



PNA BM 808

International Coastal Resources Management Project

The University of Rhode Island

The four major goals of the AID/URI Coastal Resources Management Project (CRMP) are: 1) to apply, as appropriate, existing experience in coastal resources management to developing countries; 2) to assist three developing nations in the design and implementation of integrated coastal resources management programs; 3) to advance the state-of-the-art of coastal resources management in developing countries; and 4) to build URI's capability to assist developing nations with coastal resources management.

The CRMP will work with the cooperating pilot countries to:

- develop procedures for the assessment of the impacts of coastal development proposals
- develop institutional and technical solutions for resource use conflicts
- support research to better understand the issues that affect the condition and use of coastal ecosystems
- improve the capabilities of in-country professional staff to plan for and manage coastal development

The countries selected for pilot projects are Ecuador, Sri Lanka and, tentatively, Thailand.

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INTERNATIONAL COASTAL ZONE
EDUCATION

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ABSTRACT

Submitted

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The single most important distinction between training and education is that training is primarily concerned with the transfer of existing knowledge whereas the long term goal of education is to prepare the student with new concepts, principles, methods and techniques within a given subject area. In short, education is concerned with expanding and developing new information related in this case to coastal zone management in developing countries. Since this topic is new, and in light of the potential demand for professionals with expertise in this area, the time has come to begin formulating how such a program might best service the needs of a host of donor nations.

This section briefly reviews existing U.S. graduate programs in coastal zone management/marine affairs, the types of graduate degrees offered, their structure and organization and course requirements. This is followed by a proposed program consisting of between 45 and 50 credits divided into a core of up to ten required courses. The second group consists of elective courses which may make up from 15 to 20 credits depending upon thesis, internship or other program requirements. In addition, to course titles, proposed course descriptions have also been added, briefly outlining the content and objectives of both core and elective courses.

Coastal Zone/Marine Affairs Education

Educational programs in Marine Affairs including CAM have been in existence since the late 1969 anticipating the events which lead to the passage of the CZMA in 1972. Since then more than 29 states and other eligible units (including commonwealths, and territories) have approved CAM plans. Together, they cover more than 80% of the nation's shoreline. The CAM plans created a domestic demand for professionals with interdisciplinary coastal and nearshore expertise -- a demand which was not readily met by existing regional planning for national resource departments. The coastal area differs in major ways from most other natural and cultural regions which management problems can be dealt with through existing (conventional) planning departments.

The evolution of academic programs dealing with CAM have been evolutionary, sharpened and honed by the demand created on the federal level for professionals with expertise in implementing the provisions of the CZMA, 72. More recently this demand has broadened to include coastal states and a growing number of private sector organizations.

At the present time (1987) seven academic institutions offer graduate degrees within the broad area of marine affairs (Table 1). All but one of these are masters programs. Only the University of Delaware offers a Ph.D. program, although at least one other university (URI) is in the process of adding a Ph.D. degree in Marine Affairs. This program is discussed in greater detail below.

TABLE 1

MARINE AFFAIRS PROGRAM NAMES AND AFFILIATIONS

Institution	Affiliation	Program Name	Program/Department
Nova University	Oceanographic Center	Masters of Ocean Science	Program
Oregon State University	Graduate School of Oceanography	Marine Resource Management	Program
University of Delaware	College of Marine Studies	Master of Arts of Marine Policy	Program
University of Rhode Island	College of Arts and Sciences	Masters of Marine Affairs (1 year) Masters of Arts in Marine Affairs	Department
University of Virginia	College of Arts and Sciences	Masters of Marine Affairs	Program
University of Washington	Institute for Marine Studies w/i College of Oceanography & Fisheries	Masters of Marine Affairs	Department
Virginia Institute for Marine Sciences	School of Marine Sciences	Masters in Marine Resource Management	Program

The evolution of the masters programs has generally followed two trends. One group of programs has been created within existing schools of oceanography or science programs and/or divisions. The other group has evolved within conventional colleges of Arts and Sciences. The origin of the programs is quite significant in terms of subsequent program orientation, course requirements, and study emphases.

On the masters level, two types of degrees have been developed. One of these is referred to as a professional Masters of Marine Affairs (MMA) and is intended for professionals with extensive prior background in some marine related activity in the private, public, or educational sectors. This degree usually does not require a thesis, but a professional paper. This is intended to enhance the student's professional career goals. At the present time two schools (URI and University of Delaware) offer this degree.

