

THE INTERNATIONAL OCEAN INSTITUTE
OPERATIONAL CENTRE
AT THE
UNIVERSITY OF THE SOUTH PACIFIC
(IOI - SOUTH PACIFIC)

**Meeting of Centre Directors
United Nations University
Tokyo, Japan.**

September 5th 1993.

PROPOSALS FOR CONSIDERATION BY THE
COURSES DEVELOPMENT COMMITTEE

The new regime of the Oceans: The emergence of the Law of the Sea Convention adopted in New York in April 1982, has brought dramatic changes to ocean affairs. This is the case because many of the principles and concepts embodied in the Convention are new and dramatically different from those tenets on which the old law governing the seas was based. Above all, the Convention has given coastal states (these include all island countries in the South Pacific region) extensive and comprehensive rights and obligations over marine resources in vast areas of ocean, replacing the old free-for-all practice.

Impact on countries of the South Pacific region: The acceptance by all the countries of the South Pacific region of the Convention has made it necessary for these countries to review administrative procedures, formulate new policies and enact fresh legislation in order to accommodate the comprehensive and complex provisions of the Convention. Without such changes, the countries of the region will not be in a position to take full advantage of the potentially huge benefits due them under the new regime of the seas.

In accepting those new developments, the countries of the region recognised that wise management of ocean resources, and other marine uses was essential if the full economic potential of these new entitlements was to be realised. It was also recognised that proper management would minimise related dangers which the prospect of new wealth always brings: dangers of conflict, waste and degradation of the social and physical environment which almost invariably accompany change.

Against this background, the countries of the region established the Ocean Resources Management Programme under the auspices of the South Pacific Forum Fisheries Agency and the University of the South Pacific with support from the other regional organisations - South Pacific Forum, SOPAC and SPC. The Programme which was funded by the Canadian International Development Agency is now part of the USP's Marine Studies Programme.

The goal of the programme is to broaden the awareness of the governments of the region of their ocean's potential and constraints, to enhance the skills of those public service personnel who are now charged with the duty to manage this area of national jurisdiction, and to train a cadre of people who in the not-too-distant future will be responsible for developing policy and making decisions on marine resources and other marine uses for their individual countries and for the region.

IOI-SOUTH PACIFIC

The IOI-South Pacific is presenting the following course outlines for consideration as potential IOI courses.

1. **Introduction to marine Science for Pacific islands**
USP School of Pure & Applied Sciences & USP Marine Studies Programme; UU111. Developed for Extension delivery in the USP region, commencing 1994.
2. **Introduction to Ocean Resources Management**
USP School of Social & Economic Development, Ocean Resources Management Programme; UU 201. Available for on-campus and extension delivery.
3. **Ocean Resources Management in the Pacific**
USP School of Social & Economic Development, Ocean Resources Management Programme; UU 301. Available for on-campus and extension delivery.
4. **Fisheries Economics and Management**
USP, SSED (ORMP). Available for on-campus delivery; under development for delivery by Extension.
5. **Resources and Environmental Economics**
USP, SSED (Department of Economics). Available starting 1994 for on-campus delivery.
6. **Law of the Sea and Ocean Policy in the South Pacific**
USP, SSED (ORMP); USP Law Programme (Vanuatu); development at the planning stage.
7. **Management and Development of Coastal Fisheries**
Proposed USP/IOI-South Pacific development, for on-campus and extension delivery.
8. **Principles and Applications of Ports & Shipping Management**
Australian Maritime College/IOI-South Pacific/USP School of Pure & Applied Sciences joint project. Development in collaboration with the South Pacific Forum Secretariat.
9. **Introduction to South Pacific Maritime Transport**
Joint project, as for 8.

All of the above courses are readily adaptable to modular presentation along the lines of the Modular Curriculum Development procedures discussed at the Malta meeting of Centre Directors and Vice Chancellors.

COURSE OUTLINE 1

INTRODUCTION TO MARINE SCIENCE FOR PACIFIC ISLANDS

The course provides a general introduction to marine science for students intending to major in science and non-science subjects. The objectives are broad, aimed at introducing a basic understanding for scientific principles, and their application to marine science with specific emphasis on the Pacific Islands.

The course is available by Extension throughout the USP region, starting in 1994 where it is anticipated that it will not only be in high demand from students intending to enter marine studies at the University, but also from government employees intending to upgrade their qualifications, from workers in private sector marine-related fields, and from teachers in primary and secondary schools where marine studies are being introduced into the school curriculum.

COURSE OUTLINE:

SECTION 1 - Introduction

- (a) Objectives
- (b) Principles of Marine Science
- (c) Importance of Marine Science to Pacific Islands
- (d) Beginnings
- (e) A View from Space
- (f) The Drifting Surface of the Earth
- (g) Beneath the Earth's Surface
- (h) Heat and Solar Energy
- (i) Climate
- (j) Ocean Currents
- (k) Tides
- (l) A Close look at the Principles of Marine Science

SECTION 2 - The Earth - Physical Principles

- (a) Objectives
- (b) Oceans and Continents

(c) Ocean Physics:-

- Heat
- Light
- Waves
- Tides
- Currents

(d) Climate - the air/sea interaction

SECTION 3 - Water, Salt Solutions and the Composition of Seawater

(a) Objectives and Overview

(b) The Composition of Matter - 1

- Objectives
- Some properties of liquid water
- Language and definitions
- Substances

(c) The Composition of Matter - 2

The Structure of Elements and Compounds

- Objectives
- Atoms
- Compounds
- The Periodic Table of the Elements
- Isotopes

(d) The Composition of Matter - 3

Symbolising the Structures

- Objectives
- Symbols, formulae and equations
- Formula, weights
- Equations
- Shapes of molecules
- Reactions

(e) Water and Aqueous Solutions

- Objectives
- Water
- Solutions

(f) Seawater

- Composition of Seawater
- Salinity
- Chlorinity
- Ionic Strength
- Mixing Processes in the Oceans
 - Nutrients
 - Dissolved gases in seawater
- Acids, bases, and pH.

