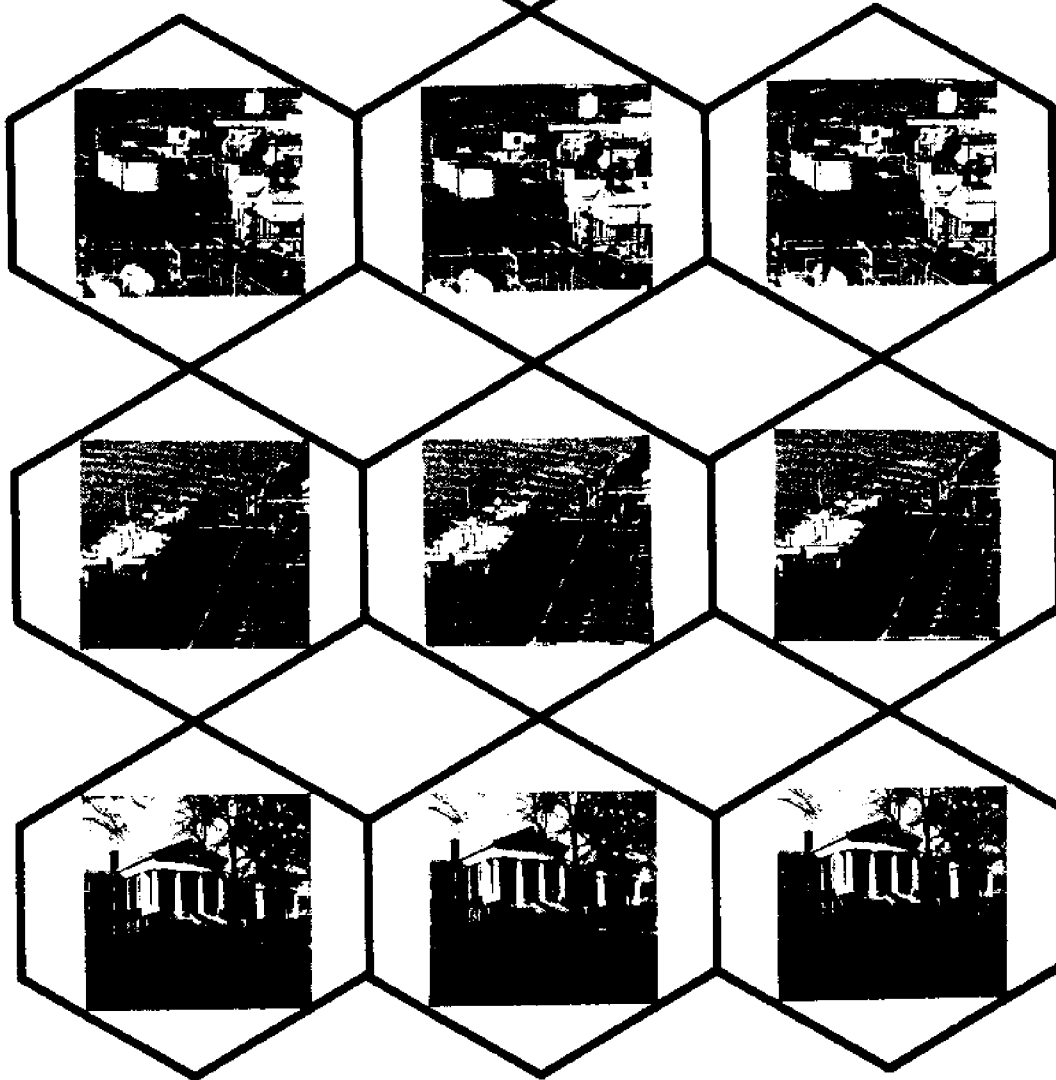




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Marine Affairs and Higher Education

Gerard J. Mangone

John L. Pedrick, Jr.

College of Marine Studies University of Delaware Newark, Delaware 19711

DEL-SG-17-73 This work is the result of research sponsored by NOAA, Office of Sea Grant, Department of Commerce, under Grant No. 04-3-158-30.

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MARINE AFFAIRS AND HIGHER EDUCATION

Aristotle was a marine biologist. Not until the modern scientific revolution, however, did research advance far enough to obtain a disciplinary study of the physical, chemical, and geological nature of the seas and their basins. Hydrography and oceanography were born near the close of the nineteenth century when scientists began to illuminate with some precision the character of the vast expanses and great depths of water that so profoundly affect all life upon this planet. Laboratories on the shore and bold expeditions at sea collecting, sampling, measuring, recording, and storing data, soon moved the marine sciences of the early twentieth century into the curricula of American colleges and universities or led to the creation of special institutions of oceanography for advanced research. After 1950 the term of "ocean engineering" gained wide acceptance and by 1968 there were some 77 significant marine science laboratories and institutions in the United States.

In very recent years a number of scholars in the United States, stimulated by important new policy issues regarding the uses of the coastal zone and the oceans, have turned their attention keenly to "marine affairs" as an area for higher education and professional research. Although the oceans had always been of interest to social scientists, indeed, central to their study of naval strategy and maritime trade, there was plainly a new dimension attached to the study of the seas in the teaching and research of many American universities. But until now there has been no systematic collection of the kinds of courses, programs, or degrees offered in the area of "marine affairs," including their outlines, readings, and requirements, no single listing of the teaching faculty involved, and no general definition or assessment of the field of "marine affairs" in higher education in the United States. The object of this study, there-

fore, has been to clarify the meaning of "marine affairs," examine where and how it was being taught at American universities in 1973, and draw some inferences about its viability in the future.

From 1959 onward there had been an aroused interest in the ocean in America stimulated by technological developments in marine warfare, offshore mineral exploitation, fisheries, and a new public interest in the environment, as well as a concerted effort by marine scientists to gain increased support for their research endeavors. The response of the U. S. Congress in particular, led to the passage of the Marine Resources and Engineering Development Act (PL 89-454) in June 1966, which called for a Commission on Marine Science, Engineering and Resources to make a comprehensive investigation and study of all aspects of marine science and to recommend an overall plan for a national oceanographic program. Among other things the Commission was charged with reviewing existing programs, including education and technical training, in order to determine what was required to advance national competence in oceanography. Four months later the National Sea Grant College and Program Act (PL 89-688) began to provide for the establishment of sea grant colleges and education, training and research in the fields of marine sciences, engineering, and "related disciplines." In 1968 the (Stratton) Commission, created by the Marine Resources and Engineering Development Act, reported that it viewed the decision of the National Sea Grant Program to support marine education in the social sciences as sound and recommended further aid to selected universities in order to organize graduate level education "in the application of social sciences to marine affairs."

The word "affair," derived from the French à faire, to do, or, a do, hardly helped in defining "marine affairs." In both the Marine Science and the Sea Grant legislation it seemed to include almost anything to do with the sea and was sometimes written as "marine science affairs," and sometimes not. For the purposes of this study, therefore, and to distinguish "marine sciences" from "marine affairs," marine affairs has been defined as the application of history, law, political science, economics, and other social science disciplines to the oceans, the seabed, and the coastal zone.

There was no baseline from which to measure the institutional response

of higher education to the new interest in marine affairs and no record of the forms, types, and character of curricula, by schools, degree-programs, or miscellaneous courses, that presently constitute the offerings of universities in marine affairs. In order to ascertain the present status of marine affairs in higher education, the catalogues of all colleges and universities in the United States known or inclined to offer such curricula were searched. Questionnaires were then mailed to every institution with some catalogue evidence of interest in marine affairs. In addition, questionnaires were mailed to all major universities in coastal states and some large inland institutions whose catalogues did not specifically indicate a marine affairs interest, with queries about their likelihood of offering a marine affairs curriculum in the future.

Ninety-five percent of all the institutions questioned returned some or all the information that had been requested. The primary data of this project have been drawn from the returns of the questionnaires. They made it possible to collect in detail the courses and degree programs in marine affairs now being offered at American institutions of higher education as shown in Appendix 2. The questionnaire, which listed the titles of marine affairs courses and their instructors, enabled direct correspondence with the individual professors engaged in university marine affairs curricula. About seventy percent of the professors responded to inquiries. Through the extraordinary cooperation of some of our respondents the study secured valuable outlines and reading lists that are included in Appendix 4. In rare instances was there no reply to a repeated letter of inquiry and it is quite possible that the survey missed some peripheral offerings in marine affairs in the 1972-73 academic year, but otherwise the results reflect the general status of marine affairs in higher education at that time.

Strengths and weaknesses in marine affairs education, of course, can be deducted from the data. But the major purpose of this study was the identification of people and programs in order to provide some factual assistance to those concerned about preparation of advanced students in universities to meet the challenge of the complex policy decisions that must be faced by the American people in their use of the oceans, the seabed, and the coastal zone. Two general observations, however, emerge from these data about marine affairs in higher education today: first, almost all the courses

and programs are new, practically none being more than five years old and most in their first years of trial; second, the discipline of law has been central to marine affairs programs, with political science and public administration of special relevance, while resource economics has played a substantial and increasingly important role.

The awakened interest in oceanography in the 1960's, the passage of the Sea Grant Act in 1966 and the political excitement of the impending UN Law of the Sea Conference in 1970 clearly contributed to the rapid development of marine affairs in university curricula. The key question for the future, however, will be the maintenance of marine affairs courses and programs by both the intellectual commitment of the faculty and the financial commitment of supporting agencies. In the long run, courses that have been introduced as a topical response to the contemporary legal-political issues or programs that do not have the vital underpinning of sponsored research may wither away. As a rather specialized field of study, moreover, with excellent, but severely limited vocational opportunities, marine affairs will most likely be a special program in a few large institutions that can offer in-depth, legal, political, economic, and other social science courses dealing with the oceans, the seabed, and the coastal zone, plus some exposure to the marine sciences.

Of the fourteen degrees in marine affairs offered by eleven institutions, seven are offered by law schools. The other seven post-graduate marine affairs degrees, moreover, all contain international law and/or coastal zone law as part of their requirements. Several law schools provide courses, but not degrees, in marine resource law, coastal zone law, and international law of the seas, while a few graduate schools of international relations have offered specialized courses in legal and political problems of the oceans, without commitment to a program in marine affairs. Public administration is another avenue through which marine affairs courses have been introduced into university curricula: such courses stress policy-management issues, particularly in the coastal zone, and are generally directed to the training of public officials rather than to lawyers who will enter practice. Marine resource economics has been a very important subject within marine affairs degrees, but, with one exception, not the prime element of such degrees.

Beyond these legal, political, and economic course offerings in marine affairs, at least five institutions provide an opportunity to study marine

transportation as a subject. Three institutions provide instruction in marine and port geography. Only two incorporate maritime history in their marine affairs degrees, and one has a course in anthropology dealing with coastal cultures. Obviously the field of marine affairs in American universities still lacks adequate coverage in maritime history, the history of science, anthropology, and sociology.

Institutional Programs: Degrees

University of Houston. In 1971 the Governor of Texas established the Texas Law Institute of Coastal and Marine Resources in order to provide "legal analysis of institutional authority and responsibility necessary for the proper implementation of a Coastal Resources Management Program." The Institute is located at the Bates College of Law at the University of Houston, but staffed by professors from other Texas law schools as well as Bates and by full time associates who are licensed attorneys. Concurrent with the establishment of the Institute, the Bates College of Law developed the Sea Law Program with a Texas A & M Sea Grant. The student in Sea Law takes the standard law curriculum leading to the JD degree, but elects appropriate marine law courses in the second and third years. The program includes International and Admiralty Law, as well as Environmental Law and Environmental Law Clinical Studies. The Bates College of Law is considering an LLM degree in Environmental Law.

Louisiana State University. With Sea Grant funding, the major thrust of the Louisiana State Marine Affairs program has been in the College of Law where an LLM degree with specialization in Marine Resources Law will first be offered in the 1973-74 academic year. Central to the curriculum are courses in Marine Resources Law, Coastal Zone Management, and International Law. The research efforts of the faculty are channeled through the Coastal Resources Law group supported by Sea Grant funds. Research is also emphasized for candidates for the LLM program and a thesis is one of the degree requirements.

University of Miami. One of the large marine centers in the United States, the Rosenstiel School of Marine and Atmospheric Science offers an extensive science program, but it is only marginally involved in the marine

affairs field. Marine affairs has been an important area of study in the School of Law. Both the JD and the LLM with specialties in ocean law are offered. A large research project on coastal zone law has been underway and, as part of the law curriculum, monographs on fishing zones, mineral resources, shipping, ocean dumping, and other marine subjects have been completed. One course is also provided in the Liberal Arts College entitled the Economics of Natural Resources, which deals largely with the economic tools used by marine resource economists.

University of Oregon. Oregon has an extensive statewide marine and coastal zone program, with sciences based at one institution and law at another. All the marine sciences are centered at Oregon State University with the exception of a small program at the University of Oregon where students in the department of biology carry on marine biology research and course work in cooperation with the Oregon Institute of Marine Biology. The University of Oregon has entered marine affairs, through the offering of a JD degree with a speciality in Ocean Resources Law. Courses are also offered in Admiralty and International Law, Ocean Resources Law and Environmental Law with emphasis on student research in the marine area. The research program stresses the production of advisory services and publications in the fields of fisheries management, aquaculture, and ocean pollution.

University of Mississippi. An interdisciplinary program leading to the Master of Marine Law and Science degree was established in the School of Law in 1970 with Sea Grant funds. Students working toward this degree study marine science at the Gulf Coast Research Laboratory and are given additional course work, such as Coastal Zone Law, at the School of Law.

University of Washington. With a long history of teaching and research in fisheries, oceanography, and ocean engineering, Washington is now bringing its wealth of experience to a university-wide approach to marine affairs. Maximum depth of field and interdisciplinary cohesion are being sought with the recent establishment of a new academic unit, the Institute for Marine Studies, whose task will be to coordinate the far ranging offerings in the sciences, engineering, law, economics and public affairs. Although courses

have been regularly offered in Marine Technology Affairs, Marine Policy Development and Administration, Natural Resource Economics, and Ocean Transportation, only the School of Law presently offers a marine affairs degree. The interdisciplinary LLM degree with a specialty in Law and Marine Affairs is administered in cooperation with oceanography, geography, engineering, public affairs, fisheries, and economics.

University of Southern California. Under the auspices of the Allan Hancock Foundation, with funding from the National Science Foundation, a major new marine science center on Santa Catalina Island is being constructed. The Law Center now administers courses in Admiralty and International Law, World Organizations, and Local Government Law, although it offers no marine affairs law degree specialty. In 1971, with Sea Grant funding, the School of Public Administration established the Master of Public Administration degree with specialization in Marine Affairs, designed to acquaint the student with policy decision-making for coastal and marine problems. Core courses include Problems and Issues in the Coastal Zone, dealing with pressures placed upon coastal resources by population growth and policies to meet these pressures, and Marine Affairs, which deals with marine environmental policy.

Texas A & M. The University has a very extensive marine science program. It entered the field of marine affairs from the field of resource management through its College of Business Administration. Two degrees are offered: the MS in Marine Resources Management and the MBA with specialization in Marine Resources Management. The MS curriculum is interdisciplinary, requiring half the course work be in management and finance courses such as Marine Resources Management, Marine and Coastal Zone Law, and Accounting for Marine Resources Management, with the other half taken from one of the marine-related sciences or social sciences. Courses in Ocean Transportation and Port Economics and Administration are offered at the Texas Maritime Academy. The MS program also includes an internship in a marine-oriented organization. In the MBA program, the student takes the standard MBA course work and, for his electives, opts for five marine-oriented business courses central to the MS program.

State University of New York at Stony Brook. With the recognition of

the immense stress placed upon the marine environment surrounding Long Island, the Marine Sciences Research Center has become an integral part of the new State University of New York at Stony Brook. The Center administers the interdisciplinary MS degree in Marine Environmental Sciences in which students are trained as environmental managers through exposure to marine science courses as well as marine affairs courses and research. Currently offered social science courses include Problems of the Marine Environment, Marine Legal and Political Administration, Fisheries Management, and International Marine Science Affairs. Much of the material presented in this program is based on marine environmental problems existing in the Long Island area, confronting the student with many of the problems faced by managers of other highly-stressed marine environments.

University of Rhode Island. The decade of the sixties brought a marked expansion in marine studies at the University of Rhode Island. Its Graduate School of Oceanography and Pell Marine Science Library were constructed at the nearby Narragansett Bay campus and the University, as one of the original Sea Grant colleges, became the official Sea Grant Depository. Rhode Island conceived the annual Law of the Sea Institute where scholars and officials from many countries have gathered to discuss international marine issues. The Marine Affairs Program, based in the Department of Geography, has administered the Master of Marine Affairs degree, which was first offered in 1969. The degree focuses on marine policy problems and about half the students have come from the officers in training at the Naval War College at Newport. The core courses are Basic Ocean Engineering, General Oceanography, International Law, Marine Geography, Economics of Marine Resources, and the Marine Affairs Seminar. A wide range of electives is offered including Coastal Zone Law, Law and Politics of the Ocean, American Maritime History, Marine Transportation. In addition, a PhD is offered in Economics with specialization in Marine Resources.

University of Delaware. The College of Marine Studies at the University of Delaware was founded in 1970 and has brought together under one dean a faculty of marine biology, physical oceanography, chemical oceanography, ocean engineering, and marine affairs. With Sea Grant and other funding it has embarked on extensive development of its curriculum and research. The MA and

MS and PhD degrees are offered in this unique graduate professional school. Every student is required to take core courses in all the marine disciplines in addition to his professional specialization. A marine affairs student must be conversant with the subject matter and methodology of physical and chemical oceanography, marine biology, geology, and engineering while taking specialized seminars in Maritime History, Coastal Zone Law and Policy, International Law and the Oceans, and Marine Resource Economics. The focus of the marine affairs degree is upon policy issues, with a strong emphasis upon research and the preparation of students for policy administration and management.