The academic degree, sometimes referred to as Master of Arts (or Sciences) in Marine Affairs (MAMA/MSMA), is the more common of the two and usually requires either a thesis, internship, or added course load. This degree is offered to recent well-qualified graduates, who do not meet the strict entry level experience required for the MMA programs. The objective of the academic program is to develop a cadre of graduates capable of undertaking a variety of responsibilities ranging from research through management, planning to policy interpretation, and

formulation. Not surprisingly, those programs located within Oceanography/science units require proportionately more science courses as part of the program requirements compared to programs reporting to colleges of Arts & Sciences.

All of the programs offer a certain number of study concentrations, and all offer specialization in coastal zone management/planning. A list of concepts which should be included in a coastal educational program emphasizing international CAMP appears in Table 2.

Students

About fifty percent of the matriculating students' academic background is in the natural and physical sciences. These are followed by the social sciences with small numbers from the humanities. The academic background of nearly all of the international students are in the sciences, and most of these students have had several years practical experience prior to being sent abroad. Most of the international students are sponsored by their respective national governments. A slow continued increase in international students sponsored by international aid agencies has also been noted in recent years.

On the whole, the international student entering a Coastal Resources/Marine Affairs program in the U.S. is older, more experienced, mature, and determined than most domestic students. The chief obstacle to immediate academic success for most international students, whose native tongue is not English,

TABLE 2

Selected Topical List of Coastal Management Modules

Coastal Management Concepts

Coastal Zone/Extended Economic Zone as a Regional Concept
Coastal Environmental Carrying Capacity
Social Value Systems as an Integral Component of CZ
Management

Physical Processes & Social Activities

Shoreline & Nearshore Physical Processes
Tropical Systems: Mangrove and Coral Reef Fisheries
Tourism
Coastal Demographic Change and Urbanization
Extractive Industries: Oil & Gas, Mining, Waste Disposal

Coastal Management Techniques

Environmental Decision Making
Environmental Impact Assessment
Coastal Resource Economics
Public Awareness and Conflict Resolution
Implementation and Enforcement
Institutions and Institutional Arrangements

Coastal Planning and Management Goals

Issue Oriented
Protected Areas
Effluent Control
Fisheries
Comprehension Integrated Coastal Planning and Management

is the language barrier. Nonetheless, even this obstacle is overcome by the time the course requirements have been completed.

At the present time the international student body ranges from a few percent of the total student body to between 15 and 20 percent. With a growing concern for coastal resources in many developing countries it is likely these figures will continue to grow for some time to come.

One reason for this apparent void is believed related to the relative youth of CZ management in general, and also the fact that it, until quite recently, has been primarily a concern by developed countries. Perhaps most importantly, the marine affairs/coastal area management fraternity is by any standard quite small with only a fraction of its membership having worked with, or in, other countries.

This then raises the question of how a coastal area program with an international orientation should be structured. The following represents some ideas and suggestions.

International Coastal Management Program

A program in international coastal management should be part of an existing Marine Affairs program, but represent a different area of concentration.

Normally, such a degree would require a total of between 40-48 credits (approximately two thirds of which would be required), a thesis, internship, additional courses, or a major

paper. The latter is intended to enhance the students professional career objectives. Each of these requirements are discussed in some detail below.

Core Courses

The objective of the core (required) courses is twofold, to lay a foundation in management research methods and to introduce the student to procedures required to develop, implement, and manage a coastal management program. The approximately 10 core courses required are identified in Table 3.

Electives

The second group of courses consists of the electives which are intended to provide the student with specific conceptual and content information about his or hers intended area of concentration. While some of these courses already exist a number of additional courses undoubtedly will be required. A list of suggested courses intended to enhance a professional career student interested in international coastal zone management appear in Table 4.

As mentioned above only The University of Delaware currently offers a Ph.D. in marine affairs and one other (URI) is in the process of adding such a degree. It is expected this degree will be implemented early in 1988. In light of the continued interest in such a program it has been decided to briefly outline the rationale and organization for developing this program. The information for this section is drawn from several planning documents related to this proposal (Juda, 1986).

TABLE 3
Core Courses

Methods & Techniques

	Credits
Research Methods	3
Statistics	3
Technical Communication	3
Economics of Marine Resource	3

Coastal Concentration

Coastal Planning and Management	3
Environmental Assessment	3
Coastal Zone Law	3
Marine Affairs Seminar	6
Coastal and Nearshore Uses and Marine Sciences	3
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TABLE 4

ELECTIVE COURSES

International, Coastal & Ocean Organizations

Describes existing national and international aid programs emphasizing coastal management, fisheries and other resource development efforts in developing countries.