SECTION 4 - The Living Ocean

(a) Coral Reefs

- Objectives
- Definition
- A Reef Classification
- Living rocks - the components of a reef
- Coral Reproduction
- Coral Feeding
- Symbiosis
- The Structure of a Coral Reef
- Requirements for Coral Growth
- The Reef as a Living System

(b) Mangroves

- Objectives
- What are Mangroves, and where are they found?
- How are Mangroves adapted to their environment?
- The Mangrove habitat : estuaries and mud flats
- Some important aspects of mangrove ecology

(c) Seagrasses

- Objectives
- Definitions and origins
- Distribution of seagrasses
- Structure and adaptations
- Seagrass Ecology

(d) Fish

- Objectives
- Features of a Fish
- Behavioural adaptations of fish
- Tuna Biology

(e) The Deep Sea

- Objectives
- What do we mean by the term "deep sea"?
- Coping with life in the depths - environmental factors
- Adaptations to life in the deep sea
- Deep Sea Communities
- Hot vents and new life forms-recent discoveries
- Exploring the ocean depths.

(f) Floating in the Ocean - the Plankton

- Objectives
- What are the plankton?

Classification
Phytoplankton/Zooplankton

- Coping with a life afloat
- Plankton Ecology

(g) Life in the Oceans

- Objectives
- Living organisms and features of the marine environment
- Factors in the marine environment - abiotic
- Factors in the marine environment - biotic

SECTION 5 - Geology

(a) Structure of the Earth

- Scratching the surface
- Evidence for postulation
- Gravity studies
- Seismic studies

(b) Crustal Processes

- Isostasy

(c) Rocks and Minerals

- Compositions
- Features (hardness, density, color, etc.)
- Rock families
- Classification of rocks

(d) Geomorphology

- uplift/volcanism/folding
- erosion and weathering
- transport
- deposition

(e) History in rocks

(f) Mapping geological features.

SECTION 6 - Man and the Ocean

(a) Introduction and Objectives

(b) The Fishery

(c) Non-Living Resources

(d) Industry and Technology

- Products
- OTEC
- Energy
- Tourism

(e) Transport and Communications

(f) The future

(g) Conclusions and review

SECTION 7 - Evaluation and Resources

- (a) Quizzes, tests and assignments
- (b) Glossary
- (c) References and further reading

COURSE OUTLINE 2

INTRODUCTION TO OCEAN RESOURCES MANAGEMENT

Introduction:

This course introduces the many aspects of ocean/marine affairs, stressing the importance of ocean resources to island countries of the South Pacific particularly in light of the full control our countries now have over all resources in vast areas of the ocean as a result of the new law of the sea, and stressing also the necessity of managing these resources wisely if the people of the South Pacific countries are to benefit fully from these new opportunities. The student will be introduced to ocean resources management applied through national policies and laws, regional cooperation and international treaties.

Module 1 Introduction to Ocean Resources Management.

Marine Information Systems

Module 2 Introduction to Information Systems Library, databases, PIMRIS, Regional Information Sources.

Module 3 Introduction to using the USP Library and Development of a research strategy.

Module 4 An Introduction to the Oceans, and their importance to humanity.

Module 5 A brief overview of the historical, economic political, environmental and sociological places which the oceans occupy, with special reference to the South Pacific.

Law of the Sea

Module 6 Introduction to the Law of the Sea - international law setting and historical developments.

Module 7 Extended jurisdiction of coastal states and Rights and obligations
- Implications for ocean management:

- Living Resources
- Non-Living resources
- Marine Environment Management
- Marine Scientific Research

Oceanography

Module 8 Introduction to study of the oceans and a brief history of oceanography and associated marine technology.

Module 9 Physical Oceanography

- waves
- tides
- ocean currents
- ocean circulation
- thermoclines

Module 10 Chemical Oceanography

- sea water chemistry
- origins of sea water and constituents
- importance of sea water chemistry to life cycles
- sea water analysis

Module 11 Marine Geology and Non-Living Resources

Introduction to the Geology of the Pacific Ocean:-

- physical features of the world's oceans
- plate tectonics
- volcanoes and earthquakes
- high island geology
- atoll and coral reef geology

Module 12 Non-Living Resources

Introduction to non-living resources in the South Pacific

- nodules
- poly metallic sulphide
- phosphates

SOPAC

Introduction to SOPAC

Environment

Module 13 Environment protection/degradation : pollution and sources; land based, pesticides, sewage etc. Coastal development impact on environment. Resource depletion.

Module 14 Environment and resource conservation. Introduction to Environment Impact Statements (EIS)/ Assessments (EIA).

Module 15 Living Resources

Introduction to biological oceanography of the Pacific region.

Overview of aquatic cycles, nutrient cycles, migratory routes.

Nearshore and offshore habitats.

Ocean Ecology

Fisheries Technology in the South Pacific

Module 16 Fisheries Management-Economic

Introduction to the Economic Potential of the Fisheries

Introduction to the basic principles of fisheries economics

Economic potential of inshore fisheries resources; subsistence and artisanal fisheries

Economic potential of offshore fisheries; domestic industrial fisheries developments in the South Pacific

Module 17 Fisheries Management - Scientific

Introduction to population structure and dynamics

- concepts of abundance, recruitment, growth potential, predation rates.

Concept of maximum sustainable yield (MSY), total allowable catch (TAC), maximum economic yield (MEY)

Module 18 Introduction to Resource Management

Legal and Political Framework of Ocean Resource Management

National Management Efforts

- national policies and strategy development
- national management framework
 - inshore and offshore management
 - bilateral access agreements

Regional Management and Control

- status of Regional Bodies: FFA, SOPAC, SPC, SPREP

Module 19 Military Uses of the Sea

Introduction to the Sea Power

- Surveillance and Enforcement Nuclear Deterrence

Module 20 Shipping and Marine Transportation

Modern Transportation Systems

Multi-modal systems

Navigation and Ship Safety

IMO and International Conventions

Ship building and Ship repair

Module 21 Other Uses

Tourism

Other Regional Issues

Review

Field trips : (Depending on Availability)
: Ship Yards
: Fiji Ports Authority
: Fishing Plant
: Fishing Vessels
: Aquaculture Project
: Naval Vessel

COURSE OUTLINE 3

OCEAN RESOURCES MANAGEMENT IN THE SOUTH PACIFIC

Introduction:

Under the Law of the Sea Convention 1982 a coastal state (all countries in the South Pacific are coastal states) has "sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living ..." in the exclusive economic zone which extends 200 nautical miles from the coastline of each coastal state. In this course the action taken by South Pacific countries individually and collectively in response to the new and extensive rights given in the Law of the Sea Convention 1982 will be examined and analysed. Emphasis will be placed on development and management measures introduced through national regional policies and the implementation of these policies through administrative arrangements, national laws, regional agreements/treaties and informational practices.