Non-Degree Programs and Marine Affairs Courses

Several institutions offer marine affairs courses in various departments, but at present have no plans to combine these into a degree program. They illuminate, however, the extent to which marine affairs interest has proliferated throughout American higher education. Cornell University, for example, offers graduate degrees in Limnology and Oceanography in which students are expected to gain in-depth strength in their area of scientific study complemented by a broad understanding of, and ability to communicate with, other concerned professionals in such areas as administration, economics, engineering, government and law. Courses are offered in Environmental Policy Analysis, Law and Environmental Control, Natural Resources Planning and Development, and Fishery Resource Management. The University of Florida curriculum encompasses fishery and resource economics, coastal zone management and environmental policy decisions. Marine affairs related courses include Natural Resource Economics, Land Use Control, and Natural Resources Law. The Massachusetts Institute of Technology through its Ocean Engineering Department and its social science faculty offers courses in Marine Resource Economics, Marine Transportation Economics, Management of Marine Systems, Public Policy and Use of the Sea, Coastal Zone Management, and an Ocean Engineering and Law Seminar. Rutgers University has shown a special interest in port economics, ocean trade, and resource management. Courses are offered in Resource Management Decision-making, Ocean Trade and Transportation, and Problems in Port Geography. The Fletcher School of Law and Diplomacy currently

offers courses in Law of the Sea, Uses of the Sea, and the Political and Security Aspects of Oceans and Ocean Resources. It has proposed to develop its curriculum in cooperation with Woods Hole Oceanographic Institution in four areas: (1) Legal Aspects of Ocean Resource Development; (2) Economic Aspects of Ocean Resource Development; (3) Political-Security Aspects of Ocean Resources; and, (4) Interdisciplinary Analysis of Key Resources. Lehigh University, which presently offers International Law and International Dimensions of Technological Change, has plans to include courses in International Institutions, International Marine Technology Affairs, and International Marine Technology Assessment. It has a special interest in wetlands research. The City University of New York, through its University Institute of Oceanography, has proposed offering in the near future, courses in The Sea as a Resource, Problems of Marine Resource Utilization and a very appropriate course entitled Problems of the Maritime-Metropolitan Interface.

Although they do not have established and continuing programs in marine affairs, several institutions, such as the University of Hawaii, University of Wisconsin, the University of Michigan, and the Virginia Institute of Marine Science have outstanding science and engineering programs relating the oceans, the seabed, and the coastal zone. Collaterally these institutions offer individual courses in marine resource economics or coastal zone management or policy-oriented courses touching upon the marine environment, all contributing to the increase of marine affairs curricula in higher education. A few mixed marine science and marine affairs programs also exist on the undergraduate level, such as at the University of Hawaii where a student is required to take a number of "marine-oriented" courses from existing academic departments and also acquire a marine "skill."

CONCLUSION

Marine affairs is a rapidly developing area of study in American higher education today. It is defined as the application of history, law, political science, economics, and other social science disciplines to the study of oceans, the seabed, and the coastal zone. Largely precipitated by the resurgence of interest in marine sciences in the early 1960's, the establishment

of the Sea Grant Program in 1966, and the preparations for a major Law of the Sea Conference under UN auspices in 1973-74, marine affairs has been especially attentive to legal problems and issues. But the number of political science, public administration, and economics courses dealing specifically with the oceans, the seabed, and the coastal zone have also increased dramatically in American universities, while history, sociology, and anthropology are still inadequately covered in most marine affairs curricula. Degrees in marine affairs are now offered in six law schools and five other graduate schools. In addition non-degree marine affairs programs are offered in at least seven other institutions of higher education. The key question for the future, in view of the inescapably limited professional opportunities, lies with the continuance of faculty-student intellectual interest and the renewal of funds by public agencies and private institutions. In all likelihood, the need for both depth and quality in marine affairs will narrow its pursuit to several large institutions willing to make long-term commitments to this area of study while providing a full-scale and complementary marine science program.

APPENDIX 1

Survey Statistics

SURVEY STATISTICS

Institutions Surveyed	57
Institutions Offering Degrees, Programs or Courses	24
Institutions Offering Marine Affairs Degrees	11
Institutions Offering Courses But Not Degrees	13
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Courses Offered In Marine Affairs	79
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APPENDIX 2

MARINE AFFAIRS DEGREE-GRANTING INSTITUTIONS AND OTHER
UNIVERSITIES OFFERING MARINE AFFAIRS COURSES

DEGREE GRANTING INSTITUTIONS DEGREE PROGRAM () DENOTES DEGREE WITH SPECIALIZATION	JD (OCEAN LAW)	LLM (OCEAN LAW)	MA MARINE AFFAIRS	PHD MARINE AFFAIRS	MPA (MARINE AFFAIRS)	MS MARINE ENVIRON. SCIENCE	MS/MBA MARINE RES. MGMT.	PHD ECONOMICS (MAR. RES.)
UNIVERSITY OF DELAWARE			X	X				
UNIVERSITY OF HOUSTON	X							
LOUISIANA STATE UNIVERSITY		X						
UNIVERSITY OF MIAMI	X	X						
UNIVERSITY OF MISSISSIPPI		X						
UNIVERSITY OF OREGON	X							
UNIVERSITY OF RHODE ISLAND			X					X
UNIVERSITY OF SOUTHERN CALIF.					X			
SUNY STONY BROOK						X		
TEXAS A&M UNIVERSITY							X	
UNIVERSITY OF WASHINGTON		X						

* IN ADDITION TO ITS MARINE AFFAIRS DEGREE PROGRAM INSTITUTIONS WITH VARIOUS COURSES	COURSE OFFERINGS	ANTHROPOLOGY	AGRICULTURAL ECONOMICS	ECONOMICS	ENVIRONMENTAL STUDIES	GEOGRAPHY	INTERNATIONAL STUDIES	LAW	MARINE TRANSPORTATION	NATURAL RESOURCES	PUBLIC ADMINISTRATION	MARITIME HISTORY
CORNELL UNIVERSITY					X					X	X	
THE FLETCHER SCHOOL							X					
FLORIDA STATE UNIVERSITY				X								
UNIVERSITY OF FLORIDA			X					X				
HARVARD UNIVERSITY								X				
UNIVERSITY OF HAWAII			X	X								
JOHNS HOPKINS UNIVERSITY							X					
LEHIGH UNIVERSITY							X					
LOUISIANA STATE UNIVERSITY*						X						
MIT				X				X	X		X	
UNIVERSITY OF MIAMI*				X								
OREGON STATE UNIVERSITY	X											
UNIVERSITY OF RHODE ISLAND*									X			X
RUTGERS UNIVERSITY						X			X			
UNIV. OF SOUTHERN CALIFORNIA*								X				
TEXAS A&M UNIVERSITY*									X			
VIMS											X	
UNIVERSITY OF WASHINGTON*				X					X		X	

APPENDIX 3

PARTIAL LIST OF FACULTY TEACHING
MARINE AFFAIRS COURSES

Partial List of Faculty Who Have Been Active In Marine Affairs Instruction

Lewis M. Alexander
Marine Affairs Program
University of Rhode Island

Lee Anderson
Department of Economics
University of Miami

Frank Barry
School of Law
University of Oregon

Richard R. Baxter
Law School
Harvard University

Joseph T. Bockrath
College of Marine Studies
University of Delaware

William T. Burke
School of Law
University of Washington

Francis X. Cameron
Marine Affairs Program
University of Rhode Island

Ross Clayton
School of Public Administration
University of Southern California

Thomas J. Clingan
School of Law
University of Miami

Marshall R. Colberg
Department of Economics
Florida State University

Salvatore Comitini
Department of Economics
University of Hawaii

- John C. Crandall
Department of History
University of Rhode Island
- Carl Q. Cristol
Department of Political Science and the Law Center
University of Southern California
- Geoffrey L. Crooks
School of Law
University of Washington
- James A. Crutchfield
Department of Economics
University of Washington
- Wilbur A. Davis
Department of Anthropology
Oregon State University
- J. W. Devanney
Department of Ocean Engineering
Massachusetts Institute of Technology
- Iver W. Duedall
Marine Science Research Center
State University of New York at Stony Brook
- Ira Dyer
Department of Ocean Engineering
Massachusetts Institute of Technology
- Robert C. Ellickson
Law Center
University of Southern California
- Eliezer Erel
Bates College of Law
University of Houston
- Douglas A. Fleming
Department of Geography
University of Washington

John K. Gamble

Marine Affairs Program
University of Rhode Island

K. C. Gibbs

Department of Food and Resource Economics
University of Florida

Channat Gopalakrishnan

Department of Agriculture and Resource Economics
University of Hawaii

Stephen Gorove

School of Law
University of Mississippi

Leo Gross

Fletcher School of Law and Diplomacy
Tufts University

William J. Hargis, Jr.

Director
Virginia Institute of Marine Science

Marc J. Hershman

Law Center
Louisiana State University

Thomas C. Hogg

Department of Anthropology
Oregon State University

Ann L. Hollick

School of Advanced International Studies
Johns Hopkins University

Jon L. Jacobson

School of Law
University of Oregon

Julian C. Juergensmeyer

Holland Law Center
University of Florida

Geoffrey Kemp

Fletcher School of Law and Diplomacy
Tufts University

Judith T. Kildow

Department of Political Science
Massachusetts Institute of Technology

H. Gary Knight

Law Center
Louisiana State University

J. B. Lassiter

Department of Ocean Engineering
Massachusetts Institute of Technology

Frank E. Maloney

Holland Law Center
University of Florida

Gerard J. Mangone

College of Marine Studies
University of Delaware

H. S. Marcus

Department of Ocean Engineering
Massachusetts Institute of Technology

J. L. Mc Hugh

Marine Science Research Center
State University of New York at Stony Brook

W. T. Mc Mullen

Department of Marine Transportation
Texas A&M University

James M. Merrill

Department of History
University of Delaware

K. Mitchell

Department of Geography
Rutgers University

Mitchell L. Moss

School of Public Administration
University of Southern California

Geoffrey A. Motte

Department of Fisheries and Marine Technology
University of Rhode Island

J. D. Nyhart

Department of Ocean Engineering
Massachusetts Institute of Technology

H. B. O'Connors

Department of Anthropology
Oregon State University

Dennis M. O'Connor

School of Law
University of Miami

Norman J. Padelford

Departments of Political Science and Ocean Engineering
Massachusetts Institute of Technology

Clinton A. Phillips

College of Business Administration
Texas A&M University

Dennis F. Polis

College of Marine Studies
University of Delaware

Richard S. L. Roddis

School of Law
University of Washington

Niels Rorholm

Marine Affairs Program
University of Rhode Island

John Seymour

College of Business Administration
Texas A&M University

Zdenek J. Slouka

Department of International Relations
Lehigh University

Courtland L. Smith

Department of Anthropology
Oregon State University

Louis B. Sohn

Law School

Harvard University

Lyle J. Sumek

School of Public Administration

University of Southern California

Peter Swan

School of Law

University of Oregon

Harley J. Walker

Department of Anthropology and Geography

Louisiana State University

Guido G. Weigand

Department of Geography

Rutgers University

Edward Wenk, Jr.

Department of Public Affairs and College of Engineering

University of Washington

APPENDIX 4

OUTLINES AND READINGS OF COURSES IN MARINE AFFAIRS

APPENDIX 4A

Law of the Sea - Marine Resource Law - Admiralty Law
Outlines and Readings

Harvard UniversitySeminar on The Law of the SeaFall 1972Professor R. R. Baxter

I. The Significance of the Flag

Readings:

1. Convention on the High Seas, done at Geneva, April 29, 1958, arts. 3-22, 13 U.S.T. 2312, T.I.A.S. No. 5200, 450 U.N.T.S. 82.
 - *2. Advisory Opinion on the Constitution of the Maritime Consultative Organization, (1960) I.C.J. 150 (judgment of the Court only).
- * Indicates has been placed on reserve in ILS Reading Room

Questions to be Considered:

1. For what purposes is the nationality or flag of a vessel significant?
2. How does Article 5 of the Geneva Convention on the High Seas deal with the problem of flags of convenience? What is its impact on flag of convenience states?
3. A fishing vessel is registered in State A but owned by nationals of State B. If the vessel is wrongfully seized by State C, may State A or State B or both present a claim against State C? What is the significance for this question of the judgment of the International Court in Barcelona Traction, Light and Power Co., (1970) I.C.J. 3?
4. What is the position of a vessel without a flag?

II. Jurisdiction on the High Seas

Readings:

(A comprehensive listing of the purposes for which the flag of a vessel is significant - the subject dealt with at the previous meeting of the Seminar - is to be found in *M.S. McDougal and W. T. Burke, The Public Order of the Oceans 1057-1140 (1962). (This material originally appeared as M. S. McDougal, W. T. Burke and I. A. Vlastic, The Maintenance of Public Order at Sea and the Nationality of Ships, 54 Am. J. Int'l. L. 25 (1960).) You might like at least to skim through this list.)

1. Convention on the High Seas, done at Geneva, April, 1958, arts. 23-29, 13 U.S.F. 2312, T.I.A.S. No. 5200, 450 U.N.T.S. 82.
2. The S. S. "Lotus," P.C.I.J., ser. A, No. 10 at 10-12, 22-31.
3. C. J. Colombos, International Law of the Sea 343-45 (6th ed. 1967).
4. L. C. Green, The Santa Maria: Rebels or Pirates, 37 Brit. Y.B. Int'l. L. 496 (1961).
5. ("The Cable-Cutting Case"), 53 United States Naval War College, International Law Studies 159-178 (1959-1960).
6. Coast Guard Memorandum on Hot Pursuit, 4 Whiteman Digest of International Law 683-86 (1965).
7. Presidential Proclamation No. 3504, 27 Fed. Reg. 10401, 47 Dept. State Bull. 717 (1962).
8. Resolution of the Council of the Organization of American States, 47 Dept. State Bull. 722 (1962).
9. Agreement between the Government of the Federative Republic of Brazil and the Government of the United States of America concerning Shrimp, done at Brasilia, May 9, 1972, arts. V & VI, 11 I.L.M. 453 at 457-58 (1972).

Questions to be Considered:

The general theme will be the circumstances under which controls of one sort or another may be exercised by public vessels and authorities of one state over vessels having the national character of another state or over events taking place on board such a vessel. Specifically,

1. What state or states may exercise criminal and civil jurisdiction in the event of a collision on the high seas? What has become of the law of the Lotus case?
2. What conduct constitutes piracy, giving states the right to take measures of repression? If illegal acts of violence, detention or depredation are committed for other than "private ends", what measures may be taken by the ships or authorities of third states?
3. Under what circumstances may the right of hot pursuit be exercised? How does Article 23 of the Geneva Convention on the High Seas modify customary international law?
4. What contribution to the law of the sea has been made by the Cuban Quarantine action? Does what was done in that instance afford a basis for exercising control over foreign flag vessels on the high seas?

5. May a vessel of one state be excluded from an area of the high seas by a warship of another state?
6. May a third state be delegated to act on behalf of the flag state in order to deal with conduct aboard a vessel of the flag state?
7. What does the existing state of the law suggest with respect to the power to deal with (a) violation of fisheries agreements by foreign flag vessels on the high seas; and (b) pollution by foreign flag vessels on the high seas?

III. The Territorial Sea and the Contiguous Zone

Readings:

1. Geneva Convention on the Territorial Sea and Contiguous Zone, done at Geneva, April 29, 1958, 15 U.S.T. 1606, T.I.A.S. No. 5639, 516 U.N.T.S.205.
2. Fisheries Case (United Kingdom v. Norway), /1951/ I.C.J. 116
3. United States v. Louisiana (Louisiana Boundary Case), 394 U.S. 11, at 35-78 (1969).
4. Argentina, Law No. 17,094-M 24, Dec. 29, 1966, and Decree No. 5106, Jan. 4, 1967, in U. N. Legislative Series, National Legislation and Treaties relating to the Territorial Sea, the Contiguous Zone, the Continental Shelf, the High Seas and to Fishing and Conservation of the Living Resources of the Sea 45 (ST/LEG/SER.B/15) (1970).
5. Ecuador, Civil Code, art. 633, and Decree No. 2556, Nov. 9, 1964, *id.* at 78-79.
6. U.S.S.R. Rules for Visits by Foreign Warships in Territorial Waters and Ports of the Union of Soviet Socialist Republics, Jan. 1, 1967, *id.* at 266-269 (See also W.E. Butler, *The Soviet Union and the Law of the Sea* 59-70 (1971).
7. Indonesia, Act No. 4, Feb. 18, 1960
8. Public Law 89-658, Stat. 908, 16 U.S.C. Sec. 1091-1094.
9. Canada, Arctic Waters Pollution Prevention Act, June 28, 1970, secs. 1-4, 11, 12, 19, text in 9 I.L.M. 543 (1970).
10. Canada, Territorial Sea and Fishing Zones Act, Feb. 25, 1971, text in 9 I.L.M. 553 (1970).
11. Department of State Statement on Government of Canada's Bills on Limits of the Territorial Sea, Fisheries and Pollution, April 15, 1970, 9 I.L.M. 605 (1970).

Questions to be Considered:

1. What is the baseline from which the territorial sea is measured?
By what geographic features is it affected?
2. Is the straight baseline method appropriate in the case of archipelagoes (e.g. Indonesia, the Philippines, Hawaii, Micronesia)?
3. What is the fundamental difference in concepts between the Argentine and Ecuadorean legislation on the territorial sea? What does this suggest for a new convention on the law of the sea?
4. What is the nature of the right of innocent passage under the Geneva Convention on the Territorial Sea and Contiguous Zone?
Does the right exist for warships?
5. For what purposes may contiguous zones be established under the Geneva Convention on the Territorial Sea and Contiguous Zone?
6. Did Canada act consistently with international law in enacting the legislation in items 9 and 10 of the above readings?

IV. Continental Shelf

Readings:

1. Presidential Proclamation No. 2667, Sep. 28, 1945, ("The Truman Proclamation"), 10 Fed. Reg. 12303 (1945), 59 Stat. 884
2. Geneva Convention on the Continental Shelf, done at Geneva, April 29, 1958, 15 U.S.T. 471, T.I.A.S. No. 5578, 499 U.N.T.S. 311.
3. Argentina, Law No. 17,094-M 24, Dec. 29, 1966, and Decree No. 5106, Jan. 4, 1967, in U. N. Legislative Series, National Legislation and Treaties relating to the Territorial Sea, the Contiguous Zone, the Continental Shelf, the High Seas and to Fishing and Conservation of the Living Resources of the Sea 45 (ST/LEG/SER.B/15) (1970).
4. Venezuela, Act of July 27, 1956 concerning the Territorial Sea, Continental Shelf, Fishery Protection and Air-Space, id. at 472.
5. North Sea Continental Shelf Cases (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands), (1969) I.C.J.3. (The parts of the opinion of the Court that are relevant for this seminar are those relating to the nature of continental shelf

rights and the method of delimitation laid down by Article 6 of the Continental Shelf, rather than those concerning the quality of the Convention as declaratory or constitutive of customary international law.

