
Bedrijfsinformatica
V.U.B., Pleinlaan 2
1050 BRUSSELS

Dr. F. REDANT
Rijksstation voor Zeevisserij
Ankerstraat 1
8400 OOSTENDE

Dr. F. RONDAY
GHER
ULG, Sart Tilman
4000 LIEGE

Prof. E. SCHOCKAERT
L.U.C.
Dept. SBM. Universitaire Campus
3610 DIEPENBEEK

Dr. E. SOMERS
Faculteit Rechtsgeleerdheid
R.U.G., Korte Meer 11
9000 GENT

Dr. P. SORGELOOS
Artemia Reference Center
R.U.G., Rozier 44
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Dr. M. TACKX
Labo voor Systematiek en Ecologie
Faculteit Wetenschappen
V.U.B., Pleinlaan 2
1050 BRUSSEL

Mr. A. TASSIN
Humane Wetenschappen Programmeringseenheid
V.U.B, Pleinlaan 2
1050 BRUSSEL

Dr. A. VAN DER LINDEN
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2750 BEVEREN.

Dr. G. VAN DER VELDE
Laboratorium voor Aquatische Oecologie
Katholieke Universiteit Nijmegen
Toernooiveld
6525 NIJMEGEN
NEDERLAND.

Dr. W. VAN DEN BERGHE
Faculty of Zoology
University of Nairobi
P.O. Box 30197 NAIROBI
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Dr. M. VINCX
Labo voor Systematiek en Morfologie der Dieren
R.U.G., Ledeganckstraat 35
9000 GENT

Prof. R. VAN GRIEKEN
U.I.A.
Universiteitsplein
2610 WILRIJK.

Dr. J. VOSJAN
NIOZ, Pb 59
1790 AB DEN BURG -TEXEL
NEDERLAND

Prof. S. WARTELL
IFAQ, V.U.B., Pleinlaan 2
1050 BRUSSEL.

Appendix 2

Overview of F.A.M.E. participants & theses presented

F.A.M.E. students 1985-1987.

GUOTONG CHEN

Institute.: Division of Marine Biology
Second Institute of Oceanography
National Bureau of Oceanography
P.O. BOX 75 HANGZOU
P.R. CHINA.

Title Thesis : "Study of the meiobenthos in the Southern Bight of the North Sea and its use in Ecological Monitoring".

ODIDO OUDOR MIKA

Institute : Kenyan Marine Fisheries Institute
P.O. BOX 81651 MOMBASA.
KENYA.

Title thesis : "Modelling of estuarine circulation.
Numerical modelling of the creeks around Mombasa island".

KAMAL KAZZI UDDIN

Address : 21-27, 32 street
Astoria, NEW YORK 11105
U.S.A.

Title thesis : "Optimization of *Artemia* spp. Biomass production in a flow-through recirculating system".

ERIC LACAYO ESCOBAR

Institute : Universidad Nacional Autonoma de Nicaragua Centro de Investigacion de Recursos Acuaticos
Cira - Unan MANAGUA.
NICARAGUA.

Title thesis : "Mercury in hair of the Nicaraguan population".

DENISH OTEKO

Institute : Kenyan Marine Fisheries Institute
P.O. BOX 81651 Mombasa
KENYA

Title thesis : "Analysis of some major and trace metals in the sediments of Gazi, Makupa and Tudor creeks of the Kenya coast. A comparative investigation into the anthropogenic input levels".

RUYITNO

Institute : Centre for Oceanological Research and Development
Pasir Putih 1 Ancol Timur
P.O. BOX 580
INDONESIA

Title thesis : "Bacterial numbers in the Banda Sea (Indonesia)".

TANG SEMMING

Institute : The 3th Institute of Oceanography
P.O. BOX 70, XIAMAN, FUJIAN
P.R. CHINA

Title thesis : "The vertical distribution of chlorophyll a and its relation to particulate organic matter at two stations of the North Sea".

STEVE SULEM YONG

Address : P.O. BOX 44
Njinikom Nord West Province
CAMEROON.

Title thesis : "Alternative fish feeds : the use of industrial wastes and by-products for the culture of the African catfish, *Clarias gariepinus* (Burchell, 1822)".

DEZAN YE

Institute : The 3th Institute of Oceanography
P.O. BOX 70, XIAMEN, FUJIAN
P.R. CHINA.

Title thesis : "Bacterial biomass and activity in North Sea and Antarctic waters".

F.A.M.E. students 1987-1989

ICHSAN AMIR

Institute : Center for Oceanological Research & Development
Indonesian Institute of Sciences
Jl Pasir Putih I Ancol.Timur Yakarta Utara
INDONESIA.

Title thesis : "A comparison of sponge of exposed and sheltered reef flats in Eastern Indonesia".

MARCELO BUZZI

Institute : Zoology Laboratory Department of biology
University of Brasilia
Brasilia - DF 70000.
BRAZIL

Title thesis : "The effect of ω -3 polyunsaturated fatty acids on the larval *Macrobrachium rosenberghii* (de Man) fed enriched *Artemia* nauplii".