SECTION A

LAW OF THE SEA AND SOUTH PACIFIC ISLAND COUNTRIES

- Module 1 Introduction
- Module 2 Why is the Law of the Sea important to Pacific island countries?
- Module 3 What impact does the Law of the Sea have on Pacific island countries?
- Module 4 Rights and Obligations of States Under the Law of the Sea with respect to:
- living resources
 - non-living resources
 - the marine environment, and
 - marine scientific research
- Module 5 The South Pacific situation with respect to exercise of coastal state rights and fulfilment of obligations.

Module 6 South Pacific : Maritime Zones under the Law of the sea

- internal waters
- territorial sea
- contiguous zone
- archipelagic waters
- exclusive economic zone
- high seas
- continental shelf area

Module 7 Zones of Special Interest to Pacific island countries

- exclusive economic zone
- archipelagic waters
- continental shelf

SECTION B

MILITARY POLICIES IN THE SOUTH PACIFIC

- Module 8
- Sea Power and the Pacific Island States
 - Foreign Naval activities and Nuclear Policies
 - Regional Surveillance

SECTION C

NON-LIVING RESOURCES MANAGEMENT

Module 9 An overview of Global and South Pacific seabed minerals and economic potential

- poly-metallic nodules
- cobalt enriched crusts
- hydrothermal minerals
- hydrocarbons

Module 10 Shallow water and coastal minerals

- sand and gravel
- phosphate
- coral and concrete production
- precious minerals

Module 11 Exploration Technologies and Strategies.

Module 12 The Role of SOPAC in the Region.

Module 13 Regional Energy policies and production

- Hydrocarbon
- Hydro electric and Geothermal
- OTEC and other Ocean Sources

SECTION D

LIVING RESOURCES MANAGEMENT

Module 14 Living Marine Resources of the Region.

- extent and distribution of resources
- need for biological management of these resources.
- research programmes and activities in the region
e.g. SPC's Tuna and Billfish Assessment Programme

Module 15 Economics of Living Resources in the South Pacific

- Management and development strategies and options
- returns to national governments and local people
- outside investors and users

SECTION E

IN-SHORE FISHERIES

Module 16 Coastal and Artisanal Fisheries

- Subsistence Fishing
- Traditional Fisheries in the South Pacific

Module 17 Aquaculture

- Fish Farming

Module 18 Women and the In-shore Fisheries

- South Pacific culture and changing perspectives

SECTION F

ENVIRONMENTAL ISSUES IN THE SOUTH PACIFIC

Module 19 Environmental Law and Policy

- International Standards and Practice
- National Policies
- Regional Initiatives

Module 20 SPREP - The South Pacific responses

- Policy and Programmes

SECTION G

SCIENTIFIC RESEARCH

Module 21 Oceanography and Marine Scientific Research

- History, International Programme

Module 22 National and Regional Programme and capabilities

Module 23 Present and Future Developments

- Remote Sensing
- Computer Systems

SECTION H

REGIONAL AND NATIONAL MANAGEMENT EFFORTS

REGIONAL MANAGEMENT

Module 24 Policy Aspects

- history and role of regional organizations: SPC, Forum Secretariat, FFA and SOPAC
- regional cooperation in the management of ocean resources

Module 25 Implementational Aspects

- How regional organizations carry out their responsibilities, study of the work of governing bodies
- discussions of work programmes

NATIONAL MANAGEMENT

Module 26 Policy Aspects

- What are the policies of national governments with respect to ocean resources management?
- How are these policies developed?

Module 27 Implementational Aspects

- Legislative framework for the development, management and conservation of ocean resources and environment

SECTION I

TOURISM AND THE SOUTH PACIFIC

- Module 28 - Tourism as a national resource
- Tourism and Development

SECTION J

OCEAN MANAGEMENT AND DEVELOPMENT

- Module 29 - Development Policies and cultural conflicts

SECTION K

MARINE TRANSPORTATION

- Module 30 - Ships and Shipping
- Regional Transportation Policies
- Service and Support Industries
- Open Registry
- Labour and Seaman Training
- Ship repair

SECTION L

OCEAN AND COASTAL ZONE MANAGEMENT IN THE SOUTH PACIFIC

- Module 31 - An integrated approach to Marine resource management
- Module 32 - Conclusion and Review

COURSE OUTLINE 4

FISHERIES ECONOMICS AND MANAGEMENT

Introduction

The course aims to provide a background on the basic issues in Fisheries Economics of the South Pacific Region. It is divided into three parts.

The first part of the course concentrates on basic theoretical fisheries economics; the second part looks at management decision making in the fishing business; and the third part focuses on planning and policy issues. Practical examples and case studies from the region will be presented wherever possible and appropriate to further enhance students' understanding on the topics.

Objectives

1. To develop an understanding of the basic principles of fisheries economics and management in order to assist in decision making on development, planning and policy issues.
2. To outline and evaluate the economic forces which underline the exploitation of fisheries resources and the process of fisheries development with specific reference to South Pacific Island economies.
3. To provide practical tools and guidelines on managing of a fishing business.

Course Outline

A. FISHERIES ECONOMICS

Module 1. Review of the current status of fisheries resources

- global and the South Pacific Island situation, trends in production
- role of fisheries in the economy
- definition and various categorisations within the sector
- nature of commercial operations and the industry
- potential for future, alternative options

Module 2. Price Mechanism and Consumer Behaviour

- supply and demand for fish and fisheries products
- price formation and factors influencing price in capitalistic markets and in small island fisheries
- consumption pattern of fish and fisheries products
- elasticities, price and income

Module 3. Firms and Markets

- market structures : perfect and imperfect competition
- analysis of small-scale artisanal and industrial fisheries intermediaries
- marketing constraints in small island economies

Module 4. Production Economics

- fisheries production function
- technical relationship between levels of catch and factor inputs, fishing effort
- population equilibrium, Law of diminishing marginal productivity
- the Gordon-Schaefer bionomic model and limiting access

Module 5. Technical Progress

- biological and economic implications of technical progress with case study of purse seining and pole and line
- technical progress in the tuna industry

Module 6. Introduction to dynamic analysis of fisheries

- effect of discounting
- variable pricing

B. MANAGEMENT AND DECISION MAKING

Module 7. Interpretation of financial statements

- comparative and ratio analysis

Module 8. Budgeting and cash flow forecasting

- total budget and partial budget
- planning, control and forecasting

Module 9. Analysis of the fishing business

- profit and economic efficiency
- productivity and technical efficiency

Module 10. Managing a fishing vessel

- interpretation of data from log books and data sheets

C. FISHERIES PLANNING AND DEVELOPMENT

Module 11. Fisheries economics and fisheries policies in developing countries

- export fisheries with case study of PAFCO and Solomon Taiyo
- joint ventures and national corporations, IKA Corporation and VO-KO industries
- access agreements and economic rent, the US Multi-lateral Treaty
- small scale fisheries and traditional management

Module 12. Fisheries development constraints in the South Pacific Island Economies and alternative strategies.