6. United States v. Ray, 423 F 2d 16 (5th Cir. 1970).
7. United States v. California, 332 U.S. 19 (1947).
8. Submerged Lands Act, 67 Stat. 29, 43 U.S.C. Sec. 1301-1315.
9. Outer Continental Shelf Lands Act, Sec. 2-4 67 Stat. 462, 43 U.S.C. Sec. 1331-1333.
10. United States v. Louisiana, 363 U.S. 1 (1960).
11. I. Head, The Canadian Offshore Minerals Reference: The Application of International Law to a Federal Constitution, 18 Toronto L.J. 131 (1968).

Questions to be Considered:

1. On what bases did the Truman Proclamation lay claim to the natural resources of the sea-bed and subsoil as appertaining to the United States?
2. What was the basis for the 200-meter isobath as the depth criterion for the measurement of a state's continental shelf? (The drafting history of Article 1 of the Continental Shelf Convention is exhaustively described in B. Oxman, The Preparation of Article 1 of the Convention on the Continental Shelf, 3 J. Mar. L. & Comm. 245, 445, 683 (1972).
3. In the determination of where the continental shelf ends in terms of the 200-meter isobath, what effect is to be given to such geographic irregularities as trenches, etc.?
4. What control may a coastal state exercise over the waters over its continental shelf in order to permit exploitation of the resources of the sea-bed and subsoil?
5. What is the legal position of installations built on or affixed to the continental shelf (such as artificial ports, nuclear power plants, etc.)?
6. Does Article 6 of the Continental Shelf provide any firm legal criterion for the delimitation of the continental shelf between two states on the same coast? What result would the International Court have reached if the parties to the North Sea Continental Shelf case had

asked the Court to determine where the continental shelf boundaries were between Germany and the Netherlands and Denmark? What are the "special circumstances" to which the Article refers?

7. What is the relative significance of municipal and international law in the determination of the respective rights of the central government and the component units in the continental shelf of a federal state?

V. Pollution of the Sea and Protection of the Ocean Environment

Readings:

1. O. Schachter and D. Serer, Marine Pollution Problems and Remedies, 65 Am. J. Int'l. L. 83 (1971)
2. Convention on the High Seas, done at Geneva, April 29, 1958, art. 24.
3. Convention on the Continental Shelf, done at Geneva, April 29, 1958, art. 5.
4. International Convention for the Prevention of Pollution of the Sea by Oil, done at London, May 12, 1954, 12 U.S.T. 2989, T.I.A.S. No. 4900, 327 U.N.T.S. 3, as amended, April 11, 1962, 17 U.S.T. 1523, T.I.A.S. No. 6109, 600 U.N.T.S. 332.
5. International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, done at Brussels, Nov. 29, 1969, 9 I.L.M. 25 (1970).
6. International Convention on Civil Liability for Oil Pollution Damage, done at Brussels, Nov. 29, 1969, 9 I.L.M. 45 (1970)
7. Contract regarding an Interim Supplement to Tanker Liability for Oil Pollution, signed Jan. 14, 1971, 10 I.L.M. 137 (1971).
8. Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, done at Oslo, Feb. 15, 1972, 11 I.L.M. 262 (1972).
9. Intergovernmental Meeting on Ocean Dumping, Reykjavik, 10-15 April 1972, Text of Draft Articles of a Convention for the Prevention of Marine Pollution by Dumping, Doc. IMOD/2 (1972). (On the nature of the problem, see Ocean Dumping: A National Policy, A Report to the President prepared by the Council on Environmental Quality (Oct. 1970).)

Questions to be Considered

1. What methods do the above conventions envisage for the protection of the ocean environment?
2. What principles of responsibility are established in the event that harm is caused to the ocean environment?
3. What procedures and methods of control looking to enforcement of compliance with the conventions by parties and non-parties are envisaged by the above conventions?
4. To what extent do the existing conventions deal with the problems of pollution and protection of the ocean environment? What remains to be done, whether by way of substantive coverage, procedures, and enforcement? In short, what should be the agenda for the future?
5. Particular attention will be given to the draft Ocean Dumping Convention (Item 9 above). What is its coverage? What are its shortcomings? Is it fully responsive to the problem addressed?

VI. Fisheries

Readings:

1. Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas, done at Geneva, April 29, 1958, 7 U.S.T. 138, T.I.A.S. No. 5969, 59 U.N.T.S. 285.
2. Bishop, The 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas, 62 Colum. L. Rev. 1206 (1962).
3. Act of May 20, 1964, Pub. L. No. 88-308, 78 Stat. 194, 16 U.S.C. Sec. 1083-1805.
4. Act of October 14, 1966, Pub. L. No. 89-658, 80 Stat. 908, 16 U.S.C. Sec. 1091-1094.
5. Fishermen's Protective Act of 1967, 68 Stat. 883, as amended, 22 U.S.C. Sec. 1971-1977.
6. Public Law 90-629, Sec. 3, 82 Stat. 1322 as amended, 22 U.S.C. Sec. 2753.
7. Agreement between the United States and the U.S.S.R. on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean, signed at Washington, Dec. 11, 1970, 21 U.S.T. 2664, T.I.A.S. No. 7009, with Protocol, signed Feb. 2, 1971, 22 U.S.T. 113, T.I.A.S. No. 7043.

8. D. P. O'Connell, International Law and Contemporary Naval Operations, 44 Brit. Y.B. Int'l. L. 19 at 69-79 (1970).

Special Assignments:

Members of the Seminar will be asked to make short reports on the following fisheries commissions to which the United States is a party, with particular emphasis on the functions of the commissions and their mechanisms of control if any:

Inter-American Tropical Tuna Commission
 Indo-Pacific Fisheries Council
 International Commission for the Northwest Atlantic Fisheries
 International Whaling Commission
 North Pacific Fur Seal Commission
 Northwest Pacific Fisheries Commission
 International Fisheries Commission, Canada-U.S.
 International Commission for the Conservation of Atlantic Tunas

Questions to be Considered:

1. Why has the Geneva Fisheries Convention attracted only 32 parties?
2. What measures may a state take against foreign vessels unlawfully fishing in its territorial sea or fisheries zone?
3. What measures may a state take in response to what it conceives to be a foreign state's unlawful seizure of, or interference with one of its fishing vessels?
4. What respect must be accorded to traditional fisheries when a state extends its fisheries limits?

VII. Straits: (The Regime of the Future)

Readings:

1. Geneva Convention on the Territorial Sea and Contiguous Zone, arts. 14 to 23.
2. Straits and Narrows Affected by 6 and 12-Mile Territorial Sea.
3. Draft Articles on the Breadth of the Territorial Sea and Straits Submitted by the United States, August 3, 1971.
4. U.S.S.R., Draft articles on straits used for international navigation, UN Doc. A/AC/138/SC.11/L.7 (1972).
5. Statement by the Hon. John R. Stevenson, U. S. Representative to

the Committee on the Peaceful Uses of the Seabed and the Ocean Floor beyond the Limits of National Jurisdiction, Subcommittee 11, July 28, 1972.

6. *Id.*, Aug. 14, 1972.

Special Assignments:

Members of the Seminar will be asked to say something about the present legal regime of the following straits, including the treaties applicable to them, the rights and duties created by those treaties, and to whom the benefits and obligations of those treaties flow. A suggested work of reference is indicated after each strait.

Gibraltar	E. Brüel, <i>International Straits</i> (2 vols., 1947).
Danish Straits	<u>Id.</u>
Malacca	K.E. Shaw, <i>Juridicial Status of the Malacca Straits in International Law</i> , 14 <i>Japanese Annual of International Law</i> 34 (1970).
Tiran	R.R. Baxter, <i>The Law of International Waterways</i> (1964).
Turkish	F. Váli, <i>The Turkish Straits and NATO</i>

Questions to be Considered:

1. How are the various regimes established for particular straits to be reconciled with the establishment of general rules applicable to all international straits?
2. If the United States has agreed to a right of "innocent passage" through international straits under the Geneva Convention on the Territorial Sea and the Contiguous Zone of 1958 (at least as to straits up to six miles in width), how can it now consistently call for a right of "free transit"? Has the United States, under that treaty, consented to the limitation of the right or passage to "innocent passage", whether the lawful width of the territorial sea be 3 miles, 12 miles, or even 200 miles?
3. How is a strait to be defined for the purposes of a future convention on the law of the sea?
4. If agreement could be reached in principle on a right of "free transit" through straits, what limitations could reasonably be put on that right?

VIII. The Continental Shelf in the East China Sea

Readings:

1. Geneva Convention on the Continental Shelf, arts. 1-4 and 6.
2. North Sea Continental Shelf Case, (1969) I.C.J., paras. 22-24, 43-45, 53, 55, and 101.
3. Report of the International Law Commission to the General Assembly covering the work of its eighth session, 23 April- 4 July 1956, (1956) 2 Y.B. Int'l. L. Comm'n 297, para. (8), and 298, para. (8), U.N. Doc. A/3159.
4. Proposals of Italy and Iran concerning Article 72, U.N. Docs. A/CONF.13/C.4/L.25/Rev.1 and L/60 (1958), 6 U.N. Conference on the Law of the Sea, Official Records 133 and 142 (1958).
5. Summary Records of the Fourth Committee, id. at 93, para. 3, and 95, para. 23.
6. U.S. Draft Articles on Territorial Sea, Straits, and Fisheries Submitted to U.N. Seabeds Committee, 65 Dept. State Bull. 261 (1971), U.N. Doc. A/AC.138/SC.II/SR.8 (1971), 10 I.L.M. 1013 (1971).
7. Statement of Mr. Khlestov (U.S.S.R.) in Sub-Committee II of the Committee on the Peaceful Uses of the Seabed and the Ocean Floor Beyond the Limits of National Jurisdiction, U.N. Doc. A/AC.138/SC.II/SR.6, at pp. 17-24 (1971).
8. Ely, Seabed Boundaries between Coastal States: The Effect to be Given to Islets as "Special Circumstances," 6 Int'l. Lawyer 219 (1972).
9. Statement by Syen Wei-liang (P.R.C.) in Sub-Committee II of the Committee on the Peaceful Uses of the Seabed and the Ocean Floor Beyond the Limits of National Jurisdiction, July 24, 1972, in Peking Review, No. 33, August 18, 1971, at 13.

IX. Legal Aspects of Disarmament in the Oceans, with Particular Regard to the SLBM and ASW

Readings:

1. Treaty on the Prohibition of Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof, opened for signature at Washington, London, and Moscow, Feb. 11, 1971, 63 Dept. State Bull. 365 (1970). annex to Gen. Ass. Res. 2660 (XXV), U.N. Doc. A/RES/2660 (XXV) (1970).

2. Letter from the Permanent Representative of Ceylon to the Secretary-General of the U.N., Oct. 1, 1971, U.N. Doc. A/8492 (1971).
3. Richard C. Garwin, 'The Interaction of Anti-Submarine Warfare and the Submarine-Based Deterrent (1972).
4. B. T. Feld and G. W. Rathjens, ASW and Arms Control (1972).
5. M. D. Rosenthal, The Stability of Strategic Systems (1972).
6. London Naval Protocol on Submarine Warfare, signed Nov. 6, 1936, 3 Bevans 298.
7. H. S. Levie, Mine Warfare and International Law, 24 Naval War College Review, No. 236, p. 27 (1972).
8. Convention on the Rights and Duties of Neutral Powers in Naval War, signed at The Hague, Oct. 18, 1907, 36 Stat. 2415, T.S. No. 545, 1 Bevans 723.

Questions to be Considered:

1. What effective measures have thus far been taken with respect to disarmament in the oceans?
2. Is it feasible to demilitarize whole oceans, and if so, by what means can the demilitarization be effectively brought about?
3. If the submarine-launched ballistic missile is to remain an effective deterrent to nuclear war by reason of the comparative invisibility and invulnerability of missile-armed submarines, what arms control measures can be taken to protect that deterrent as the oceans increasingly become transparent?

X. The Concept of the Trusteeship Area, Intermediate Zone, Exclusive Economic Zone, and Patrimonial Sea

Readings:

1. U. S. Working Paper, Draft United Nations Convention on the International Seabed Area, Aug. 3, 1970, arts. 1-30, 9 I.L.M. 1046 (1970).
2. Statement by the Hon. John R. Stevenson, U. S. Representative to the Committee on the Peaceful Uses of the Seabed and the Ocean Floor beyond the Limits of National Jurisdiction, Aug. 10, 1972.
3. Text of the Declaration of Santo Domingo approved by the meeting of the Ministers of the Specialized Conference of the Caribbean Countries on Problems of the Sea held on 7 June 1972, U.N. Doc. A/AC.138/80 (1972).

4. Conclusions in the General Report of the African States Regional Seminar on the Law of the Sea, held in Yaoundé, from 20-30 June 1972, U.N. Doc. A/AC.138/79 (1972).
5. Draft Articles on Exclusive Economic Zone Concept, presented by Kenya, U.N. Doc. A/AC.138/SC.11/L.10 (1972).
6. The Exclusive Zone Concept, Working Paper prepared by Frank X. Njenga (Kenya), in Asian-African Legal Consultative Committee, Report of the Thirteenth Session held at Lagos from 18 to 25 January, 1972, at 369 (1972).

Questions to be Considered:

1. What are the merits and drawbacks of the U.S. proposal concerning a trusteeship area?
2. What modifications has the United States made in its policy on this matter?
3. What are the essential differences between the position of the United States and the proposals concerning an exclusive economic zone or a patrimonial sea?
4. Would it be desirable for the United States to accept the concept of the exclusive economic zone? What modifications would have to be made in the proposals about such a zone to permit the United States to accept them? In other words, what is really essential to the United States?
5. How should the question of fisheries be dealt with in the context of an intermediate zone of some sort?
6. What should be the dimensions of whatever intermediate zone is finally arrived at?

(Members of the Seminar from countries other than the United States should, of course, think about these proposals in light of the needs of their own countries and what might be acceptable to those countries.)

XI. The Fisheries Regime of the Future

Readings:

1. Draft Articles on Fisheries Submitted by the United States, Aug. 3, 1971.
2. Statement by the Honorable Donald L. McKernan, Alternate United States Representative to the Committee on the Peaceful Uses of the

Seabed and the Ocean Floor beyond the Limits of National Jurisdiction, March 29, 1972.

3. Statement by the Honorable Donald L. McKernan, Alternate United States Representative to the Committee on the Peaceful Uses of the Seabed and the Ocean Floor beyond the Limits of National Jurisdiction, August 4, 1972, and attached United States Draft Fisheries Article.
4. Proposals for a Regime of Fisheries on the High Seas, Submitted by Japan, U.N. Doc. A/AC.138/SC/II/L.12 (1972).
5. Working Paper by the Delegations of Australia and New Zealand; Principles for a Fisheries Regime, U.N. Doc. A/AC.138/SC/II/L.11 (1972).
6. Management of the Living Resources of the Sea; Working Paper Submitted by the Delegation of Canada, U.N. Doc. A/AC.138/SC.II L.8 (1972).

Questions to be Considered:

(Before considering the merits of the fisheries proposals listed above, we will complete our review of the fisheries commission in which the United States participates...In connection with our examination of the proposals made in the Seabed Committee, consideration will be given to the following questions, among others:)

1. What will be the functions of the existing fisheries commissions under whatever new regime may be negotiated for high seas fisheries?
2. How can the fisheries proposals set forth in the readings above be reconciled, if at all, with an exclusive economic zone administered by the coastal state?
3. How can anadromous and highly migratory fish be dealt with under a proposal for an exclusive zone?
4. Why are not fisheries treated as a "common heritage of mankind," subject to the same sort of international regime as is proposed for the deep seabed and subsoil?

XII Scientific Research in the Oceans

Readings:

1. Statement by the Hon. Donald L. McKernan, Alternate U.S. Representative

to the Committee on the Peaceful Uses of the Seabed and the Ocean Floor beyond the Limits of National Jurisdiction, Subcommittee III, Aug. 11, 1972.

2. Statement by Professor John A. Knauss in the same Subcommittee on "The Nature, Characteristics, and Objectives of Scientific Research."
3. Working Paper Submitted by the Canadian Delegation, Principles on Marine Scientific Research, U.N. Doc. A/AC.138/SC.III/L.18 (1972).

Read any two of the following:

4. E. D. Brown, Freedom of Scientific Research and the Legal Regime of Hydrospace, 9 Indian Journal of International Law 327 (1969).
5. W. T. Burke, Marine Science Research and International Law, Occasional Paper No. 8, Law of the Sea Institute, U.R.I.
6. W. T. Burke, Law, Science, and the Ocean, 3 Natural Resources Lawyer 195 (1970).
7. D. M. Johnston, Law, Technology and the Sea, 55 Calif. L. Rev. 449 (1967).
8. K. O. Emery, An Oceanographer's View of the Law of the Sea, in Alexander, The Law of the Sea: National Policy Recommendations: Proceedings of the Fourth Annual Conference of the Law of the Sea Institute, at 211 (1969).

Questions to be Considered:

Consider the following questions in light of the various proposals, previously encountered, for provisions on scientific research in the new treaties on the law of the sea:

1. How can "pure" scientific research be distinguished from research directed to exploitation of marine resources and to military purposes? If the concept of an exclusive economic zone should be adopted, what degree of control over marine research should be given to the coastal state? Under what international standards? Is it useful to think in terms of a requirement of transfer of information and technology to developing coastal states? What sort of control should an International Seabed Authority have over scientific research in the oceans?

XIII. The Future: The Interim Regime and the Problem of Non-Parties to the Future Conventions on the Law of the Sea; and The Fisheries Regime of the Future (concluded)

Readings:

1. R. Y. Jennings, The United States Draft Treaty on the International Seabed Area - Basic Principles, 20 Int. & Comp. L.Q. 443 (1971).
2. S. 2801, 92nd Cong., 1st Sess., "A Bill to provide the Secretary of the Interior with authority to promote the conservation and orderly development of the hard mineral resources of the deep seabed, pending adoption of an international regime therefore." (The "Metcalf Bill").

Questions to be Considered:

1. What sort of interim regime, if any, should be established pending the coming into force of the new treaties on the law of the sea?
2. What are the merits and negative implications of the "Metcalf Bill"? How does it square with the General Assembly moratorium resolution of 1969?
3. What will be the effect of the new treaties on the law of the sea on non-parties? How, for example, can a non-party lawfully be excluded by the International Seabed Authority from the exploitation of the deep seabed? Can a non-party be kept from fishing in a 200-mile economic resource zone?