ELBA DE LA CRUZ

Address : Apartado 32, 2070 Sabanilla
Montes De Oca.
San Pedro
COSTA RICA

Title thesis : "Organochlorine and total mercury in the *Anadara tuberculosa* bivalve and other species from the Nicoya Gulf, Costa Rica".

ESTENOR DEMETRIO

Institute : Aquaculture Department
Southeast Asian Fisheries
Development Center
Tigbauan, Iloilo 5829
PHILIPPINES.

Title thesis : "The effect of various drying techniques on the state of diapause and the hatching characteristics of *Artemia* cysts".

MD M. MARUF HOSSAIN

Institute : Institute of Marine Sciences
University of Chittagong
BANGLADESH.

Title thesis : "Contamination of some commercially important marine shrimp and fish species from Bangladesh by organochlorine pesticides, PCBs and total mercury".

HOSSAIN ZAMAL

Institute : Institute of Marine Sciences
University of Chittagong
BANGLADESH.

Title thesis : "Effect of dietary lipid and protein levels on growth and body muscle composition of juvenile european sea bass (*Dicentrarchus labrax*)".

LI JIAN

Institute : State Oceanic Administration
People's Republic China
1, Fuxingmenwai, Ave Beiging,
P.R. CHINA

Title thesis : "The study in the spatial distribution of Meiobenthos in the Voordelta".

MUSWERRY MUCHTAR

Institute : Center for Oceanological Research and Development
Indonesia Institute of Sciences
Jl. Pasir Putih 1 Ancol.
Timur Jakarta Indonesia
P.O. BOX 580 DAK.
INDONESIA.

Title thesis : "Several aspects of nutrients dynamics in seagrass plants (*Zostera marina* L.) and their environment in the South West Netherlands".

ONYANGO B.A. HEZBORNE

Institute : Kenyan Marine Fisheries Research Institute.
P.O. BOX 81651 Mombasa.
KENYA.

Title thesis : "Numeical Modelling of Gazi Creek (South Coast, Kenya) :
I : Hydrodynamics Model
II : Descriptive Ecological Model".

SUWANNA PANUTRAKUL

Institute : Phuket Marine Biological Center
P.O. BOX 60
Phuket Province 83000
THAILAND.

Title thesis : "The contamination and mobilization of metals in the
sediments of an intertidal mud flat of the Scheldt Estuary,
Belgium".

JOSEPH RASOWO

Institute : Kenyan Marine Research Institute
P.O. BOX 81651 Mombasa
KENYA.

Title thesis : "Effects of feeding *Artemia* nauplii enriched with w3-HUFAs,
soya been lecithin, vitamins E and C on the growth, survival,
development rate and stress resistance of *Macrobrachium*
rosenberghii (de Man, 1879) larvae".

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Title thesis : "Use of Coulter counter and C-14 methods in zooplankton
grazing studies".

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Title thesis : "PCBs uptake and elimination mechanisms by fish".

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**Title Thesis : Study of the Feeding Biology in the Brine Shrimp *Artemia*
Using Manipulated Baker's Yeast.**

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**Title Thesis : Taxonomic and Sclerochronological Studies of Kenyan Reef
Corals.**

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**Title Thesis : Community Ecology and Productivity of the Epibenthos of a
Shallow Coastal Area.**

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**Title Thesis : Polymerase Chain Reaction (PCR) Technique as a Specific and
Sensitive Detection Method for *Aeromonas Salmonicida* and
Aeromonas Sobria in Natural Ecosystems (Water, Sediment
and Fish).**

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GAMBIA.

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Title Thesis : Self-Thinning in some Mussel Populations (*Mytilus Edulis*)

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Guayaquil, Guayas
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Title Thesis : The Effect of Temperature and Salinity on the Biological
Availability of Metals to the Brine Shrimp *Artemia*
franciscana.

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Title Thesis : I. The Effect of Dietary Sodium Chloride on the Growth Rate,
Feed Conversion, Survival, Cannibalism and Mortality Rate of
Larval African Catfish *Clarias gariepinus* (Burchell, 1822).
II. The Evolution of Body Muscle Composition of Fingerling
Clarias gariepinus (Burchell, 1822).

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KENYA

Title Thesis : Effects of Isoproterenol, Salbutamol, Fenoterol and
Clenbuterol on Body Composition and Growth of the
African Catfish, *Clarias gariepinus* (Burchell, 1822).

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Title Thesis : Development of an Enrichment Technique for On-grown
Artemia for Use in Marine Larviculture.

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Title Thesis : Macrozoobenthic Assemblages in Groot Buitenschoor,
Westerschelde Estuary : Resultant of Physico-Chemical
Gradients.

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Title thesis : A Faunistic Study in the Free-living *Plathelminthes* of some
Marine Habitats near Wimereux (N. France).

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