- saving and capital accumulation in the artisanal and industrial sector
- impact of technical progress, resource and environment, social costs
- concept of sustainable development

Suggested reading & references

1. Anderson, L. 1987, *The Economics of Fisheries Management*. John Hopkins Press, Baltimore.
2. Bell, F. 1978. *Food from the Sea; The Economics and Politics of Ocean Fisheries*. Boulder, Colorado: West view Press.
3. Campbell, H.K. Menz & G. Waugh. (eds.). 1989. *Economies of Fishery Management in the Pacific Island Region*. Proceedings of an International Conference held at Hobart, Tasmania, Australia, 20-22 March 1987.
4. Cunningham, Dunn & Whitmarsh. 1985. *Fisheries Economics, An Introduction*. Mansell St. Martins, London.
5. Eckert, R.S. *The enclosure of Ocean resources: economics and Law of the Sea*.
6. Gopala Krishnan, C. (ed.). 1984. *The Emerging Marine Economy of the Pacific*.
7. Hannesson, R. 1978. *Economics of Fisheries : An Introduction*. Columbia University Press, New York.
8. Hannesson, R. 1991. *Bioeconomic Analysis of Fisheries*. Fishing News Books (Blackwell Scientific Publications Ltd.) Oxford, U.K.
9. Herr, R. (ed.). *The Forum Fisheries Agency, Achievements Challenges and Prospects*. I.P.S., U.S.P. 1990.
10. Lawson, R. 1984. *Economics of Fisheries Development* . Frances Pinter, London.
11. McKee, D.C. & C. Tisdell. 1990. *Development Issues in Small Island Economies*. Praeger Publishers, Westport.
12. Philipson, P.W. (ed.). 1979. *The Marketing of Marine Products from the South Pacific*. I.P.S., U.S.P.
13. South, G.R. (ed) 1993 *Marine Resources and Development*. The 1992 Ray Parkinson Memorial Lectures. PIMRIS, USP.

Journals

Food and Agricultural Organisation (FAO). Year Book on Fisheries Statistics.

Marine Resource Economics.

Infofish Digest.

Forum Fisheries Agency News Digest.

Financial Statements of Major Fishing Companies, e.g. PAFCO, IKA Corporation, Private Fishing Firms

COURSE OUTLINE 5

RESOURCE AND ENVIRONMENTAL ECONOMICS

1. BACKGROUND

(i) Recent Developments in the Analysis of Natural Resources and the Environment

Concern with the implications for living standards of the increasing pressure of economic activity and population growth on the natural resource base dates back at least to the late eighteenth century and Thomas Malthus' **Essay on the Principle of Population**. And the appropriate fiscal treatment of various pollution "externalities" has for long been a standard topic in public finance textbooks. But it is only in the last two decades that concern with resource use, and its environmental consequences, has come to the forefront of the discussion of the sustainability of economic growth in both the industrialised and the developing countries. The actual, or prospective, exhaustion of certain non-renewable natural resources has focussed attention very sharply on the need to identify optimal use patterns, while the evidence that certain kinds of resource extraction and use entrain environmental costs (which in turn, are associated with negative consequences for the efficiency of resource use), has brought environmental factors to the centre of the debate on development strategy for the first time.

One consequence of all this is the emergence of radically new approaches to assessing growth and development performance. These are based not so much on new analytical tools, but rather on modifications of, and innovative applications of, existing techniques of economic analysis. The efficient allocation of resources in the face of scarcity is still the basic "economic problem". But both natural resources and "environmental resources" are now viewed as part of the global capital stock (and not as "free goods"), and much greater attention is paid to the possibility of negative feed-back effects on that stock - and on the efficiency with which it is employed - resulting from resource extraction or use. This new way of looking at the resource-environment-growth interaction in turn gives rise to a wide range of new and unfamiliar systems of resource-environment valuation and accounting, and has widespread policy implications, many of them novel.

(ii) **Consequences for Academic Treatment of Resource and Environmental Economics**

The main academic consequences of the changes referred to above are that:

- (i) Whereas the economic analysis of natural resources and environmental issues has, in the past, been satisfactorily accommodated within standard microeconomic and public finance courses, the increased significance and specialised nature of these topics, their much closer integration into theories of growth and development, and the emergence of an array of innovative, sometimes complex, approaches to analysing them, now warrant giving these topics separate, and more advanced treatment;
- (ii) A certain amount of "traditional" material purveyed in economics courses is rendered obsolescent. This applies, in particular, to standard national income accounting techniques (which must now allow for environmental accounting), and conventional project appraisal and cost-benefit analysis (which must now be extended to allow for resource and environmental factors).
- (iii) The focus of policy discussion, and the content of policy conclusions, require to be re-examined.

2. AIMS AND CONTENT

The broad aims of the course will be to provide a thorough coverage of the theoretical and applied issues summarised above, both in general terms and with special reference to the South Pacific - a Region in which these issues have a particularly important bearing on development prospects.

In the long-run, the course could constitute a component of a *new multi-disciplinary programme in this field - perhaps focussed on "environmental management". It is also intended that the course will be made available to suitably qualified non-Degree students (eg. economists in the public sector) who wish to update their understanding of theory and policy in this important area. As noted below, entry requirements are pitched at such a level as to facilitate access by non-Economics majors.

3. REQUIREMENTS FOR ENTRY

In order to make the course accessible to as wide a range of students as possible, the course is designed so as to make successful completion possible for students with a limited background in Economics. The credentials of non-graduating / "unclassified" candidates will be assessed on an individual basis.

4. COURSE STRUCTURE

OUTLINE

The course divides into four constituent parts:

- (i) A brief introduction to concepts and coverage; (Week 1).
- (ii) A detailed account of key aspects of the current theoretical treatment of issues relating to natural resources and the environment - followed by the deriving of basic analytical techniques from this theoretical base; (Weeks 2-7).
- (iii) The theory and practice of policy on resource use and the environment; (Weeks 8-9);
- (iv) A series of case-studies, involving the application of the analytical techniques developed in (ii) above, to natural resource and environmental issues arising in a range of sectors. Special attention is paid to cases drawn from Pacific Island experience, or of special relevance to the Islands; policy options are assessed using a series of specially prepared computer simulation packages. (Weeks 10-14)

DETAILED STRUCTURE

- (i) Introduction
 - (a) Global patterns of resource endowment and use;
 - (b) Environmental problems : nature and potential consequences;
 - (c) "Natural Resources" and "Environmental Resources" as capital assets;

- d) Inter-relationships amongst resource use, environmental issues, and long-run economic development; the macroeconomic context.