The Fletcher School of Law and DiplomacySeminar on the Law of the Sea - Law 205Spring 1973Professor Gross

I. Territorial Sea and Contiguous Zone

1. Nature and characteristics, including the question of the unity or plurality of regimes in the territorial sea
2. Limits of the territorial sea
 - a) Breadth
 - b) Baselines
 - c) Outerlimit
3. Delimitation of the territorial sea
 - a) Bays and Gulfs
 - b) Ports
 - c) Roadsteads
 - d) Islands, drying rocks and shoals
 - e) Straits and Other Opposite Coasts
 - f) Mouths of rivers
 - g) Adjacent States
4. Innocent passage
 - a) Right of innocent passage
 - b) Rights and duties of coastal State
 - c) Duties of foreign ships during passage
 - d) Charges
 - e) Merchant ships, Government ships other than warships, and warships
 - f) Straits
5. Historic waters
6. Contiguous zone
 - a) Nature and characteristics
 - b) Limits
 - c) Rights of coastal State with regard to national security, customs and fiscal control, sanitation and immigration regulations

II. High Seas

1. Nature and characteristics; question of jurisdiction
2. Principle of freedom of the seas and its limitations
3. Right of visit, piracy, slavery, and drugs
4. Submarine cables and pipelines
5. Hot pursuit
6. Land-locked countries
 - a) Rights and interests of land-locked countries in the high seas
 - b) Obligation of coastal States
7. Peaceful uses of the ocean space
 - a) Tests and exercises of a military character
 - b) Zones of peace and security
 - c) Question of validity of naval blockade and quarantine

III. Continental Shelf

1. Nature and scope of the sovereign rights of coastal States
2. Outer limit of the continental shelf: applicable criteria
 - a) Delimitation of continental shelf between States
 - b) Powers of the Federal Government and of the component States in the United States
3. Superjacent waters and airspace
4. Submarine cables, pipelines, industrial and scientific installations and other devices

IV. Seabed and Ocean Floor Beyond National Jurisdiction

1. Nature and characteristics
2. Economic interests and consequences
3. Principle of equity in the exploitation of the seabed and ocean floor
4. Delimitation of the area
5. International machinery: structure, functions, powers

V. Exclusive Economic Zone Beyond the Territorial Sea

1. Nature and characteristics
2. Limits: applicable criteria
3. Rights and duties of coastal States

VI. Preservation of the Marine Environment

1. Sources of pollution and other hazards and adequate measures to combat them
2. Measures to preserve the ecological balance of the marine environment
3. Liability for damage to the marine environment and to the coastal State
4. Rights and duties of coastal States
5. International cooperation

VII. Fisheries and Living Resources

1. Conservation of living resources
 - a) Principle of abstention
 - b) Universal, regional and bilateral cooperation
2. Enforcement of international commitments
3. Fishery zones

Abbreviations

P.C.I.J.	Permanent Court of International Justice
I.C.J.	International Court of Justice
R.I.A.A.	Reports on International Arbitral Awards (published by the United Nations)
UN Collection	National Legislation and Treaties Relating to the Territorial Sea, the Contiguous Zone, the Continental Shelf, the High Seas, and to Fishing and Conservation of the Living Resources of the Sea (Doc. ST/LEG/ Ser.B/15), United Nations 1970
Report of the UN Committee	Report of the Committee on the Peaceful Uses of the Seabed and the Ocean Floor Beyond the Limits of National Juris- diction (GAOR (XV), Supplement No. 21 (A/8021), and GAOR (XXVII), Supplement No. 21 (A/8721))
AJIL	American Journal of International Law
BYIL	British Yearbook of International Law

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- Andrassy, Juraj, *International Law and the Resources of the Sea*, New York, Columbia Press, 191 p.
- Johnson, D.H.N., *Developments since the Geneva Conferences of 1958 and 1960: Anglo-Scandinavian Agreements Concerning the Territorial Sea and Fishing Limits*, 10 *International and Comparative Law* (1961), pp. 587-597
- Gotlieb, A.E., *Canadian Contribution to the Concept of a Fishing Zone in International Law*, 2 *Canadian Yearbook of International Law* (1964), pp. 55-76
- Morin, J.Y., *La zone de pêche exclusive du Canada*, 2 *Canadian Yearbook of International Law* (1964), pp. 77-106
- Goy, Raymond, *The Icelandic Fisheries Question*, 87 *Journal de droit international* (1960), pp. 370-407
- Rousseau, C., *Islande et Royaume-Uni: état actuel du conflit relatif à la pêche dans les eaux islandaises*, 63 *Revue générale de droit international public* (1959), pp. 535-539

Louisiana State UniversityLaw SchoolMarine Resources LawSpring 1973Professor H. Gary KnightI. Materials for the Course

Materials for the spring, 1973, offering of Marine Resources Law will be:

Knight, ed., The Law of the Sea: Documents and Notes (1969)

(available only through the L.S.U. Bookstore)

The Ocean, a Scientific American book

Knight, ed., Supplement to The Law of the Sea: Documents and Notes (1973) (available from the L.S.U. Bookstore)

Selected mimeographed materials to be distributed in class

Selected texts, documents and articles

II. Coverage of Materials

The following outline will be adhered to in covering the subject matter of the course (numbers in parentheses indicate the number of class sessions which will be devoted to the topic)

- A. Introduction - preliminary data on marine resources law, science, and economics (1)
- B. History:
 1. The high seas (2)
 2. The territorial sea (3)
 3. Special contiguous zones (1)
- C. Ocean space zonation
 1. Introduction (1)
 2. The baseline (2)
- D. Exploitation of non-living resources
 1. The continental shelf (5)
 2. State-federal disputes (3)
- E. Exploitation of living resources (5)
- F. Scientific research in the oceans (1)
- G. Military use of the oceans (1)
- H. Non-Extractive uses of the seabed (1)
- I. The "seabed" question (8)

The eight "seabed question" sessions (Part I) will provide a focus for the course based on current law of the sea negotiations being held prior to the 1973 "Third United Nations Conference on the Law of the Sea," and will tie together all elements of the course in addition to introducing the concept of an international seabed regime for non-living resources.

Daily assignments are set forth in Annex A hereto. Please note that the principal casebook (Knight, ed., The Law of the Sea: Documents and Notes (1969)) has undergone substantial revision during the four prior Marine Resources Law course offerings at the L.S.U. Law School, which revisions are being incorporated in an edition to be published in hard cover form during 1973. Since that edition will not be available during the spring semester, 1973, we are again using the preliminary multilith edition plus a set of supplemental materials, as well as a substantial amount of reserve reading.

Accordingly, please view the reserve reading and other noncasebook assignments as equal in importance to the casebook when preparing for class.

III. Interdisciplinary Nature of the Course

The course is interdisciplinary in two respects:

- (1) The course is open to (a) graduate science students in the marine or related fields as well as to (b) junior and senior law students; and
- (2) The course requires an understanding of certain basic facts of marine science, economics, and technology, as well as legal concepts.

Accordingly, the two groups (lawyers and scientists) are encouraged to discuss their respective disciplines, particularly as related to problem solving in the field of marine resources conservation and development, both within and without class.

IV. Marine Science Materials

In reading the assignments in The Ocean and elsewhere which deal

with non-legal aspects of the subject matter, it is expected that students will gather a sufficient understanding of the material covered to be able not only to perceive its relevance to law and policy making in the field, but to discuss problems of marine resource economics, science, and technology in their own right. Appreciation of detailed mathematical analyses will not be required, but the substance must be grasped. For those who have no previous economic, scientific, or technical training, this may require some additional effort. However, when conceptual difficulties are encountered in the marine science materials, students may consult either with the instructor or with one of the graduate science students in the class.

Annex A

Page references without other citation are to the principal case-book (Knight, ed., The Law of the Sea: Documents and Notes (1969)) which students are required to purchase; references to The Ocean are to the Scientific American book which students are also required to purchase.

1. Introduction

Revelle, The Ocean, in The Ocean (1969) 1.

Stewart, Deep Challenge (1966), Ch. 9 ("Our Future in the the Sea") pp. 181-195

2. History - The High Seas.

pp. 37-72

Alexander, "National Jurisdiction and the Use of the Sea," 8 Nat. Res. J. 373 (1968)

3. History - The High Seas

pp. 73-120

Christy, "Marine Resources and the Freedom of the High Seas," 8 Nat. Res. J. 424 (1968)

4. History - The Territorial Sea

pp. 206-233

5. History - The Territorial Sea

pp. 234-239, 243-256

- "United States Policy with Respect to Territorial Seas,"
 Dept. of Defense Press Release (Feb. 25, 1970)
 Stevenson, "International Law and the Oceans," 62
 Dept. State Bull. 339 (1970)
 "Draft Articles on the Breadth of the Territorial Sea,
 Straits, and Fisheries, Art. I
 Declaration of Montevideo (May 1970)
6. History - The Territorial Sea
 pp. 240-242, 257-272
 Shalowitz, Shore and Sea Boundaries, Vol. 1 (1962)
 232-235
 Pharand, "Soviet Union Warns United States Against
 Use of Northeast Passage," 62 Am. J. Intl. L.
 927 (1968)
 "Draft Articles on the Breadth of the Territorial Sea,
 Straits, and Fisheries," Art. II
7. History - Special Contiguous Zones
 pp. 325-347
 Exchange of Notes between the Governments of Canada and
 the United States concerning the Arctic Waters
 Pollution Prevention Act of 1970 (Canada)
8. Ocean Space Zonation - Introduction, Baseline
 pp 32-36, 121-145
 Straight Baselines Laid Down by Norway Along Its
 Skjaergaard Coast, (map)
 Shalowitz, Shore and Sea Boundaries, Vol. 1 (1962)
 82-89
 United States v. Louisiana, 394 U.S. 11 (1969), Part
 II(6)
9. Ocean Space Zonation - Baseline
 pp. 146-163 (scan pp. 147-153)
 Hodgson and Alexander, "Towards an Objective Analysis
 of Special Circumstances: Bays, Rivers, Coastal
 and Oceanic Archipelagos and Atolls," (1972) pp
 45-54

United States v. Louisiana, 394 U.S. 11 (1969), Parts
II(3), (4) and (5)

10. Ocean Space Zonation - Baseline
pp. 164-205
United States v. Louisiana, 394 U.S. 11 (1960), Parts
II(1), (2) and (7)
11. Exploitation of Non-Living Resources- Continental Shelf
pp. 388-404
Cosford, "The Continental Shelf 1910-1945," 4 McGill
L. J. 245 (1958)
Emery, "The Continental Shelves," in The Ocean (1969)
39
Wenk, "The Physical Resources of the Ocean," in The
Ocean (1969) 81
Bascom, "Technology and the Ocean," in The Ocean (1969)
107
Panel Reports of the Commission on Marine Science,
Engineering and Resources, Vol. 2, at VI-161
through VI-179 (1969)
12. Exploitation of Non-Living Resources - Continental Shelf
pp. 405-430
Alexander, "Alternative Regimes for the Continental
Shelf, Pacem in Maribus (1970)
United States v. Ray 423 F. 2d 16 (5 Cir. 1970)
Drew, Continental Shelf Law: Outdistanced by Science
and Technology, 31 La. L. Rev. 108 (1970)
13. Exploitation of Non-Living Resources - Continental Shelf
pp. 431-442
North Sea Continental Shelf Cases, International Court
of Justice
Pronouncements of the People's Republic of China on
the Senkaku Islands Dispute
14. Exploitation of Non-Living Resources - Continental Shelf
pp. 448-454
Study of the Outer Continental Shelf Lands of the

United States, Sections 4.0-4.1 (introduction);
4.4-4.5, 4.7-4.9 (geological and geophysical
exploration); 4.10-4.25 (oil and gas leasing
system); and 4.44-4.45 (conservation)

Miron, "The Outer Continental Shelf - Managing (or
Mismanaging) Its Resources," 2 J. Maritime L.
& Comm. 267 (1970)

15. Exploitation of Non-Living Resources - Continental Shelf
Study of the Outer Continental Shelf Lands of the
United States, Section 4.51-4.52 (structures);
and 4.66-4.75 (withdrawals)
16. Exploitation of Non-Living Resources - State-Federal Disputes
Knight, Summary: Outline of Federal-State Litigation
Over Submerged Lands (mimeo, 1970)
pp. 273-296
17. Exploitation of Non-Living Resources - State-Federal Disputes
pp. 297-316
United States v. Louisiana (Texas) 394 U.S. 1 (1969)
18. Exploitation of Non-Living Resources - State-Federal Disputes
pp. 319-324
United States v. Louisiana, 394 U.S. 11 (1969)
Unresolved Problems Under the Submerged Lands Act,
OCS Study, 142-155
19. Exploitation of Living Resources
Isaacs, "The Nature of Oceanic Life," in The Ocean
(1969) 65
Holt, "The Food Resources of the Ocean," in The Ocean
(1969) 93
20. Exploitation of Living Resources
Eisenbud, "Understanding the International Fisheries
Debate," 4 Nat. Res. Lawyer 19 (1971)
Oda, "International Law of the Resources of the Sea,"
1969-II Recueil des Cours 355, 402-430 (1970)

21. Exploitation of Living Resources
 Fisheries Jurisdiction Case (United Kingdom v. Iceland), Order of August 17, 1972
 Statements of Prime Minister Johannesson and Minister of Fisheries Josephsson of Iceland concerning extension of Iceland's exclusive fisheries zone (July 17-18, 1972)
22. Exploitation of Living Resources
 "Draft Articles on the Breadth of the Territorial Sea, Straits, and Fisheries," Art. III
 Christy, "Fishery Problems and the U.S. Draft Article," (mimeo, 1971)
23. Exploitation of Living Resources
 Case Studies in Regional Management: Latin America, in Alexander, ed., The Law of the Sea: The United Nations and Ocean Management (1971) 333-366
 Agreement between the Government of the Federative Republic of Brazil and the Government of the United States of America Concerning Shrimp (May 9, 1972)
24. Scientific Research in the Ocean
 Wooster, "The Ocean and Man," in The Ocean (1969) 121
 "Proposed United States Position on the Question of Freedom for Science in the Oceans," National Academy of Sciences
 Declaration of Lima (August, 1970) operative para. 5
 Working Paper submitted by the Canadian Delegation to the United Nations Seabed Committee, "Principles on Marine Scientific Research," July 25, 1972
25. Military Use of the Ocean
 Knight, ed., "A Problem of International Negotiation: The Deep Ocean Floor," 23 et seq.
 Evensen, "Present Military Uses of the Seabed and Foreseeable Developments," 3 Cornell Intl. L. J. 121 (1970)

"Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof"

"Geneva Disarmament Conference Agrees on Text of Treaty Banning Emplacement of Nuclear Weapons on the Seabed," 63 Dept. State Bull. 362 (1970)

26. Non-Extractive Uses of the Seabed

Knight, "Non-Extractive Uses of the Seabed," 6 Marine Technology Society Journal (No. 3) 18 (1972)

27. The "Seabed Question" - Introduction; Alternative Regimes

Christy, Alternative Regimes for Marine Resources Underlying the High Seas," 1 Nat. Res. Lawyer (No. 2) 63 (1968)

Knight, ed., A Problem of International Negotiation:

The Deep Ocean Floor, i-vi, 1-22e (Note: This article contains a number of references to other articles, documents, etc. These are not required reading, but are optional. If time permits their reading, an excellent background on the 'seabed question' can be secured. Most will be found in the xeroxed articles collection, others are located elsewhere in the MRL Collection.)