Problems of Developments & Modernization in Developing Nations

Analyzes regional socio-environmental problems including coastal demographics, fisheries, agriculture, distributional systems using integrated theories on modernization and developments.

Applied Resource Economics

Examination of issues in natural resource policy through application of theoretical and empirical tools. Topics include pollution control, fisheries management and other resource extraction activities.

International Comparison in Community Planning

Analysis of community and regional development issues and policies on developing countries. Emphasis on spatial economic development and related public policies and capital investment strategies.

Seminar in Ecological Planning

Advanced seminar in ecological planning emphasizing hazardous waste, industrial setting, transportation alignment in the context of protection of aquifers, wetlands and coastal environments.

Aquaculture Systems

Development of design criteria, operational analyses and management of selected species.

Coastal Geologic Hazard

Geomorphic hazards in the coastal zone and their impact on society include analysis of waves, storm surges, mass wasting and sea level rise.

Since the mid 1960's marine affairs has evolved to the point where professionals trained in this field are called upon to identify, resolve and implement solutions to coastal and marine resource conflicts. So far most of those approaches have been applied directly towards specific problems of unique areas. Few attempts have been made to develop and test hypotheses related to coastal and marine issues. Considering the increased attention on coastal and marine resources in this country and abroad it is not surprising that a call for the establishment of a Ph.D. in marine affairs is being articulated with increasing frequency. Specifically, such a degree should address the following issues in an attempt to develop answers which have greater universal applicability.

- advances in relevant science and technology which allows for new and/or more intensive uses of the marine environment
- growing pressure worldwide for exploiting the living and non-living resources of ocean space
- the increased need for appropriate and safe locations for disposal of various waste products
- demographic trends which are resulting in greater concentrations of population in coastal areas with consequent pressure on the physical environment of the coastal zone
- increasing conflict of use problems in ocean and coastal areas
- the basic and crucial role of maritime transportation in the world trading system
- changing political dynamics in the field of ocean affairs at the global, regional and national levels.

As currently envisioned the Ph.D. degree will emphasize one of the following five core areas (Table 5).

The demand for the Ph.D. has been expressed repeatedly by former students, colleagues, and professionals already working within the broad field of marine affairs. In addition, a disproportionate number of international students and coastal zone professionals from abroad have expressed interest in matriculating in the proposed Ph.D. program. In light of this demand the department has added a 'Developing Countries' concentration to the four existing core areas.

TABLE 5

Fisheries Management and Law

- MAF 523 Fisheries Law and Management
- 525 Fisheries in Developing Countries
- 571 Marine Geography
- 578 International Ocean Organizations
- 660 Marine Management Seminar I
- 661 Marine Management Seminar II
- FMT 518 Marine Fisheries Technology

Coastal Zone Management

- MAF 512 Seminar in Marine Science Policy and Public Law
- 520 Seminar in Coastal Margin Management
- 521 Coastal Zone Law
- 526 Landsat Remote Sensing
- 530 International Coastal Zone Issues
- 586 Environmental Impact Assessment and Analyses
- 602 Federal Ocean Policy and Organization
- 660 Marine Management Seminar I
- 661 Marine Management Seminar II

Maritime Transportation and Ports

- MAF 562 Admiralty Law
- 563 Maritime Transportation
- 564 Port Operations and Policy
- 571 Marine Geography
- 578 International Ocean Organizations
- 602 Federal Ocean Policy and Organization
- 660 Marine Management Seminar I
- 661 Marine Management Seminar II

International and National Ocean Law and Policy

- MAF 512 Seminar in Marine Science Policy and Public Law
- 523 Fisheries in Law and Management
- 571 Marine Geography
- 572 Management of Ocean Regions
- 577 International Ocean Law
- 578 International Ocean Organizations
- 579 Marine Jurisdictional Issues
- 602 Federal Ocean Policy and Organization
- 660 Marine Management Seminar I
- 661 Marine Management Seminar II

Marine Issues in Developing Countries

- MAF 525 Fisheries in Developing Countries
- 571 Marine Geography
- 572 Management of Ocean Regions
- 577 International Ocean Law
- 578 International Ocean Organizations
- 660 Marine Management Seminar I
- 661 Marine Management Seminar II

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