(ii) The Theory of Resource Valuation and Use

(a) Introduction :

A summary of the microeconomics of optimal resource use:

- Opportunity costs and prices;
- Marginal analysis and net benefit maximization;
- Efficient allocation by markets;
- Time in economic analysis; discounting; efficiency in intertemporal resource allocation;

(b) Non-renewable Resources :

- The theory of depletion
- Optimal depletion rates (under certainty and uncertainty);
- Non-renewable resource pricing.

(c) Renewable Resources :

- Optimal harvesting rates (the case of fisheries);
- renewable resource pricing.
- Common property resources.

(d) Market Failure in the Use of Natural and Environmental Resources:

- Externalities;
- Public goods;
- Property rights, ownership and resource use; the coase theorem; non-exclusivity; non-rivalry.

(e) Sustainability :

- Concepts of sustainability;
- Optimal natural capital stock.

(iii) Reformulation of Valuation and National Accounting Techniques

- Valuation of Natural Resources and Environmental goods in practice: option value and total economic value; willingness to pay concepts;
- Environmental and Natural Resource Accounting (Reformulation of national accounting framework to allow for changes in natural resource/environmental factors);
- Cost-benefit analysis in project evaluation.

(iv) Policy, Resource Use and the Environment

(a) Impact and Potential of Selected Policy Instruments/Programmes

- Pricing policy;
- Taxation/subsidies
 - For final and intermediate manufactures;
 - For agricultural inputs and outputs
- Credit policy;
- "Adjustment" policies;
- Land Tenure;
- Technology policy;
- Incentives versus regulation.

(b) Approaches to Pollution Control

- Pollution as an "externality" problem;
- Taxation/subsidies;
- Marketable permits;
- User charges;
- Regulation.

(c) Environmental Impact Assessment

(v) **Sectoral Case Studies**

Case studies making use of specially prepared computer simulation packages incorporating appropriate cash flow models and designed to permit examination of alternative fiscal and regulatory policies - and of the social costs and benefits of projects.

Four separate sectoral case-studies in:

- Fisheries
- Mining
- Logging
- Energy
- plus a fifth study modelling policy alternatives regarding a particular environmental problem, probably soil erosion.

(vi) **Resource Availability, Environmental Factors, and Long-Run Development**

A concluding summary on appropriate resource use and environmental policies for sustained long-run development in developing countries in general - and in the South Pacific in particular.

5. **BIBLIOGRAPHY**

The literature on resource and environmental economics is now very extensive. The Library is at present poorly provided with material in this important area. Accordingly, this bibliography lists a large number of alternative items in each category.

(i) **Text:**

D.W. Pearce and Kerry Turner, *Economics of Natural Resources and the Environment*, Harvester, London, 1990.

A useful subsidiary text at a somewhat lower level is:

Michael Common, *Environmental and Human Resources*, Longman, London, 1990.

(ii) **Other readings**

The readings below are listed by a subject classification corresponding to the course structure. It should be noted, however, that many of the items included are relevant to more than one element in the course structure.

(a) **General material**

J.M. Hartwick and N.D. Olewiler, *The Economics of Natural Resource Use*, Harper and Row, New York, 1986.

D.W. Pearce and J. Rose (eds), *The Economics of Natural Resource Depletion*, Wiley, New York, 1975.

P. Dasgupta, *The Control of Resources*, Blackwell, London, 1982.

The Economist, Costing the Earth, Sept., 1989.

R. Dorfman and N. Dorfman, *Economics of the Environment*, (3rd edn.) Norton, New York, 1993.

"Development and the Environment", World Bank Report, 1992, World Bank, Washington, D.C., 1992.

F. B. Barbier, *Economics, Natural Resource Scarcity and Development*, IIED, London, 1990.

Wilfred Beckerman, *Economic Development and the Environment : Conflict or Complementarity?*, World Bank, Washington, D.C., 1992.

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COURSE OUTLINE 6

LAW OF THE SEA AND OCEAN POLICY IN THE SOUTH PACIFIC

1. Introduction and Background

At the present time, there is no existing text on this rather tropical and immensely important field of study. This also is true of primary legal documents (such as statutes, regulations or codes) and secondary materials. Furthermore, whatever materials that are available are generally not easily accessible to students for their personal studies. Apart from these, the complex nature of the subjects means that students would have difficulty comprehending materials from ad hoc sources if such were not provided in a comprehensive manner.

2. Course Description

The Law of the Sea and Ocean Policy course is exciting because of its topical and dynamic nature. However, it can also be complex because of two reasons. The first is that the subjects/topics which fall within its ambit are quite broad in scope. These include maritime zones and delimitation of boundaries, functional uses of the sea (marine fisheries, navigation, non-living resources and marine scientific research), protection and preservation of the marine environment and settlement of disputes relating to the sea. The second reason is that the legal regimes which regulate the sea and the resources thereof in the South Pacific are prescribed at different levels: international, regional and national. Whilst they may be closely related, their application and legal effects are quite different.

The course covers all the basic subjects/topics which fall within the ambit of contemporary law and ocean policy. Particular emphasis will be placed on topics/issues which are of significance within the region as a whole or the practice of states within the region.

3. Project Description

Because of the diverse nature of subjects and sources of law and ocean policy within the region, it is intended that the course materials will be presented in two volumes:

- (i) "Basic Documents on the Law of the Sea in the South Pacific". This volume will contain selected parts of the four 1958 Geneva Conventions, the 1982 UNCLOS and all the appropriate regional documents. This volume will have an Introduction and Explanatory Notes for each of the documents.
- (ii) "State Practice and Policies on Marine Affairs in the South Pacific Region". This volume will focus on appropriate laws and policies which have been adopted and implemented in the various states and territories of the South Pacific.

Volume 1 - Basic Documents on Law of the Sea in the South Pacific

Contents

1. Introduction

- (a) Nature and Scope of Law and Ocean Policy
- (b) International Law and Policy.
- (c) Historical Development of Law of the Sea.
- (d) Contemporary Law of the Sea.
- (e) Scope of Material included.