United Nations General Assembly Resolutions 2749, 2750A, 2750B, and 2750C, of December 1970

United Nations General Assembly Resolution 2881, of January, 1972

Bullard, "The Origin of the Oceans," in The Ocean (1969) 15

Menard, "The Deep Ocean Floor," in The Ocean (1969) 53

28. The "Seabed Question" - United States Oceans Policy

Pardo, "Development of Ocean Space - An International Dilemma," 31 La. L. Rev. 45 (1970)

Ratiner, "United States Oceans Policy" An Analysis," 2 J. Maritime L. & Comm. 225, 235-244 (1971)

Nixon, "United States Policy for the Seabed," 62 Dept. State Bull. 737 (1970)

- Stevenson, "Draft U.N. Convention on the International Seabed Area: U.S. Working Paper Submitted to U.N. Seabeds Committee," 63 Dept. State Bull. 209 (1970)
29. The "Seabed Question" - The "Economic Resource Zone" Concept Declaration of Santo Domingo, Specialized Conference of Caribbean Countries on Problems of the Sea (June 7, 1972)
- Declaration of Lima (August, 1970)
- Declaration of Montevideo (May, 1970)
- Draft Articles on Exclusive Economic Zone Concept, presented by Kenya to the United Nations Seabed Committee (August, 1972)
30. The "Seabed Question" - Deep Seabed Mineral Regimes
- Deep Seabed Hard Mineral Resources Act (S. 2801; H.R. 13904; 92nd Cong., 1st Sess., 1971)
- Statement of John G. Laylin on the "Deep Seabed Hard Mineral Resources Act" (May 12, 1972)
- Statement of H. Gary Knight on the "Deep Seabed Hard Mineral Resources Act" (May 12, 1972)
31. The "Seabed Question" - LDC'S; Corporate Forms
- Pollard, "An Oceans Regime - Perspective of a Developing Country," in A Constitution for the Oceans (1971) Document I(7)
- Jacoby, "Corporate Enterprises in an Ocean Regime," 6 Colum. J. World Bus. (No. 2) 7 (1971)
32. The "Seabed Question"
- (To be announced)
33. The "Seabed Question"
- (To be announced)
34. The "Seabed Question"
- (To be announced)

University of Houston
College of Law

The Environmental Regulation of
the Sea and Its Resources

Professor Eliezer Erel

Introduction - The Marine Environment: Ecological and Economic Factors

Chapter I. Introduction to International Law

- A. Nature of International Law
- B. Adjudication of International Disputes
- C. Codification and Development

Chapter II. Jurisdiction in Internal Waters and the Territorial Sea

- A. Immunity from Jurisdiction
 - 1. Entry in Distress
 - 2. Sovereign Immunity
- B. Criminal Jurisdiction
 - 1. Inland Waters
 - 2. Territorial Sea
 - 3. Crimes on the High Seas
- C. Civil Jurisdiction
- D. Innocent Passage

Chapter III. Jurisdiction on the High Seas

- A. The Contiguous Zone
- B. Hot Pursuit
- C. Security Zones

Chapter IV. Delimitations

- A. Internal Waters
- B. The Territorial Sea
- C. United States Present Position

Chapter V. The Continental Shelf

- A. Development

- B. Limits
- C. United States Proposal
- D. Division

Chapter VI. The Submerged Lands: Between the Federal Government
and the States

- A. Prior to 1953
- B. The 1953 Submerged Lands Act
- C. Inland Waters
- D. The Federal Domain

Chapter VII. Living Resources

- A. On the International Level
 - 1. Exclusiveness of the Coastal State
 - 2. Contiguous Fishing Zones: Exclusion and Conservation
 - a. Up to 1958
 - i. Exclusion
 - ii. Conservation
 - b. The Geneva Conferences 1958, 1960
 - i. Exclusion
 - ii. Conservation
 - 3. Post 1960
 - 4. United States Proposals
- B. On the National Level

Chapter VIII. Environmental Control: Pollution

- A. Vessels
- B. Damages and Prevention
 - 1. Admiralty Jurisdiction in a Nutshell
 - 2. Limitation of Liability in a Nutshell
 - 3. International Response
 - 4. National Response
 - 5. Anti-Pollution Contiguous Zone
- C. Offshore Facilities
- D. Onshore Facilities

1. Oil Discharge
2. Water Quality
3. 1899 "Refuse" Revised
4. The Permit System
5. Summary: Interrelationship Between 1899 "Refuse,"
1970 "Quality" and 1971 "Permit"

Chapter IX. Environment Control: Multi-Use Conflicts

- A. On the International Level
- B. On the National Level
 1. Fish and Wildlife Coordination Act
 2. National Environmental Policy Act of 1969

Chapter X. Environmental Litigation

- A. Common Law
- B. In Federal Courts
 1. "Case," "Controversy" or "Standing to Sue:" Injury
v. Special Interest
 2. The Refuse Act
 - a. Qui Tam
 - b. Mandamus
 - c. Injunction and Damages

University of OregonSchool of LawOcean Resources LawProfessor Jon L. JacobsonPart I - Introductory Materials

- A. Ocean Resources and the New Technology
- B. "The Law of the Sea"
- C. Ocean Zones and Boundaries - A Survey
 - 1. Internal Waters and Territorial Seas
 - 2. The Contiguous Zone and the High Seas
 - 3. The Resource Zones: the Continental Shelf and the Exclusive Fishing Zone
 - 4. Baselines and other Boundaries
 - 5. The Deep Sea Bed

Part II - Mineral Resources of the Sea

- A. Mineral Resources Laws - A General Picture
 - 1. The Convention on the Continental Shelf
 - 2. The Submerged Lands Act and the Outer Continental Shelf Act
 - 3. International Law and the Deep Sea Bed
- B. Particular Mineral Resources of the Sea and Related Problems
 - 1. Petroleum
 - 2. Hard Minerals
 - 3. Other Minerals and Problems
- C. Proposed Regimes for Ocean Minerals Exploitation

Part III - Living Resources of the Sea

- A. Living Resources Laws - A General Picture
 - 1. "Freedom of Fishing"
 - 2. Selected Fishing Treaties
 - 3. The Exclusive Fishing Zone and other Fisheries Laws of the United States

- B. Particular Fisheries
 - 1. Anadromous Fishes
 - 2. Shellfish and other Bottom Dwellers
 - 3. The High Seas Fishes
 - 4. Whales and other Sea Mammals
- C. Proposed Systems of Fisheries Management

Part IV - Ocean Resources and Management of the Coastal Zone

- A. The Concept of Coastal Zone Management
- B. The Protection of Estuaries and Beaches
- C. Recreation as an Ocean Resource
- D. The Problem of Pollution

Part V - The Oceanic World of the Future: the United Nations and the Seabed Question

Readings:

- 1. Knight, H. Gary, ed., The Law of the Sea: Documents and Notes (1969)
- 2. Knight, H. Gary, ed., Supplement to the Law of the Sea: Documents and Notes (1973)
- 3. Numerous Science and Technology Readings, to be assigned
- 4. Current Developments

University of OregonSchool of LawAdmiraltySpring QuarterProfessor Swan

Page numbers refer to Lucas, Cases and Materials on Admiralty (Foundation Press 1969) unless they are preceded by "Supp." in which case they refer to the casebook's 1972 Supplement.

<u>Lecture No.</u>	<u>Topic</u>	<u>Materials to be prepared:</u>
1.	Maritime Contract Jurisdiction	53-58; 64-72
	Maritime Tort Jurisdiction	94-97
2.	Maritime Tort Jurisdiction	111-120; Executive Jet
3.	Maritime Tort Jurisdiction	120-128
	Maritime Jurisdiction and Federalism; "Saving to Suitors"	153-164
4.	Saving Clause (cont'd.)	169-172
	Federalism; Available Remedies	212-217
	Federal Court Jurisdiction; Flags of convenience	242-246
5.	Federal Court Jurisdiction	218-222; 226-227
	Right to Jury Trial	253-259
6.	Right to Jury Trial	260-267
7.	Incidents giving rise to liens	452-454; 467-469; 497-507
8.	Extinguishment of liens	480-481; 567-573
	Priorities	547-554
9.	Cargo Claims; statutory coverage	586-590 (sections 190-192); 598-605 (sections 1300-1306, 1311-1312); 613- 614; 619-620; 630- 634; ship diagram
10.	Cargo claims: seaworthiness in the cargo context	Maxine Footwear; The Muncaster Castle (Lancashire Shipping)

- | | | |
|------|---|---|
| 11. | Cargo claims: The defenses | <u>Palmyra Trading Corp. (The Caspiana)</u> and <u>Leather's Best</u> , Supp. 6-13 |
| 12. | Cargo claims: deviation | ----- |
| 13. | Collision | 755-761; <u>The Santa Maria</u> (Tug San Jacinto); <u>Bull S.S. Co.</u> ; undertaking |
| 14. | Collision; lookout
Collision; damages | <u>Anthony</u> ; <u>McKeel v. Schroeder</u> |
| 15. | Collision; damages | <u>The North Star</u> ; <u>The Chattahoochee Weyerhaeuser</u> |
| 16. | Collision; hull valuation | <u>The President Madison</u> |
| 17. | Collision; damages | 777-792 |
| 18. | Limitation of Liability | 1042-1044; 1049-1056 |
| 19. | Limitation of Liability; Fire Statute; Size of Fund | 1073-1084; <u>Phillips v. Clyde</u> |
| 20. | Limitation of Liability
Privity of Owner | 1062-1064; <u>The Cedarville</u> ,
Supplemental Rules |
| 20A. | Evening Review Session (optional) | Collision damage worksheets;
exam questions |
| 21. | Injuries to Seamen; Negligence | 884-900 (but <u>omit</u> footnotes
& pp. 884½-886; 893; 894½-
899; <u>Hopson</u> , and <u>Horton & Horton</u> |
| 22. | Injuries to Seamen; unseaworthi-
ness | 850-872 |
| 23. | Injuries to seamen: unseaworthi-
ness; Longshoremen, Harbor-workers
and Stevedores; Comp. Act | <u>Morales, Nacirema</u> , Supp. 67-74 |
| 24. | Longshoremen; negligence Longshore-
men; historical unseaworthiness;
jurisdiction v. substantive theory | 999-1008; 955-968 (omit foot-
notes); <u>Victory Carriers</u> ,
Supp. 88-103 (omit footnotes) |
| 25. | Longshoremen: contemporaneous
negligence; Historical indemnity
actions | <u>Usner</u> , Supp. 105-111; 1008-
1013; 1014-1021, 1023-1028;
LHWCA §5(b) |

- | | | |
|-----|---|---|
| 26. | Longshoremen, Stevedores,
repairmen & suppliers | <u>Watz and Hagev</u> , Federal
Marine Terminals, Supp.
114-125 |
| 27. | Wrongful death and survival
actions originating in state
waters | <u>Marogne, Green and
Spiller</u> |
| 28. | Outer Continental Shelf
Choice of law problems | <u>Huson v. Chevron Oil.</u> |

APPENDIX 4B

Ocean Policies, Marine Affairs
Outlines and Readings



The Johns Hopkins University
School of Advanced International Studies

Ocean Policy

Fall 1972

Professor Ann L. Hollick

Introduction

- *Scientific American, September 1969
- Friedmann, Wolfgang, The Future of the Oceans
- Behrman, Daniel, The New World of the Oceans: Men and Oceanography
- *O'Connell, D. P., "Maritime Territory," Chapter 16 in International Law
- *Hull, E. W. Seabrook, "Towards a Public Policy on the Ocean," in Hood, Donald W., Ed., Impingement of Man on the Oceans
- *Knauss, John A., Factors Influencing a U.S. Position in a Future Law of the Sea Conference
- *Friedheim, Robert L., Understanding the Debate on Ocean Resources

Ocean Uses and Interests

Military

- *E. D. Brown, Arms Control in Hydrospace: Legal Aspects
- *U.S. Congress, House Committee on Armed Services, Territorial Sea Boundaries, Hearings, 1970
- *Stockholm International Peace Research Institute, "The Militarization of the Deep Ocean: The Seabed Treaty," SIPRI Yearbook of World Armaments
- Robertson, J. W., "Security Interests and Regimes of the Sea," in Proceedings of the Second Annual Conference on the Law of the Sea, 1967

Petroleum

- *Krueger, Robert S., "International and National Regulation of Pollution from Offshore Oil Production," in Hood, Donald W., Ed., Impingement of Man on the Oceans
- *Henkin, Louis, "International Law and 'the Interests': the Law of the Seabed," American Journal of International Law, July 1969

*required reading

*Finlay, Luke W., "The Outer Limit of the Continental Shelf, A Rejoinder to Professor Louis Henkin," American Journal of International Law, Jan. 1970

*Henkin, Louis, "A Reply to Mr. Finlay," American Journal of International Law, Jan. 1970

*National Petroleum Council, Petroleum Resources Under the Ocean Floor
Ely, Northcutt, "Deep Sea Minerals and American National Interests,"
Proceedings of Third Annual Conference on the Law of the Sea

Hard Minerals

*McKelvey, Vincent E. and Wang, Frank F. H., World Subsea Mineral Resources: Preliminary Maps

*Christy, Francis T., Jr., "Marigenous Minerals: Wealth, Regimes and Factors of Decision," in Sztucki, ed., Symposium on the International Regime of the Seabed

*Greenwald, Richard J., "Problems of Legal Security of the World Hard Minerals Industry in the International Ocean," Natural Resources Lawyer, July 1971

*Laylin, John G., "Past, Present and Future Development of the Customary International Law of the Sea and Deep Seabed," International Lawyer

Laylin, John G., Statement before the House Committee on Foreign Affairs Subcommittee on International Organizations and Movements, April 1972

Laylin, John G., "Hard Mineral Development Under the Outer Continental Shelf Lands Act - Legal and Economic Requirements of the Industry," Natural Resources Lawyer, July 1971

Mero, John L., The Mineral Resources of the Sea

Fisheries

*Christy, Francis T., Jr., and Scott, Anthony, The Common Wealth in Ocean Fisheries: Some Problems of Growth and Economic Allocation

*Christy, Francis T., Jr., "New Dimensions for Transnational Marine Resources," American Economic Review, May 1970

*Christy, Francis T., Jr., "Fisheries Management and the Law of the Sea"

*Chapman, W. M. "United States Fish Industry and the 1958 and 1960 United Nations Conferences on the Law of the Sea," in Proceedings of Third Annual Conference of the Law of the Sea Institute

Burke, William T., Some Thoughts on Fisheries and a New Conference on the Law of the Sea

Marine Science

*Schaefer, Milner B., "Freedom of Scientific Research and Exploration in the Sea," Stanford Journal of International Studies, June 1969

*Knauss, John, Speech before Geneva Session UN Seabed Committee, August 1972

*Friedheim, Robert L. and Kadane, Joseph, Ocean Science in the U N Political Arena

Schaefer, Milner B., "The Changing Law of the Sea - Effects on Freedom of Scientific Investigation," in Proceedings of the Second Annual Conference of the Law of the Sea Institute, 1967

Marine Environment

*Goldberg, Edward D., "Chemical Invasion of Ocean by Man," in Matthews, Smith and Goldberg, Man's Impact on Terrestrial and Oceanic Systems, pp. 261-74

*Revelle, Roger, Wenk, Edward, Ketchum, Bostwick and Corino, Edward, "Ocean Pollution by Petroleum Hydrocarbons" in Matthews, Smith and Goldberg, Man's Impact....

*U.S. Council on Environmental Quality, Ocean Dumping: A National Policy

U.S. Council on Environmental Quality, Toxic Substances

*Hardy, Michael, "International Control of Marine Pollution," Natural Resources Journal, April 1971

U.S. Ocean Policies

*Ratiner, Leigh S., "United States Ocean Policy," Journal of Maritime Law and Commerce, Jan. 1971

*Knight, H. Gary, "The Draft United Nations Convention on the International Seabed Area..," San Diego Law Review, May 1971

University of WashingtonCollege of EngineeringCIVE 543, 544

Marine Technology Affairs I, II
(3,3 credits)

Winter, Spring 1973

Dr. Edward Wenk, Jr.

Catalog Description

Case studies in marine legislation, fishery conventions, coastal pollution, oil and gas extraction, environmental observations, planning for international exploration of the sea, federal organizations, etc., to identify components in the marine technology enterprise, dynamics of inter-relationships, externalities, policy planning and institutional conflicts in setting goals, priorities and program strategies.

Prerequisite: CIVE 540, and CIVE 543 for CIVE 544

Background

A systems approach is necessary for effective management of marine technology dealing with oil and gas, fisheries, waste disposal, recreational development, nature conservancy and shipping. Students having interests in such areas would thus gain from an understanding of the processes by which scientific knowledge is translated to a particular purpose, to consider legal, economic and social aspects of the marine technology enterprise. An interdisciplinary approach would link together fundamental disciplines as preparation for various marine related activities that depend on public policy.

Anticipated Enrollment

Graduate students in oceanography, atmospheric sciences, fisheries, ocean engineering, resource economics, maritime law.

Course Outline

First Quarter will be devoted to lecture introduction to Marine Technology Affairs, enriched by guest lecturers.

Topics for Lectures

Components and dynamics of the marine technology establishment and
 policy-making machinery
 Enactment of the Marine Resource and Engineering Development Act
 Formulation of the Food-from-the Sea (FPC) Program
 Negotiating recent fisheries conventions
 Control of pollution from offshore oil extraction
 State management of the coastal environment
 Seabed Arms Control
 Formulating seabed boundaries of national sovereignty
 Planning for the International Decade of Ocean Exploration
 Strengthening international organizations to deal with the sea
 The role of transportation in Arctic development
 Global networks for environmental observation and prediction
 Management of oceanographic data
 Organizing the federal marine effort
 The role of a constituency in marine policy formulation

Criteria for case selection include:

- a. Activities leading to a significant or urgent national decision
- b. Critical dependence on scientific fact
- c. Involvement of several institutional groups
- d. Documentation of a sufficiently historical sequence to permit
 analysis of policy-making processes and conflicts, alter-
 natives considered and basis for choice

During the Second Quarter the course will be directed student re-
 search and discussion of special topics introduced in the First Quarter.

Text

Politics of the Ocean, Edward Wenk, Jr., University of Washington
 Press, October 1972

Our Nation and the Sea, Report of the Stratton Commission, January 1969

Reading List

I. Coastal Zone Management

1. Adams, David A. Chapter 2, Management Systems Under Consideration at the Federal-State Level, Coastal Zone Resource Management, ed. James C. Hite and James M. Stepp, New York, Praeger, 1971, pp. 20-32
2. Anonymous. The Economic and Social Importance of Estuaries, Estuarine Pollution Study Series -2, EPA Wash. D.C., 1971, pp.i-8
3. *Brahtz, J.F.P. Chapter 1, Introduction, Coastal Zone Management, ed. J.F.P. Brahtz, New York, Wiley, 1972
4. *Heath, Milton S., Jr. Chapter 4, Legal and Institutional Considerations, Coastal Zone Resource Management, pp.49-81
5. Hufschmidt, M. M., Knox, H. W., and Parker, F.H. Chapter 6, A Policy Analysis Approach: Objectives, Alternative Development Strategies and Econometric Models, Coastal Zone Resource Management, pp. 104-126
6. Knetsch, Jack L. Chapter 5, Economics and Management of Coastal Resources, Coastal Zone Resource Management, pp. 84-103
7. Laurent, Eugene A., and Stepp, James M. Introduction, Coastal Zone Resource Management, pp. ix-xviii
8. MacCutcheon, Edward M. Chapter 5, Traffic and Transport Needs at the Land-Sea Interface, Coastal Zone Management
9. Schaefer, Milner B. Chapter 3, Conservation of Biological Resources of the Coastal Zone, Coastal Zone Management
10. *Sternlight, David. Chapter 7, Systems Planning and Control: Coastal Regions, Coastal Zone Management

II. International Law of the Sea

1. Burke, William T. Law, Science, and the Ocean, Law of the Sea Institute Occasional Paper No. 3, 18 pages
2. Burke, William T. Marine Science Research and International Law Law of the Sea Institute Occasional Paper No. 8, September 1970
3. *Chapman, Wilbert M. The Law of the Sea and Public Policy, Chapter 5, in Ocean Engineering, ed. J. F. Brahtz, New York, Wiley, 1968, pp. 112-56

4. Friedmann, Wolfgang. The Law of the Oceans, Chapter 4, in The Future of the Oceans, New York, Braziller, 1971, pp. 30-49
5. Knauss, John A. Factors Influencing a U. S. Position in a Future Law of the Sea Conference, Law of the Sea Institute Occasional Paper No. 10, April 1971, 31 pages
6. Mangone, Gerard J. The United Nations, International Law, and the Bed of the Seas, Oceans Series 303, Woodrow Wilson International Center for Scholars, Washington, D. C., January 1972, 44 pages