2. General Multilateral Conventions

- (a) Overview
- (b) Convention on Territorial Sea and Contiguous Zone 1958.
- (c) Convention on Continental Shelf 1958.
- (d) Convention on the High Seas 1958.
- (e) Convention on Fishing and Conservation of the Living Resources of the High Seas 1958.
- (f) United Nations Convention on the Law of the Sea 1958.

3. Regional Documents

- (a) Overview

- (b) Marine Fisheries Resources Development and Management.
 - (i) South Pacific Forum Fisheries Agency Convention 1979.
 - (ii) The Nauru Declaration and Implementing Arrangements 1981.
 - (iii) Treaty on Fisheries between the Government of certain Pacific Island States and the Government of the United States of America, 1987.
 - (iv) The Tarawa Declaration, 1989.
 - (v) Convention for the Prohibition of Long Drift Nets in the South Pacific, 1989.
- (c) Protection and Preservation of the Marine Environment
 - (i) Action Plan for Managing the Natural Resources and Environment of the South Pacific Region, 1982.
 - (ii) South Pacific Nuclear-Free Zone Treaty 1985.
 - (iii) Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, 1986.
 - (iv) Environment and Development. A Pacific Island Perspective. Asian Development Bank, 1992, for UNCED.
- (d) Non-Living Resources
 - (i) South Pacific Applied Geo-Science Commission 1972.
- (e) The Future?
 - (i) 1982 UNCLOS and State Practice
 - (ii) South Pacific Forum Communique
 - (iii) Personal comments of Regional leaders
 - (iv) The Pacific Way (SPREP/Asian Development Bank, 1992).

Volume 2 - State Practice and Policies on Marine Affairs in the South Pacific Region

1. Introduction

- (a) Scope
- (b) General International Law
 - (i) Sources
 - (ii) Application
- (c) Regional Practice and Policies
 - (i) Creation
 - (ii) Sources
- (d) National Practices and Policies
 - (i) Creation
 - (ii) Sources
- (e) Overview of subject areas

2. Baselines

- (a) Introduction
- (b) Normal Baselines
- (c) Straight Baselines
- (d) Special Geographic circumstances
 - (i) Bays
 - (ii) Harbour works
- (e) Islands and low tide elevations
- (f) State Practice in the South Pacific Region

3. Internal Waters and Territorial Seas

- (a) Internal Waters
- (b) Territorial Seas
 - (i) Definition
 - (ii) Delimitation
- (c) Legal Status
 - (i) Rights of Coastal States
 - (ii) Rights of other States
- (d) State Practice in the South Pacific

4. Archipelagic Waters

- (a) Definition
- (b) Delimitation
- (c) Rights of Coastal States
- (d) Rights of other states
- (e) State Practice in the South Pacific

5. Straits

- (a) Definition
- (b) Rights of Navigation
- (c) State Practice in the South Pacific

6. Contiguous Zone

- (a) Definition
- (b) Delimitation
- (c) Legal Status
 - (i) Rights and Duties of Coastal States
 - (ii) Rights and Duties of other states
- (d) State practice in the South Pacific.

7. Continental Shelf

- (a) Definition
- (b) Delimitation
- (c) Legal Status
- (d) Rights of Coastal States
- (e) State Practice in the South Pacific

8. Exclusive Economic Zone

- (a) Definition
- (b) Delimitation
- (c) Legal Status
 - (i) Rights and Duties of Coastal States
 - (ii) Rights and Duties of other states
- (d) State Practice in the South Pacific

9. Marine Zones Delimitation

- (a) Overview of Marine Zones
- (b) Delimitation of Boundaries
- (c) Opposite and Adjacent States
- (d) State Practice in the South Pacific

10. High Seas and International Seabed Area

- (a) High Seas
 - (i) Definition
 - (ii) Freedom of the High Seas
 - (iii) Jurisdiction on the High Seas

- (b) International Sea Bed Area
 - (i) The Area
 - (ii) Common Heritage of Mankind
 - (iii) Preparatory Commission

- (c) State Practice in the South Pacific
 - (i) High Seas
 - (ii) The Area
 - (iii) SOPAC

11. Marine Fisheries

- (a) Introduction
- (b) Coastal States' Rights and Duties
 - (i) Access
 - (ii) Conservation and Management
- (c) Role of FFA
 - (i) Tuna Resources
 - (ii) Drift Netting
- (d) State Practice in the South Pacific

12. Navigation

- (a) Introduction
- (b) Nationality of ships
- (c) Overview of Rights of Navigation
- (d) IMO
- (e) South Pacific Forum
- (f) State Practice in the South Pacific

13. Protection and Preservation of the Marine Environment

- (a) Introduction
 - (i) Marine Pollution
- (b) Contemporary Issues and Problems in the South Pacific
- (c) Role of SPREP
- (d) State Practice in the South Pacific.

14. Marine Scientific Research

- (a) Introduction
- (b) Scientific Installations
- (c) Co-operation
 - (i) International
 - (ii) Regional
- (d) National Requirements

15. Customary Marine Tenure

- (a) Introduction
- (b) CMT under International Law
- (c) CMT under National Law
- (d) Future Prospects

16. Epilogue

- (a) 1982 UNCLOS
- (b) Regionalism and Law of the Sea
- (c) Which way do we go?
- (d) Agenda 21/UNCED 1992

COURSE OUTLINE 7

MANAGEMENT AND DEVELOPMENT OF COASTAL FISHERIES

Introduction

This course aims to look at the integrated nature of the Coastal Fisheries. It focuses on some of the important issues that determine the state of the coastal resource use and management in the South Pacific Islands.

The socio-economic role of coastal fisheries is emphasized in light of the limited alternative opportunities for food and income. Development strategies that take into account these economic considerations as well as the environmental issues are outlined.

Objectives

- (i) Analyse the various institutional factors that influence the nature and extent of exploitation of coastal fisheries resource.
- (ii) Highlight the complex nature of the physical and cultural aspects of the coastal environment and the need for an integrated approach to coastal fisheries development.
- (iii) Look at alternative strategies for management and development that would lead towards a more sustainable fisheries.
- (iv) Focus is also placed on special interest groups, particularly women and enhancing their role in coastal fisheries as their activities are central towards promoting a self-reliant fisheries.

Proposed Course Outline

A. The COASTAL ENVIRONMENT

- (i) Fishing Zones : Inland waters, inter-tidal areas, estuaries, inshore, reef and outer-reef areas.

- (ii) Zonation and Distribution of Resources.
 - fish and non-fish
 - exploitation of major species
 - economic potential
- (iii) Definition and Categories of Coastal Fisheries.
 - characteristics of subsistence, artisanal - commercial, industrial, aquaculture
 - nature and degree of competition
- (iv) Production, distribution & nutrition.
 - value and quantity of production, statistical inferences
 - food security and nutrition
 - influence of cash economy
- (v) Livelihood of Coastal Communities.
 - alternative economic activities
 - community organisation, social custom, culture, values and social change
 - land and marine tenure
 - Household production systems

B. NATURE OF FISHING OPERATIONS

- (i) Organisation of Production and Distribution
 - Production social relations
 - Division of labour
 - activities and operation
- (ii) Fishing techniques and Technology.
 - modern and traditional fishing skills and techniques
 - modern and traditional gear and equipment
 - fishing effort and efficiency
 - cultural influences on use and ownership of fishing technologies

(iii) Marketing and Distribution of Catch.

- marketing infrastructure and facilities
- factors influencing marketing and distribution of catch
- post-harvest handling of catch

C. HUMAN ACTIVITIES AND ITS INFLUENCE ON COASTAL FISHERIES

(i) Land Reclamation and Clearing of Mangrove Areas.

- environmental consequences
- effect on fishing communities

(ii) Urbanisation and Agricultural land use

- increased fishing pressure
- environmental degradation
- erosion

(iii) Pollution

- chemical & industrial waste disposal
- land - based pollutants

(iv) Destructive Fishing practices

- use of explosives
- illegal methods
- efficient gear & equipment

D. RESOURCE MANAGEMENT AND DEVELOPMENT

(i) Fisheries Development Policies and Management strategies.

- fisheries development plans
- fisheries laws regulations and enforcement measures
- density access to control fishing effort

(ii) Customary Marine Tenure and Resource Management

- Role and nature of traditional fishing rights
- CMT and contemporary fisheries development
- CMT and modern fisheries regulations
- traditional knowledge and resource management

(iii) **Limitations: Constraints to Coastal Fisheries Management and development.**

- lack of data and statistics
- social customs and gender differentials
- lack of alternative options
- limited extension and training opportunities

E. ALTERNATIVE STRATEGIES FOR MANAGEMENT AND DEVELOPMENT

(i) **Rationalisation of Fisheries Policies.**

- social optimization policies for sustainable coastal fisheries
- aquaculture and post-harvest technology
- education, extension and training opportunities
- promotion of self-reliant fishing activities

(ii) **Fishing groups and co-operative initiatives.**

- possibilities of joint-venture activities
- co-operative and communal system
- group operation and management
- NGO initiatives and their role in Coastal fisheries development

F. WOMEN'S ISSUES

(i) **Women in Coastal Fisheries Management Development**

- role of women in household food security and sustenance.
- women's fishing activities and labour
- economic distribution

(ii) **Women and Fisheries Development Plans and Policies.**

- lack of adequate recognition and assistance
- consequence of lack of extension and training for women

(iii) **Women and the Sustainable Development of Fisheries.**

- subsistence fisheries and protein self-sufficiency
- women as facilitators of fisheries production
i.e. post-harvest handling, marketing and administration
- women and self-reliant coastal fisheries development

AUSTRALIAN MARITIME COLLEGE

PORT & MARINE TRANSPORTATION PROGRAMME

As a result of the Memorandum of Agreement between the Australian Maritime College and The International Ocean Institute Operational Centre at the University of the South Pacific it has been agreed to develop and deliver a three stage program focusing on Ports and Shipping for South Pacific nations.

Following discussions between Robin South (IOI Operational Centre Director), Barrie Lewarn (AMC, Director, Faculty of Maritime Transport and Engineering) and Jeff Hawkins (AMC, Associate Director, Maritime Business) the following broad aim and framework was agreed:

The broad aim of the program is to enhance maritime management, policy making and operational efficiency, as well as institutional strengthening of ministry, government bodies and private enterprise.

- **Course 1**

Title: Principles and Applications of Ports and Shipping Management.
Target Group: Senior management and policy makers
Duration: 2 weeks

- **Course 2**

Title: Introduction to South Pacific Maritime Transportation
Target Group: Operational/supervisory management
Duration: 1 week

- **Course 3**

Title: Operational Management
Target Group: Managers involved in the operations of ports, commercial shipping and maritime administrators
Duration: Unit 1 - Port Operations (1 week)
Unit 2 - Commercial Shipping Operations (1 week)
Unit 3 - Maritime Administration Operators (1 week)

This program is compatible with the goals and purpose of Project No 5, Regional Human Resource Development in Maritime Matters, of the South Pacific Maritime Development Plan Work Programme as published by the Forum Secretariat, Suva in August 1990. Additionally, this program would satisfy some of the training needs identified in the UNCTAD Training Needs Assessment, Mission to the South Pacific carried out by UNCTAD Trainmar in October/November 1991.

At this stage delivery of the program is dependent upon receipt of adequate funding.

Course outlines for Courses 1 and 2 are attached as an indication of their content. Because the outcomes of Course 3 modules would provide students with a series of working guidelines encapsulated in a manual it was thought prudent not to detail content at this early stage of development.



Barrie Lewarn
Director
(Maritime Transport & Engineering)
Australian Maritime College



Jeff Hawkins
Associate Director
(Maritime Business)
Australian Maritime College

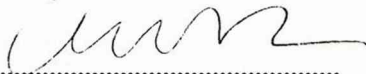
10 August 1993

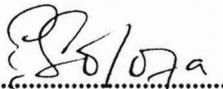
Memorandum of Agreement
between the
Australian Maritime College
and
The International Ocean Institute Operational Centre
at the
University of the South Pacific


The Australian Maritime College (AMC) and the International Ocean Institute Operational Centre at the University of the South Pacific (IOI), desirous of promoting the safety and efficiency of maritime transport, including the operation of ports and shipping in the Pacific Region, agree to cooperate in a mutually beneficial association. Such cooperation shall include the following:

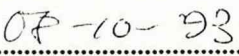
- a Curriculum development, training, research and consulting in areas of mutual interest, and in areas of identified priority in the South Pacific and/or in the broader mandates of AMC and IOI; to be initiated in 1993 by cooperation in the development and delivery of a three stage program focusing on Ports and Shipping for South Pacific nations;
- b Adoption and retention by IOI of curriculum and/or courses resulting from this cooperation terms acceptable to both parties;
- c Where mutually agreed, relevant staff from the University of the South Pacific may actively participate in course development and delivery;
- d Where mutually agreed, relevant staff and students from either institution may actively participate in the courses;
- e Notwithstanding the above, the cooperation places no financial obligation on either party, and the development and delivery of courses or conduct of other joint activities is contingent upon the generation of necessary funding. Both parties agree to play appropriate supportive roles in fund-raising.