III. Development and Conservation of Marine Living Resources

1. Burke, William T. Some Thoughts on Fisheries and a New Conference on the Law of the Sea, Law of the Sea Institute, Occasional Paper No. 9, March 1971, 17 pages
- The following papers are from the Future of the Fishing Industry of the United States, University of Washington Publications in Fisheries New Series, vol. iv, 1968
2. Broadhead, Gordon C. Cost Factors in Fishing - A World Competition, pp. 118-19
 3. *Christol, Carl Q. Social Complex of World Fisheries: Law in Support of World Needs, pp. 305-9
 4. *Falk, Richard. Settling Ocean Fishery Conflicts: The Limits of "Law Reform" in a Horizontal Legal Order, pp. 326-32
 5. *Kasahara, Hiroshi. U.S. Fishing Industry and Related International Activities, pp. 241-47
 6. Kvistjonsson, Hilmar. Fishing Strategy - Recent Developments and Future Outlook, pp. 127-33
 7. *McKernan, Donald L. International Fishery Policy and the U.S. Fishing Industry, pp. 248-58
 8. Parman, George. The Potential of Fish Protein Concentrate, pp. 222-24
 9. *Schaefer, Milner B. and Alverson, D. L. World Fish Potentials, pp. 81-85

IV. Marine Technology

1. *Andrassy, Juraj. Chapter 2, The Resources of the Sea and Recent Technological Progress, in International Law and the Resources of the Sea, New York, Columbia University Press, 1970, pp. 15-34
2. *Anonymous. Chapters 4 and 5, Petroleum Resources Under the Ocean Floor, National Petroleum Council, Washington, D. C., March 1969, pp. 39-54
3. *Anonymous. Part A, An Outline for Action, in Toward Fulfillment of a National Ocean Commitment, National Academy of Engineering Marine Board, Washington, D. C., 1972, pp. 3-38
4. *Bascom, Willard. Technology and the Ocean, Scientific American, vol. 221, no. 3, September 1969, pp. 198-217
5. Spangler, M.B. Chapter 10, New Technology: Improving the U.S. Role in World Fisheries, pp. 319-362
6. Spangler, M.B. Chapter 12, New Technologies for Aquacultures, Marine Plants, and Drugs, pp. 407-33
7. Wenk, Edward, Jr. Engineering for Maritime Exploration and Development, an address before the American Society of Civil Engineers, New York, October, 1964

V. Marine Pollution

1. Anonymous. Marine Environmental Quality, NAS-NRC Ocean Science Committee, August, 1971, pp. 1-28, 83-100
2. Anonymous. Man's Impact on the Global Environment, Report of the Study of Critical Environmental Problems, MIT, 1970, pp. 21-38, 126-150
3. Anonymous. Ocean Dumping - A National Policy, A report to the President by the Council on Environmental Quality, Washington, D. C., 1970, 45 pp.
4. *Anonymous. The Sea, Prevention and Control of Marine Pollution, Report by the Secretary General, United Nations Document E/5003, May 1971, pp. 2-42

5. Goldberg, Edward and Menzel, David. Draft Part IIIA, Who Protects the Oceans?, Study by the Joint Working Group on Ocean Environment, American Society of International Law, October 1971, 21 pp.
6. Hull, E.W.S. and Koers, Albert. Introduction to a Convention on the International Environmental Protection Agency, Law of the Sea Institute Occasional Paper No. 12, September 1971, read pages 1-X, scan pages 1-21
7. *Schachter, O., and Serwer, D. Marine Pollution - Potential for Catastrophe, United Nations UNITAR research report OPI 444-06208, April 1971, 24 pp.

VI. Synthesis - Alternative Marine Futures

1. *Pardo, Arvid. A New Order in Ocean Space, presented at the Symposium on the Exploration and Exploitation of the Seabed and its Subsoil, Council of Europe, Strasbourg, December 1970, 13 pp.
2. *Ratiner, Leigh. United States Ocean Policy: An Analysis, Journal of Maritime Law and Commerce, vol. 2 no. 2, January 1971, pp. 225-66
3. *Wenk, Edward, Jr. Toward Enhanced Management of Maritime Technology, Chapter 11 in Pacem in Maribus Ocean Enterprises, Center for the Study of Democratic Institutions Occasional Paper, June 1970
4. Wenk, Edward, Jr. International Institutions for Rational Management of Ocean Space, unpublished paper

*Strongly recommended

University of Southern California
School of Public Administration

P. A. 578 - Marine Affairs

Spring 1972

Lyle J. Sumek, Instructor

Ross Clayton, Assistant Professor

Course Description

Examines public policymaking processes of various levels of government as they influence the marine environment and utilization of Marine resources; examines impact of existing legislation, pending legislative proposals, and explores alternative policies and policymaking processes and institutions.

Introduction

P. A. 578, Marine Affairs, is a new course in the curriculum which was developed as part of the School of Public Administration's involvement in the Sea Grant Program sponsored by the National Oceanographic and Atmospheric Agency (NOAA), Department of Commerce. This advanced graduate seminar is designed to give both individuals who are actively employed in marine and coastal related activities and students who are planning careers in this field, an appreciation of public policy implications.

Although it draws material from many fields of study, the course examines the formulation and implementation of marine and environmental policy and the effect of marine and coastal resources on the policy processes. To help provide a more specific focus, the course is going to address the following questions:

- how and why does a particular problem become a political issue, or how and why is a particular problem prevented from becoming a political issue?
- how are decisions made on a political issue?
- who becomes involved in the political process, and what are his goals and strategies of his participation?
- what type of decisions are made, and what are the political, social, and physical consequences?

- what laws exist or are pending?
- what roles do administrators play in the formulation and implementation of policy?
- what factors influence the decision making process?

To maximize the student's exposure to the dimensions of public policy, the course is broken down into four major components: (1) an introduction to the theories and analytical approaches to public policy, emphasizing marine and coastal policy processes; (2) in depth study of selected decision making arenas, including pollution control, land use planning, environmental impact statements, and international approaches to ocean resources; (3) discussions with key political actors who have been actively involved in the formulation and implementation of marine and coastal policy; and (4) an individual research project which will acquaint students with specific aspects of the policy processes and the relevant literature in the field.

Texts

Required:

- Davies, J. Clarence, III. The Politics of Pollution, New York, Pegasus, 1970
- Friedmann, Wolfgang. The Future of the Oceans, New York, Braziller, 1971
- Lindblom, Charles E., The Policymaking Process, Englewood Cliffs, Prentice-Hall, Inc., 1968
- Meek, Roy L. and Straayer, John A. (eds) The Politics of Neglect: the Environment Crisis, Boston, Houghton Mifflin Company, 1971
- Thompson, Dennis L. (ed.) Politics, Policy and Natural Resources, New York, The Free Press, 1971
- Zwick, David R. and Benstock, Marcy, Water Wasteland, New York, Grossman Publishers, 1971

Inter-University Case Program - Bobbs-Merrill

- Maass, Arthur, "The Kings River Project" ICP - 12
- Marshall, and Zisk, "The Federal-State Struggle for Off Shore Oil," ICP -98

Reprints - Bobbs-Merrill

- Easton, David, "An Approach to the Analysis of Political Systems,"
PS - 68
- Snyder, Richard C. "A Decision Making Approach to the Study of
Political Phenomena," PS - 266

Recommended

- Cooley, Richard A. and Wandesforde-Smith, Geoffrey (eds) Congress
and Environment, Seattle, University of Washington Press
- Council on Environmental Quality Environmental Quality - Second
Annual Report, Washington, Government Printing Office, 1971
- Report of the President to Congress on Marine Resources and
Engineering Development, Marine Science Affairs, Washington,
Government Printing Office, 1971

Course Requirements

Readings

Each student will be expected to read carefully and be prepared to discuss in class the required readings for the topic under discussion

Book Summary (approximately five pages)

Each student will be expected to select a book from the suggested reading (with asterisk *) which appears in the syllabus and prepare a brief summary of that book. The summaries are intended to widen the awareness and knowledge of class members of literature pertinent to the course. The summaries are coordinated with discussion topics and are scheduled for presentation throughout the semester. In conveying the significant content of the book, be sure to identify the author's purpose in writing the book, his principal theses, findings, conclusions, and key ideas.

Termpaper

Each student will be expected to complete an original research study which would provide him an opportunity to gain in depth knowledge about a particular facet of the marine and environmental policy processes. A student may choose either of two approaches:

- 1) A case study of a political issue in which a political decision is analyzed, focusing on the roles and strategies of the various political actors and institutions, the interaction processes and arenas, and implications for future policymaking. A good example would be an analysis of the controversy at Cabrillo Beach.

or

- 2) An analysis of a policy process in which a particular policy arena such as a legislative committee is analyzed over a period of time, focusing on the political environment, the type of issues, the role and strategies of political actors, and the implications for policy processes in general. A good example would be an analysis of the legislative proposals and activities of the State Senate's Natural Resources and Wildlife Committee.

The specific topics for the papers are negotiable. For the convenience of many students, a list of suggested issues and arenas will be distributed by the instructors during the first session of class.

Since many students are new to the field of public policy, a significant portion of the second and third sessions will be spent on the methods and techniques for conducting an analysis of public policy processes. It is hoped that students will use class material as a foundation to build their research study. During the semester, the instructors will meet with each student three times to discuss the status and problems of the research studies. The exact dates will be established early in the semester.

To aid the students in getting an early start on their research study, a schedule with deadlines is set forth:

- February 23 - A paragraph description of topic
- March 15 - A general outline and discussion of research approach
- May 24 - Final Study

Final Examination

A final examination will be given at the end of the semester.

The essay exam will be designed to allow students an opportunity to integrate further the reading material, class discussions, and their own research efforts.

Grades

A student's grade will be based 40% on the term paper, 30% on the final examination, and 30% on class performance which includes his book summary and his substantive participation in class discussion.

Course Outline

Session 1. Introduction: Organization of the class, Preview of Course Content and Requirements, Goal Setting, Orientation to the National Sea Grant Program.

1. Politics of Marine and Environmental Policy

The Context of the Marine and Coastal Policy:

The Physical Condition of the Environment, Analysis of the Interrelationship in the Ecosystem, the Social and Economic Implications of the Ecosystem. (To be completed during the first three weeks of the semester.)

Required:

Meek and Straayer, The Politics of Neglect

Ehrlich, "Eco-Catastrophe"

Berry, "The Chemistry and Cost of Contamination"

Grinstead, "No Deposit, No Return"

Marquis, "Ecosystems, Societies and Cities"

Egler, "Pesticides - In Our Ecosystem"

Commoner, "Nature Under Attack"

Ogden, "The Future of the Environmental Struggle"

Bylinsky, "The Limited War on Water Pollution"

Dale "The Economics of Pollution"

Rienow, "Manifesto for the Sea"

Thompson, Politics, Policy and Natural Resources

Landsberg, "The U.S. Resource Outlook - Quantity and Quality"

Galbraith, "How Much Should a Country Consume?"

Zwick and Benstock, Water Wasteland, Chapter 1

Davies, The Politics of Pollution, Chapter 1

Suggested:

*Carr, Donald E. Death of the Sweet Waters, New York, Berkeley Medallion Books, 1971

Marx, Wesley, The Frail Ocean, New York, Ballantine Books, 1967

Commoner, Barry, The Closing Circle, New York, Alfred A. Knopf, 1971

*Mishan, E. J., Technology and Growth, The Price We Pay, New York, Praeger Publishers, 1969

Jarrett, Henry (ed.), Perspectives on Conservation, Baltimore, The Johns Hopkins Press, 1958

Revelle, Roger and Hans H. Landsberg, America's Changing Environment, Boston, Beacon Press, 1970

Jarrett, Henry (ed.), Environment Quality in a Growing Economy, Baltimore, Johns Hopkins Press, 1966

Council on Environmental Quality, Environmental Quality, Chapter 7

National Goals Research Staff, Toward Balanced Growth: Quantity with Quality, Washington, Government Printing Office, 1970

Crocker, Thomas and A. J. Rogers, Environmental Economics, Hinsdale, Ill., The Dreyden Press, Inc., 1971

Session 2. An Introduction to Public Policy: Definition of Terms, the Political System as a Conceptual Model of the Political Processes, Methodological Approaches to Analysis of Policy Formulation, the Case Study Approach

Required:

Easton, "An Approach to the Analysis of Political System" (PS - 68)

Thompson, Politics, Policy and Natural Resources

Bauer "The Policy Process"

Salisbury, "The Analysis of Public Policy"

Caldwell, "Environment - A New Focus for Public Policy"

Snyder, "A Decision Making Approach to the Study of Political Phenomena" (PS - 266)

Maass, "The Kings River Project" (ICP - 12)

Marshall and Zisk, "The Federal-State Struggle for Off Shore Oil" (ICP - 98)

Suggested:

Bauer, Raymond A. and Gergen, Kenneth J. (eds.) The Study of Policy Formation, New York, The Free Press, 1968

Easton, David, A Systems Analysis of Political Life, New York, John Wiley and Sons, 1965

Sayre, Wallace and Kaufman, Herbert, Governing New York City, New York W. W. Norton and Company, 1965

Ranney, Austin (ed.), Political Science and Public Policy, Chicago, Markham Publishing Company, 1968

Froman, Lewis A. "An Analysis of Public Policies in Cities," *Journal of Politics*, XXIX (February 1967), pp. 94-108

Maass, Arthur, Muddy Waters: The Army Engineers and the Nation's Rivers, Cambridge, Harvard University Press, 1951

Session 3. Pluralistic Approach to Policy Processes: Definitions of Power, Influence and Pluralism; Analysis of Pluralistic Policy Making Model; Typology of Policy Issues; A Case Study of the Federal Water Quality Act of 1965

Required:

Lindblom, The Policy-Making Process (all)

Thompson, Politics, Policy and Natural Resources,

Lindblom, "The Science of 'Muddling Through'."

Cooley and Wandesforde-Smith, Congress and the Environment, Micklin, "Water Quality: A Question of Standard"

Suggested:

Truman, David, The Governmental Process, New York, Alfred A. Knopf, 1951

Braybrooke, David and Charles E. Lindblom, A Strategy of Decision, New York, The Free Press, 1970

*Lindblom, Charles, The Intelligence of Democracy, New York, The Free Press, 1965

Lasswell, Harold, Who Gets What, When, How? New York, McGraw-Hill, 1936

*Dahl, Robert, Who Governs? New Haven, Yale University Press, 1961

*Banfield, Edward, Political Influence, New York, The Free Press, 1961

Session 4. Alternative Approaches to Policy Processes. Critiques of Pluralism, The Nondecision Model of Policy Making, Case Studies of the Santa Barbara Oil Spill and the Dying of Lake Erie, The Changing Nature of the Policy Processes

Required:

Backrach and Baratz, "Decisions and Non-Decisions: An Analytical Framework," American Political Science Review, LVII (September 1963), pp. 632-642

Wolin, Sheldon S. Politics and Vision, Boston, Little, Brown and Company, 1960, Chapter 10

Meek and Straayer, The Politics of Neglect
Schrag "Life on a Dying Lake"

Molotch, Santa Barbara: "Oil in the Velvet Playground"

Crenson, Matthew A., "Nonissues in City Politics: The Case of Air Pollution," An End to Political Science, Edited by Marvin Surkin and Alan Wolfe (New York, Basic Books, 1970) pp. 144-166

Baldwin, Malcolm F. "The Santa Barbara Oil Spill," Law and the Environment. Edited by Malcolm F. Baldwin and James K. Page, Jr., New York, Walker and Company, 1970

Suggested:

- *Crenson, Matthew A., The Unpolitics of Air Pollution: A Study of Nondecision-Making in American Cities, Baltimore, Johns Hopkins University Press
- Connolly, William E. (ed.) The Bias of Pluralism, New York New York, Atherton Press, 1969
- *Bachrach, Peter, The Theory of Democratic Elitism: A Critique, Boston, Little, Brown and Company, 1967
- Schattschneider, E. E., The Semi-Sovereign People, New York, Holt, Rinehart and Winston, 1960
- Lane, Robert E. "The Decline of Politics and Ideology in a Knowledgeable Society," American Sociological Review, XXXI (October 1966), pp. 649-662
- Parenti, Michael, "Power and Pluralism: A View from the Bottom," An End to Political Science, Edited by Marvin Surkin and Alan Wolfe New York, Basic Books, 1970, pp. 111-143
- Holmes, R. W. "The Santa Barbara Oil Spill," Oil on the Sea, Edited by David P. Hoult, New York, Plenum Press, 1969, pp. 15-28
- Hardin, Garrett, "Finding Lemonade in Santa Barbara's Oil," Saturday Review, LII (May 10, 1969) pp. 18-21
- Price, Don K. The Scientific Estate, New York, Oxford University Press, 1965

Session 5. An Overview of the Marine Political Subsystem: Interest Aggregation and Articulation Process; Analysis of the Assumptions, Goals and Strategies of Political Actors; The Structure and Role of Political Institutions, A General Review of Federal Legislation

Required:

- Meek and Straayer, The Politics of Neglect
- Wheeler, "The Politics of Ecology"
- Lieber, "Public Administration and Environmental Quality"
- Wildavsky, "Aesthetic Power or the Triumph of the Sensitive Minority over the Vulgar Mass"
- Caldwell, "Authority and Responsibility for Environmental Administration"

Straayer and Meek, "The Iron Law of Environmental Disorder"

"Metropolitan Needs and Government Performance"

Thompson, Politics, Policy and Natural Resources

Long, "New Tasks for All Levels of Government"

Grodzins, "The Many American Governments and Outdoor Recreation"

White, "Formation and Role of Public Attitudes"

Ostrom, "The Water Economy and Its Organization"

Fisher, "Resource Policies and Administration for the Future"

Annual Report of the President to Congress on Marine Resources and Engineering Development, Marine Science Affairs, Washington, Government Printing Office, 1971, Chapter 1

Council on Environmental Quality, Environmental Quality, pp. 4-8

Wenk, Edward, Jr., "Federal Policy Planning for the Marine Environment," Public Administration Review XXVIII (July/August 1968), pp. 312-320

Cooley and Wandesforde-Smith, Congress and Environment, Wandesforde-Smith, "National Policy for the Environment: Politics and the Concept of Stewardship"

+++One of the following articles:

Sax, Joseph L. "Emerging Legal Strategies: Judicial Intervention", Annals (May 1970), pp. 71-76

Sax, Joseph L. "The Search for Environmental Quality: The Role of the Courts," The Environmental Crisis I, Edited by Helfrich, New Haven, Yale University Press, 1970

Wark, Lois G. "Nader Campaigns for Funds to Expand Activities of His Consumer Action Complex," The Pressure Groups, Washington, National Journal, 1971, pp. 12-24

- Wagner, James R. "Environment Groups Shift Tactics from Demonstrations to Politics, Local Action," The Pressure Groups (Washington, National Journal, 1971) pp. 95-102
- Lilley, William, III, "National League of Cities - U.S. Conference of Mayors," The Pressure Groups (Washington, National Journal, 1971) pp. 103-110
- Ross, Charles R. "The Federal Government as an Inadvertent Advocate of Environmental Degradation," The Environmental Crisis I, edited by Helfrich, New Haven, Yale University Press, 1970
- Craik, Kenneth H. "The Environmental Dispositions of Environmental Decision-makers," Annals, May 1970, pp. 87-94
- Greenberg, Daniel, "Accomplishments of the Environmental Lobby," New Scientist and Science Journal, L, April 22, 1971
- Douglas, William O. "The Corps of Engineers: The Public Be Damned," Politics and Environment, Edited by Walt Anderson, Pacific Palisades, Goodyear Publishing Co., 1970, pp. 268-283
- Cooley and Wandesforde-Smith, "Congress and the Environment of the Future," Congress and the Environment
- Huntington, Samuel P. "Congressional Responses to the Twentieth Century," The Congress and America's Future, Edited by David B. Truman, Englewood Cliffs, Spectrum Books, 1965, pp. 5-31
- Maass, Arthur, "Congress and Water Resources," APSR, XLIV September 1950, pp. 576-593. Also Alan A. Altshuler, The Politics of Bureaucracy, New York, Dodd, Mead and Company, 1968, pp. 283-297, Bobbs-Merrill (PS -176)

Suggested:

- Grodzins, Morton, The American System: A New View of Government in the United States, Chicago, Rand McNally and Co., 1968

Report of the Commission on Marine Science, Engineering and Resources, Our Nation and the Sea: A Plan for National Action, Washington, Government Printing Office, 1969

Padelford, Norman J. Public Policy for the Sea, Cambridge, MIT Press, 1970, Chapter 1

Padelford, Norman J. and Jerry E. Cook, New Dimensions of U. S. Marine Policy, Cambridge, MIT Press, 1971, Chapter 1

Council of Environmental Quality, Environment Quality, "National Environment Policy Act of 1969"

Sax, Joseph L., Defending the Environment: A Strategy for Citizen Action, New York, Alfred A. Knopf, 1971

Smith, Frank E., The Politics of Conservation, New York, Harper Colophon Books, 1966

Murphy "Mobilization for the National Program in Marine Sciences: Organizational Consideration," Public Administration Review XIX (May/June 1969) pp. 263 - 279

II. Selected Decision-making Arenas

Session 6. Politics and Policies of Pollution Control: The Nature of Water Pollution, Legislative Politics, The Role of State and Local Governments, A Review of Intergovernmental Agreements, International Approaches to Ocean Pollution

Required:

Davies, The Politics of Pollution, pp. 37-49, Chapters 3,4, 5 and 6

Zwick and Benstock, Water Wasteland, Chapters 2,3,4,5,6, 7,8,9 18

Council on Environmental Quality, Environmental Quality, pp. 38-60, Chapter 3

Thompson, Politics, Policy and Natural Resources, Frederickson and Magnas, "Comparing Attitudes toward Water Pollution in Syracuse"

Suggested:

- *Graham, Frank, Jr., Disaster by Default: Politics and Water Pollution, New York, Evans, 1965
- *Cleary, Edward J., The ORSANCO Story, Baltimore, The Johns Hopkins Press, 1967
- *Krutilla, John V., The Columbia River Treaty, Baltimore, The Johns Hopkins Press, 1967
- *Petrow, Richard, In the Wake of Torrey Canyon, New York, David McKay Company, Inc., 1968
- Cowan, E., Oil and Water: The Torrey Canyon Disaster, Philadelphia, Lippincott, 1968
- Gill, C. F. Booker, and T. Soper, The Wreck of the Torrey Canyon, Great Britain, David and Charles Limited, 1967
- Degler, Stanley E., "Water," Federal Pollution Control Programs, Washington, Bureau of National Affairs Books, 1971, pp. 4-25
- Padelford, Norman J., Public Policy for the Sea, Cambridge, MIT Press, 1970, Chapter 7
- Nanda, , "Torrey Canyon Disaster: Some Legal Aspects," Denver Law Journal, XLIV (1967), pp. 400-426
- Krier, James E., "The Pollution Problem and Legal Institutions: A Conceptual Overview," UCLA Law Review XVIII (1971), pp. 429-477
- Edwards, M. N., "The Role of the Federal Government in Controlling Oil Pollution at Sea," Oil on the Sea, Edited by David P. Hault, New York, Plenum Press, 1969, pp. 103-112
- Hedgpeth, J. W., "The Oceans: World Dump," Environment, XII (1970, pp. 40-47)
- Blumer, Max, "Oil Pollution of the Ocean," Oil on the Sea, Edited by David P. Hault, New York, Plenum Press, 1969, pp. 5-13
- Fay, J. A., "Oil Spills: The Need for Laws and Science," Technology Review, LXXII (January 1970), pp. 33-35

Gotaas, Harold B., "Outwitting the Patient Assassin: The Human Use of Lake Pollution," Bulletin of the Atomic Scientists, XXV (May, 1969), pp. 8-10

Clary, "Air and Water Interstate Compacts," Natural Resources Law, I (October 1968), pp. 60-68

Reitze, "Wastes, Water and Wishful Thinking: The Battle of Lake Erie," Case Western Reserve Law Review, XX (1968). pp. 5-87

Kaito, "Federal Water Pollution Control Act as Applied to the City and County of Honolulu," Natural Resources Law, I (January 1968), pp. 70-77

Session 7. Politics and Strategies of Pollution Control: Federal Water Quality Administration; Analysis of Regulation, Standards, and Enforcement; Alternative Strategies for Water Pollution Control

Required:

Davies, The Politics of Pollution, Chapters 7,8 and 9

Zwick and Benstock, Water Wasteland, Chapters 3,10, 11, 12, 13,14, 15,16,17 and 19

Council on Environmental Quality, Environmental Quality, Chapters 4 and 5

Kneese, Allen V., "Strategies for Environmental Management," Public Policy XIX (Winter 1971), pp. 37-52

Freeman, A. Myrick, III, and Robert H. Haveman, "Water Pollution Control, River Basin Authorities and Economic Incentives: Some Current Policy Issues," Public Policy XIX (Winter 1971), pp. 53-74

Suggested:

*Ridgeway, James, The Politics of Ecology, N.Y., E.P. Dutton and Company, Inc. 1970

*Fallows, J.M. The Water Lords, N. Y., Bantam Books, 1971

Roberts, Marc J., "Organizing Water Pollution Control: The Scope and Structure of River Basin Authorities," Public Policy XIX (Winter 1971), pp. 75-141

Benarde, Melvin A., "Water Pollution and its Control," Our Precarious Habitat, N.Y., W.W. Norton and Co., Inc., 1970, pp. 131-150

Bain, J.S., R.E.Caves and J.Margolis, Northern California's Water Industry, Baltimore, The Johns Hopkins Press, 1966

Carter, L. J., "Water Pollution Control: Trouble at Headquarters," Science, CLXV (August 8, 1969), pp. 572-573

Kneese, Allen, "The Present National Pollution Control Program and an Alternative," Roger Lecture at University of California, Berkeley, 1971

Padelford, Norman J. and Jerry E. Cook, New Dimensions of U.S. Marine Policy, Cambridge, MIT Press, 1971

Conden, R. W., "Municipal Problem in Financing Water Pollution Control," Journal of Water Pollution, XLII (November 1970), pp. 1998-2003

Delogu, "Effluent Charges: A Method of Enforcing Stream Standard," Maine Law Review XIX (1967), pp. 29-48

Session 8. Politics and Planning of the Coastal Zone: Politics and Administrative Structure of Land Use Planning, Public Interest vs. Private Rights, Conservation vs. Development, Case Studies

Required:

Meek and Straayer, The Politics of Neglect

Douglas, "Victory in the Everglades"

Hano, "Protectionists vs. Recreationists - The Battle of Mineral King"

Gilmour, "Private Interests and Public Lands"

Thompson, Politics, Policy and Natural Resources

Herfindahl, "What is Conservation?"

Hall, "Conservation as a Public Policy Goal"

Wengert, "Resource Development and the Public Interest"

Vaughn, "In Search of Standards for Preserving Open Space"

Scniff, "Outdoor Recreation Values in the Public Decision Process"

Kelso, "Resolving Land Use Conflicts"

Lucas, "Wilderness Perception and Use - The Example of the Boundary Waters Canoe Area"

Cooley and Wandesforde-Smith, Congress and the Environment

Asmussen and Bouchard, "Wild and Scenic Rivers: Private Rights and Public Goods"

Kyle, "Indiana Dunes National Lakeshore: The Battle for the Dunes"

Gilliam, Harold, "The Fallacy of Single-Purpose Planning,"
America's Changing Environment, Edited by Roger Revelle
 and Hans H. Landsberg, Boston, Beacon Press, 1970, pp.
 67-82

Suggested:

- Nader, Ralph, Power and Land in California, August, 1971
- *Altschuler, Alan A., The City Planning Process: A Political Analysis, Ithaca, New York, Cornell University Press, 1965
- *Ranney, David C., Planning and Politics in the Metropolis,
 Columbus, Ohio, Charles E. Merrill Publishing Company, 1969
- Little, Charles E., Challenge of the Land: Open Space Preservation at the Local Level, New York, Pergamon Press, 1968
- Revelle, Roger, "Outdoor Recreation in a Hyper-Productive Society," America's Changing Environment, Edited by Roger Revelle and Hans H. Landsberg, Boston, Beacon Press, 1970, pp. 253-272
- Padelford, Norman J. and Jerry E. Cook, New Dimensions of U.S. Marine Policy, Cambridge, MIT Press, 1971, Chapter 2
- Sommarstrom, Allan, "Controversy in the North Cascades,"
Congress and the Environment
- Niering, William A., "The Dilemma of the Coastal Wetlands: Conflict of Local, National and World Priorities," The Environmental Crisis, Yale University Press, 1970, pp. 143-156
- Davis, John H., "Influences of Man Upon Coast Lines," Man's Role in Changing the Pace of the Earth, Edited by William L. Thomas, Chicago, University of Chicago Press, 1956, pp. 504-521
- Kyle, James J., "Indiana Dunes National Lakeshore: The Battle for the Dunes," Congress and the Environment, Edited by Richard A. Cooley and Geoffrey Wandesforde-Smith, Seattle, University of Washington Press, 1970, pp. 16-31
- Mayer, Harold M., "Politics and Land Use: The Indiana Shoreline of Lake Michigan," Annals of the Association of American Geographers, LIV, December 1964

Peeples, William, "Indiana Dunes and Pressure Politics,"

Atlantic Monthly, February 1963

Watt, Kenneth E. F., "Planning - So There Will be a Future,"

Ecocide, Edited by Clifton Fadiman and Jean White, Palo

Alto, James E. Freel and Associates, 1971, pp. 107-139

"The San Francisco Bay Area - Regional Problems and Solutions,"

California Law Review LV, 1967, pp. 55-208

Session 9. Politics and Policies of Environmental Impact Assessment:

Legislative History of National Environmental Policy Act of 1969,
Administrative Structure and Agency Guidelines in Formulating Impact
Statements, Relationship to Technology Assessment (a priori and a
posteriori).

Required:

Clingham, James H., "NEPA: Birth and Infancy," Catholic

University Law Review, XX, pp. 184-195

Baldwin, Malcolm F., "The Environmental Impact Statement of

NEPA: Criticisms of Agency Performance and Recommendations

for Reform," Speech at Stanford University School of Law

for the Law Forum and the Environmental Law Society,

December 1970

Peterson, Ronald C., "An Analysis of Title I of the National

Environmental Policy Act of 1969," Environmental Law Report

1, pp. 50035-50052

Thompson, Politics, Policies and National Resources

Maass, "Benefit-Cost Analysis - Its Relevance to Public

Investment Decisions"

Kiefer, D. M., "Technology Assessment," Chemical and Engineering

XLVIII, October 1970, pp. 42-56

LaPorte, Todd, "The Content of Technology Assessment," Public

Administration Review, January/February 1971, pp. 63-73

Winner, Langdon, "On Criticizing Technology," paper presented

at American Political Science Association Convention, 1970

Suggested:

*Bauer, R. A. Second Order Consequences: A Methodological

Essay on The Impact of Technology, Cambridge, MIT Press, 1969

- National Academy of Engineering, A Study of Technology Assessment, Washington, Government Printing Office, 1969
- National Academy of Public Administration, A Technology Assessment System for the Executive Branch, Washington, Government Printing Office, 1970
- National Academy of Sciences, Technology: Processes of Assessment and Choice, Washington, Government Printing Office, 1969
- Green, Harold P., "The Role of Government in Environmental Conflict," Law and the Environment, Edited by Malcolm F. Baldwin and James K. Page, Jr., New York, Walker and Company, 1970, pp. 235-247
- Coase, R. H., "The Problem of Social Cost," Journal of Law and Economics III, October 1960, pp. 1-44
- Commoner, Barry, "Evaluating the Biosphere," Man's Impact on Environment, Edited by Thomas R. Detwyler, New York, McGraw-Hill Book Company, 1971, pp. 50-60
- Katz, M., "The Function of Tort Liability in Technology Assessment," Cincinnati Law Review XXXVII, Fall 1969, pp. 587-662
- Mayo, L. H., "The Relationship of Technology Assessment and Environmental Management," Program of Policy Studies in Science and Technology, Washington, George Washington University, 1969
- "Technology and the Law: Technology Assessment by Private Tort Action," Scientific American, February 1971, pp. 45-46
- Session 10: Politics of Federal 102 Statements: Analysis of Federal Environment Impact Statements, The Role of Courts in Administering Section 102, A Case Study of Nuclear Power Plants, Political Consequences of Assessment Procedure
- Required:
- Hanks and Hanks, "An Environmental Bill of Rights: The Citizen Suit and the National Environmental Policy Act of 1969," Rutgers Law Review, 1970, pp. 230-272
- "Calvert Cliffs Ruling," National Journal III (No. 38), 1925

- Barfield, "Nuclear Establishment Wins Commitment to Speed Development of Breeder Reactor," National Journal III July 17, 1971, pp. 1494-1503
- Barfield, "Breeder Program Likely Despite Money, Safety Fears," National Journal III, July 31, 1971, pp. 1602-1610
- "The Regulations of Nuclear Power After National Environmental Policy Act of 1969," Rutgers Law Review XXIV, Summer 1970, pp. 753-769
- Clark, Timothy B., "Legislation on Power Plant Siting Seeks to Speed Resolutions of Environmental Disputes," National Journal III, August 28, 1971, pp. 1785-1795
- Lewis, Richard S., "The Radioactive Salt Mine," Bulletin of the Atomic Scientists XXVII, June 1971, pp. 27-34
- Calvert Cliff Cliffs Impact Statement or LMFBR Impact Statement

Suggested:

- *Gofman, John W. and Arthur R. Tamplin, Poisoned Power, Emmaus, Pa., Rodale Press, Inc., 1971
- *Bryerton, Gene, Nuclear Dilemma, New York, Ballantine Books, 1970
- "Nuclear Reactor Safety: A New Dilemma for the AEC," Science CLXXIII, July 9, 1971, pp. 126-130
- "Nuclear Reactor Safety: A Skeleton at the Feast"? Science, May 28, 1971, pp. 918-919
- Gillette, Robert, "AEC's New Environmental Rules for Nuclear Plants May Open New Debate, Extend Delays, Raise Plant Costs," Science CLXXIII, September 17, 1971, pp. 1112-1113
- Gillette, Robert, "Energy: President Asks \$3 Billion for Breeder Reactor Fuel Studies," Science, CLXXII, June 11, 1971, pp. 1114-1116
- Yarosh, M. M. "The Crisis in Power Plant Siting," Mechanical Engineering, XCII, June 1971, pp. 10-13
- "Another SST"? Environment XIII, July/August 1971, pp. 18-19
- White, Irvin, L. "Energy Policy-making: Limitations of a

Conceptual Model," Bulletin of the Atomic Scientists
XXVII, October 1971, pp. 20-26

Netscheet, Bruce C., "The Energy Company: A Monopoly Trend
in the Energy Market," Bulletin of the Atomic Scientists
XXVII, October 1971, pp. 13-17

"Court Decision Jolts AEC," Science CLXXIII, August 27, 1971,
p. 799

Creutz, E., "Nuclear Power: Rise of an Industry," Bulletin
of the Atomic Scientists, June 1970, pp. 75-82

Baldwin, Malcolm and James K. Page, Jr., Law and the Environ-
ment, New York, Walker and Company, 1970

"The Energy Crisis" (Three Parts), Bulletin of the Atomic
Scientists, September, October, November 1971

"Energy Technology to the Year 2000" (Two Parts) Technology
Review, October, November, December 1971

Session 11: Politics and Policies of Ocean Resource Development:

The Role of the United Nations, Approaches Toward Development of
Ocean Resources, Review of International Agreements, International
Law, National Uses vs. World Uses, Political Consequences

Required:

Friedman, The Future of the Ocean (all)

Cooley and Wandesforde-Smith, Congress and the Environment
Kelly "International Control of the Floor"

Gullion, Edmund A. Uses of the Seas, Englewood Cliffs, Prentice-
Hall, Inc., 1968

Skolnikoff, "National and International Organization for
the Seas," pp. 98-112

Shulman, "The Soviet Turn to the Sea," pp. 138-162

MacDonald, "An American Strategy for the Oceans," pp.
163-194

Padelford, Norman J., "Alternatives for Ocean Policy,"
Technology Review, LXXI, July/August 1969, pp. 31-37

Suggested:

Padelford, Norman J., Public Policy and the Use of the Sea,
Cambridge, MIT Press, 1968

- Padelford, Norman J. and Jerry E. Cook, New Dimensions of U. S. Marine Policy, Cambridge, MIT Press, 1971
 "The International Seabed Area"
- President's Science Advisory Committee, Effective Use of the Sea, Washington, Government Printing Office, 1966
- Borgstrom, Georg, "The Harvest of the Seas: How Fruitful and For Whom"? The Environmental Crisis, Edited by Harold W. Helfrich, Jr., New Haven, Yale University Press, 1970, pp. 65-84
- Nace, R. L., "Water Resources: A Global Problem with Local Roots," Environmental Science and Technology, 1967, pp. 550-560
- Brooks, David B., "Ocean Mining: Political Opportunities and Economic Consequences," Technology Review, LXXI, July/August 1969, pp. 23-29
- Christy, Francis T., Jr., "Economic Criteria for Rules Governing Exploitation of Deep Sea Minerals," The International Lawyer, January 1968, pp. 224-242
- Commission to Study the Organization of Peace, The United Nations and the Bed of the Sea, 19th Report, March 1969
- Cheever, Daniel S., "Marine Science and Ocean Politics," Bulletin of the Atomic Scientists XXVI, February 1970, pp. 22+
- Ray, Edward and Cohen, Robert M. "'Tektite': A Blueprint for Cooperative Undersea Scientific Programs," Bulletin of the Atomic Scientists XXVI, February 1970, pp. 35-40
- Haight, "Developments in the United Nations Relating to Sea Bed and Ocean Floor," Natural Resources Law II, 1969, pp. 119-131
- "Resources of the Sea: A Symposium," Natural Resources Journal XII, 1968, pp. 373-505
- III: Guest Speakers
 Sessions 12, 13, 14 and 15

Four sessions during the semester will be devoted to outside guest speakers. The purpose of these sessions is twofold: (1) to have discussions with representatives of the Southern California community and (2) to provide an opportunity for the students to apply the information acquired in class to local problems. Each speaker will be chosen on the basis of his expertise in some facet of the marine and coastal policy processes. At this time, it is hoped that there will be representatives from the legislature, private enterprise, public interest groups and public organizations.