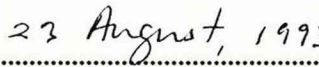
This agreement may be reviewed or revised by mutual consent of both parties.


.....
Professor Robin South
Director
The International Ocean
Institute Operational Centre
at The University of South Pacific


.....
Mr Esekia Solofa
Vice Chancellor
The University of the South
Pacific


.....
Mr R F Short
CEO/Principal
Australian Maritime College


.....
Date


.....
Date


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Date

COURSE OUTLINE 8

Draft Outline

(AMC - IOI-South Pacific)

PRINCIPLES AND APPLICATION OF PORTS AND SHIPPING MANAGEMENT

Course Aim

The aims of this course are to give participants an understanding of:

- how maritime transport operates
- the factors that influence different transport choices
- how to develop a transport policy for both ports and shipping

Target Group

This course is designed for people who hold senior decision-making responsibilities within ports, shipping and Government policy-making positions dealing with maritime transport.

Course Duration

Intensive 2 week program.

Course Outline

Purpose of Shipping

- commercial and non-commercial factors
- social considerations
- defence considerations
- as a development tool

Trade, Tourism and Transport

- economic development and trade
- linking trade and transport
- linking tourism and transport

Economics of Maritime Transport

- seaborne trade characteristics
- supply and demand in maritime transport
- business cycles in maritime transport
- shipping costs and revenues

Maritime Transport Operations

- goods and services contracts
- transport requirements
- modal choices

Factors Affecting Transport Choices

- national politics
- regional politics
- international bodies

Transport Pricing

- pricing port services
- pricing shipping services

Transport Policy

- developing a port policy
- developing a shipping policy

COURSE OUTLINE 9

Draft Outline

(AMC - IOI-South Pacific)

INTRODUCTION TO SOUTH PACIFIC MARITIME TRANSPORT

Course Aim

The aims of this course are to give participants:

- an holistic view of how maritime transport operates
- an understanding of who the major players are, and their roles and functions within the maritime transport system

Target Group

This course is designed for people who hold operational/supervisory management positions within ports, shipping and Government bodies.

Course Duration

Intensive 1 week program

Course Outline

Maritime Transport Chain

- Shippers
 - * customer demand
 - * transport options
- Connecting Transport
 - * road
 - * conveyors/pipelines
 - * feeder/transshipment/coastal
- Port Authorities
 - * providing berths
 - * dredging and navigational facilities
 - * services (tugs, pilots etc.)

- Terminal and Depot Operators
 - * terminal types
 - * consolidation/deconsolidation
 - * receipt & despatch of cargo
 - * appropriateness & maintenance of equipment

- Stevedores
 - * loading/discharge of cargo
 - * manpower requirements

- Sea Transport
 - * shipping capacity
 - * ship types
 - * chartering obligations
 - * service levels and schedules
 - * transshipment

- External Influences
 - regulations
 - commercial pressures
 - political factors
 - unitisation of cargo
 - unions
 - regional conflicts
 - cultural and social differences
 - geographical considerations

- Tourism and Transport
 - dealing with transport operators
 - tour operations and the transport system
 - destination and facilities

COURSE OUTLINE 10

USP GIS UNIT

GIS WORKSHOP OUTLINE

Time: 5 full days (1 work week)
or 10 half-days (2 work weeks)

TOPICS

EXERCISES

DAY 1

GIS defined, explained
Terminology, Concepts, Paradigms
History
Overview of GIS
Introduction to Computers
Introduction to Databases

Basic Computer Operations
GIS Preview

DAY 2

Geo/Spatial Data
Raster vs. Vector; Topology
Data Sources
Data Issues and Problems
Basic GIS Operations: Inventory

Geocoding/Data Entry
Data Editing
Inventory Operations
Recoding

DAY 3

GIS Operations: Basic Analysis
GIS Operations: Advanced Analysis

Overlays and Buffers
Advanced Operations
Network and Distance Analysis

DAY 4

Site Suitability
GIS and Remote Sensing
Output

Site Suitability
Modelling
GIS and Imagery

DAY 5

GIS Applications
Resource Management and GIS
GIS: Present and Future

Thematic Map Production

Following are the curricula vitae of Course developers for IOI - South Pacific / USP Courses, arranged in alphabetical order.

1. A.G. N. Crombie, (Australian Maritime College). Courses 8 & 9.
2. B. Davis, (Geographical Information System Unit, Department of Geography, The University of the South Pacific). Course 10
3. Prof. D. Forsyth, (Professor & Head of Economics, The University of the South Pacific). Course 5.
4. D.R. Grove, (Australian Maritime College). Courses 8 & 9.
5. R. Grynberg, (Department of Economics, The University of the South Pacific). Course 5.
6. J.F. Hawkins, (Australian Maritime College). Courses 8 & 9.
7. D.W. Keats, (University of Western Cape). Courses 1 & 7
8. M.G. King, (Australian Maritime College). Course 1
9. B. Lewarn, (Australian Maritime College). Courses 8 & 9.
10. Vina Ram, (Ocean Resources Management Programme, Marine Studies, The University of the South Pacific). Courses 4 & 7.
11. Prof. G.R. South, (Marine Studies Programme & IOI - South Pacific, The University of the South Pacific). Course 1 (Coordinator)
12. S.K. Tuqiri, (Coordinator, IOI - South Pacific). Courses 6 & 7.
13. J. Veitayaki, (Coordinator, Ocean Resources Management Programme, Marine Studies, The University of the South Pacific). Courses 1, 2, 3, 6 & 7.

DALHOUSIE UNIVERSITY ARCHIVES DIGITAL SEPARATION SHEET

Separation Date: July 18, 2016

Fonds Title: Elisabeth Mann Borgese

Fonds #: MS-2-744

Box-Folder Number: Box 292, Folder 4

Series: Administrative records of the International Ocean Institute

Sub-Series: Administrative records

File: Meeting of centre directors : [proposal from the International Ocean Institute's operational centre at the University of the South Pacific]

Description of item:

File contains CVs from course-developers of the IOI-South Pacific/University of the South Pacific.

Reason for separation:

59 pages removed from digital copy due to privacy concerns.