Session 16.

Final Examination

University of Delaware
College of Marine Studies

CMS 670 - Concepts of Marine Affairs

Spring 1973

An interdisciplinary graduate seminar required for all candidates for degrees in the College of Marine Studies whose major interest is physical oceanography, marine biology, marine geology, chemical oceanography, or ocean engineering. The seminar will consist of lectures, readings, student research and presentation of topics, and will also require one term paper. The seminar will be taught by an historian, two economists, a lawyer, and a political scientist.

Part One - Dr. James M. Merrill

MARITIME HISTORY

- I. American Maritime History
- II. Social Science Research Techniques and Materials
- III. Reports: Washington Naval Conference; London Naval Conference; Alfred Thayer Mahan; Matthew Maury; Clipper Ships; Whaling; Naval Ordinance
- IV. Reports: Maritime Labor Unions; Wilkes Expedition; North Pacific and Arctic Exploration; Technology and Naval Strategy; Cartography; Packet Lines; Naval Aviation; Nuclear Submarines; Port of New York and San Francisco

Readings: (choice of the following)

- Albion, R. G. Rise of the Port of New York
 Albion, R. G. Square Riggers on Schedule
 Baxter, James P. Introduction of the Ironclad Warship
 Brodie, B. Sea Power in the Machine Age
 Chapelle, H. The History of American Sailing Ships
 Cutler, Queens of the Western Ocean
 Cutler, Greyhounds of the Sea: The American Clipper Ship
 Dana, Two Years Before the Mast
 Dugan, James, The Great Iron Ship

- Johnson, R. Thence Round Cape Horn
- Langley, H. Social Reform in the U.S. Navy
- Mahan, A. T. The Influence of Sea Power on History
- Morison, S. Maritime History of Massachusetts
- Morison, S. John Paul Jones
- Morison, S. "Old Bruin" (biography of Matthew C. Perry)
- Morris, Richard. John P. Holland, Inventor of the Modern Submarine
- O'Connor, R.G. Perilous Equilibrium: The United States and the London Naval Conference
- Sloan, E.D. Benjamin F. Isherwood, Naval Engineer
- Sprout, H. Rise of American Naval Power
- Swann, L. John Roach, Maritime Entrepreneur
- Tyler, D.B. The American Clyde: A History of Iron and Steel Shipbuilding on the Delaware
- Tyler, D.B. Steam Conquers the Atlantic
- Weintraub, H. Andres Furusest, Imancipator of Seamen
- Wheeler, G. Prelude to Pearl Harbor: the U.S. Navy and the Far East, 1921-1931
- Wohlstetter, R. Pearl Harbor

Part Two - Dr. Lawrence P. Donnelley and Dr. Richard J. Agnello
ECONOMICS AND MARINE AFFAIRS

- I. Principles of Economic Analysis
 - a. market systems
 - b. non-market situations
 1. externalities
 2. collective goods
 - c. theory of common property resources
 1. the fisheries
 2. environmental policy

- II. Tools of Economic Analysis for Resource Allocation
 - a. cost-benefit framework
 1. comparison of cost benefit time streams
 2. discount rate
 3. criteria and choice

- b. econometric analysis
 - 1. estimation
 - 2. prediction

III. Student Reports

IV. Student Reports

Readings:

- 1. Principles of Economic Analysis
 - a. Paul W. Barkley & David W. Seckler, Economic Growth and Environmental Decay: The Solution Becomes the Problem (Harcourt Brace Jovanovich, Inc., 1972), 1-194
 - b. U. S. Deepwater Port Study, Summary & Conclusions, Vol. 1, pp. 1-74. A report submitted to U. S. Army Engineer Institute for Water Resources by Robert R. Nathan Associates, Inc.
 - c. H. Scott Gordon, "The Economic Theory of a Common Property Resource," J.P.E. (April, 1954) 124-42
 - d. F. W. Bell, "Estimation of the Economic Benefits to Fishermen, Vessels, and Society From Limited Entry to the In-shore U.S. Northern Lobster Fishery"
 - e. Garrett Power, "More About Oysters Than You Wanted to Know," Maryland Law Review, Vol. XXX, No. 3 (Summer 1970), 199-225
 - f. J. Dykstra & A. Halman, "Cost of Fishing & Foreign Competition, New England," The Future of the Fishing Industry of the U. S., College of Fisheries, University of Washington (1968), 105-107
- II. Tools of Economic Analysis
 - a. Alchain & W. Allen, Exchange & Production: Theory and Use, Wadsworth Publishing Co., 1969, pp. 261-276
 - b. R. deNeufville and J. H. Stafford, Systems Analysis for Engineers and Managers, McGraw Hill, 1971, pp. 159-187, 216-223, 285-293

- c. Christ, Econometric Models and Methods, John Wiley, 1966, Ch. 1

Part Three - Attorney Jerome S. Cohen

NATIONAL, STATE, AND LOCAL LAW FOR INLAND WATERS AND THE COASTAL ZONE

1. The Governments
 - a. The States (Police Powers)
 - b. The Federal Government (delegated powers, e.g. Commerce Clause)
 - c. State Subdivisions (Counties, Cities)
 - d. Interstate or Regional
 - e. Who really makes the decisions in each government?
 1. Legislative decisions
 2. Executive or administrative decisions
 3. Judicial decisions

Readings:

1. Articles of Confederation, 1777, Article II
2. Constitution of the United States
 - a. Article I, Sections 1, 8
 - b. Amendment V, the "due process" clause, the "just compensation" clause
3. Just v Marinette County, Wisconsin Supreme Court, October 31, 1972, 4 ERC 1841. (The State's "police power" versus the citizen's right to "just compensation.")
4. GAF Corporation v EPA, Illinois Pollution Control Board, April 19, 1971, 2 ERC 1458. (The State's difficulties even when the police power is undisputed: a "company's failure to get off its inanimate backside and fulfill its civic obligations.")
5. State of Delaware v Wildcat Landfill (Court of Chancery, Delaware, 1972)
 - a. Complaint
 - b. Letter-opinion of Vice-Chancellor Marvel, January 4, 1973

II. The Law

1. State Law
2. Main Current Federal Law
3. County and Local Law
4. Interstate or Regional Law

Readings:

1. Delaware Coastal Zone Act, House Bill No. 300
2. Delaware Beach Erosion Act, Senate Bill No. 732
3. Delaware Solid Waste Act, House Bill No. 925
4. Refuse Act of 1899, Section 13
5. "Federal Enforcement Under the Refuse Act of 1899,"
35 Albany Law Review 60
6. United States v Esso of Puerto Rico, 375 F. 2d 621
7. United States v Florida - Vanderbilt, 326 F Supp 289
8. Federal Water Pollution Control Act, as amended
October 18, 1972
 - a. Title II - Grants for Construction of Treatment Works
 - b. Title IV - Permits and Licenses
9. National Environmental Policy Act (NEPA), especially
Section 102
10. Anaconda v Ruckelshaus, 4 ERC 1817
11. Land Use Planning Bill of Senator Jackson (pending)
12. "Conversations with Britain's Environmental Chief,"
Saturday Review, January 1, 1972

III. The Disputes

1. State
2. Federal
3. County and Local
4. Regional

Readings:

1. Heller v Haynie Products Company - Complaint
2. Heller v Haynie Products Company - Temporary
Restraining Order

3. Maryland v Amerada-Hess, 4 ERC 1625
4. United States Army Corps of Engineers announcement of public meetings on Atlantic Coast Deep-water Port Facilities Study - Eastport, Maine to Hampton Roads, Virginia

Student Reports:

Each student will be asked of the first session to choose a topic or one of the readings for an individual report to be presented in one of the later sessions.

Part Four - Dr. Gerard J. Mangone

INTERNATIONAL LAW FOR THE OCEANS

Outline

- I. The nature of International Law
 - a. the nation-state system
 - b. the law making process
 - c. subjects of international law
 - d. jurisdiction and immunities
 - e. adjudication and enforcement
- II. The Law of the Sea
 - a. admiralty and maritime law
 - b. vessels and high seas
 - c. territorial waters and contiguous zones
 - d. submarine areas
 - e. international organizations and treaty law
 - f. rules of war at sea
- III. Special International Problems of the Oceans
 - a. boundaries and jurisdiction
 - b. conservation of fisheries
 - c. exploitation of submarine minerals
- IV. Special International Problems of the Oceans
 - d. merchant marine
 - e. strategic and tactical forces
 - f. pollution of the world's oceans

Readings:

- D. P. O'Connell, International Law, Vol. II, Chapter 20, "Maritime Jurisdiction," Dobbs Ferry, N.Y., 1965
- A. A. Volkov, Maritime Law (Morskoe pravo) Chapter 6, "International Legal Regime of the Seas," Moscow, 1969
- John R. Stevenson (Legal Adviser of the Department of State) Summary of Provisions of Draft "United Nations Convention on the International Seabed Area," Marine Technology Society, Law of the Sea Reports, Washington, D. C., 1972
- Gerard J. Mangone, The U. N., International Law, and The Bed of the Seas, College of Marine Studies, University of Delaware, reprinted from Ocean Series 303, Woodrow Wilson International Center for Scholars, Washington, D.C., 1972
- F. M. Auburn, "The Deep Seabed Hard Mineral Resources Bill," San Diego Law Review, Vol. 9, No. 3, May 1972

Documents (Policies):

- U.S. Statement on International Straits, UN Seabed Committee, Geneva, 28 July 1972
- U.S. Statement on International Fisheries, UN Seabed Committee, Geneva, 4 August 1972
- Canadian Working Paper, Principles on Marine Scientific Research, UN Doc. A/AC, 138/SCIII/L. 18, 25 July 1972

Documents (Treaties):

- Convention for the Conservation of Antarctic Seals, London, 3-11 February 1972
- Brazil - United States Agreement on Shrimp Conservation, Brasilia, 9 May 1972
- Treaty Prohibiting Employment of Weapons of Mass Destruction on the Sea Bed and Ocean Floor, United Nations, 7 December 1970

International Convention for International Fund
for Compensation for Oil Pollution Damage,
Brussels, 18 December 1971

Convention for the Prevention of Marine Pollution
by Dumping, London, December 1972

Documents (Adjudication):

International Court of Justice, North Sea Conti-
nental Shelf Cases, ICJ Reports 3, 1969

International Court of Justice, Fisheries Juris-
diction Case (United Kingdom v Iceland):

Order on Interim Measures of Protection, 17
August 1972 and

Order on Question of the Court's Jurisdiction,
18 August 1972

APPENDIX 4C

Coastal Zone Policy, Law, and Management
Outlines and Readings

Texas A & M UniversityCollege of Business AdministrationManagement 661: Marine Resources ManagementSpring 1973Professor C. A. Phillips

Text Brahtz, J.F.P., Coastal Zone Management;
Multiple Use with Conservation

<u>Week</u>	<u>Assignment</u>
1	<u>Introduction</u> Text, Chapter 1 (Brahtz) Commission on Marine Science, Engineering and Resources, <u>Panel Reports</u> , Vol. I, Part III, Report on Management and Development of the Coastal Zone, Chapters 1-4, (Cited hereafter as Stratton Commission Report)
2	<u>Perspective and Analytical Framework</u> Text, Chapter 2 (Nierenberg) Ducsik, D. W., ed., <u>Power, Pollution and Public Policy</u> , chapter 1 (cited hereafter as P,P, & P.P.) Text, Chapter 7 (Sternlight) Scan. This will be dis- cussed in detail later
3	<u>Biological Resources</u> Text, Chapter 3 (Schaefer) Christy, F. T., Jr., "Fisheries: Common Property, Open Access, and the Common Heritage," (Reprint from <u>Pacem in Maribus</u>). <u>Our Nation and the Sea</u> , Chapter 4, pp. 83-121
4	<u>Mineral Resources</u> Text, Chapter 6 (Hortig) <u>Our Nation and the Sea</u> , Chapter 4, pp. 121-157
5	<u>Recreation</u> Text, Chapter 4 (Clausen) P, P, & P. P., Chapter 3 (Ducasik & Seitz)

6

Transportation

Text, Chapter 5 (MacCutcheon)

Text, Chapter 11 (Cathers)

7

Systems Approach to Management

Text, Chapter 7 (Sternlight)

Text, Chapter 8 (Schneidewind)

Mid-Term Examination

8

Ocean Installations

Text, Chapter 9 (Hammer)

P, P, & P. P., Chapter 2 (Dicsic, Martens, and Neill)

9

Spring Vacation

10

Technology and Marine Resource DevelopmentSpangler, M. B., New Technology and Marine Resource Development, Introduction and Chapters 1 and 2

11

Role of Private EnterpriseSpangler, op. cit., chapter 3

12

Coastal Zone Management Legislation - State LevelBradley, E. H., Jr., and Armstrong, J. M., A Description and Analysis of Coastal Zone and Shoreland Management Programs in the U. S., Section I, Chapters 1-5

13

Selected State Management ProgramsBradley and Armstrong, op. cit., Section II, Chapters 1-10

14

Coastal Zone Management in TexasBradley and Armstrong, op. cit., Section III, Chapter 2, pp. 385-94. State of Texas, Division of Planning Coordination, Coastal Resources Management Program

- 15 National Legislation
National Coastal Zone Management Act of 1972 Land
Use Bills

- 16 Summary and Review

- 17 Exams

State University of New York at Stony Brook
Marine Sciences Research Center

MAR 521:

General Problems of the Marine Environment

Professor Iver W. Duedall

Course Description:

"As you can see from the course outline, the first part of the course deals with chemical and marine ecology. This is an attempt to give the student a very broad background of what the marine environment is. (Note that physical aspects are omitted; this is because a course concurrent with mine covered physical oceanography).

The second part of the course deals with coastal zone management. The subject of coastal zone management turned out to be the most interesting and perhaps the most important, as far as marine affairs is concerned. Basically I used a series of reports published by the Center for the Environment and Man (275 Windsor Street, Hartford, Connecticut, 06120). This consulting firm was contracted by the Regional Marine Resources Council (a committee of the Nassau-Suffolk (counties) Regional Planning Board) to do a 'systems analysis' approach to the total marine environment of Long Island. The reports made excellent material for my course. As you know, the Long Island area must serve the needs of millions of people. The L. I. Coastal zone is a very important aspect of the human ecology of this area, and therefore we must know all the interactions that exist between Long Islanders and their marine environment. A 'systems' approach very nicely illustrates the total interaction matrices. Of course there is lots of guesswork in such an analysis, but this serves to stimulate class discussion. A big consideration in such an approach is the assignment of human value and judgments to a particular problem; different needs and values: how do these interact? Future needs and options are easily displayed in a systems approach. I also attempted to contrast the systems approach with the more classic ideas (in my opinion) as described in the recent monograph published by the National Academy of Sciences, Wastes Management Concepts for Coastal Zone. Here the important

stress is on baselines and monitoring. These are needed in the management of the coastal zone, but they don't provide much insight in where we are going (with respect to the overall problem)."

Course Outline - General Problems of the Marine Environment

The Composition of Seawater (1½ weeks)

- Evolution and history of seawater
- Equilibrium and steady-state ocean
- Major element control
- Hydrologic and biochemical controls

Chemical Ecology (2½ weeks)

- Eutrophication
- Primary production
- Food chain and food web concepts
- Coastal production

Marine Pollution (3 weeks)

- Run-off, pesticides
- Solid wastes dumping
- Oil pollution
- Thermal pollution
- etc.

Uses of the Marine Environment (4-5 weeks)

- Coastal zone management
- Wastes management
- Recreation management
- Multiple use management
- Future needs
- Management models
- Science management in a changing environment

Marine Monitoring (1 week)

- Selection of parameters
- Definition of problems

Special Topics (1 week)

- Student seminars (presentation of selected term projects)

University of Rhode IslandMaster of Marine Affairs ProgramCoastal Zone LawFrancis X. Cameron

Text: Ketchum, ed. - The Water's Edge: Critical Problems of the Coastal Zone (MIT Press)

Reference: Armstrong, A Description and Analysis of Coastal Zone and Shoreland Management Programs of the U.S. (Univ. of Michigan Seagrant)
 Laird: Documents Related to the Management of the Coastal Zone: An Annotated Bibliography (Virginia Institute of Marine Science)

I. Introduction

Ketchum, pp. 1-87; pp. 305-346

Wilkes, Considerations of anticipatory uses in decisions on Coastal Development (from San Diego Law Review, Vol. 6, No. 3, July 1969, p. 354)

Pollack, Address to the Second Annual Coastal Zone Management Workshop

DeVall, Developing a Land Use Ethic

Grant, Approaches to State Coastal Zone Management

Wenk, Chapter on the Coastal Zone from the Politics of the Oceans

II. State Federal Boundaries and Federal Jurisdiction

A. Jurisdictional conflicts over offshore resources

Tidelands Cases

Submerged Lands Act

Outer Continental Shelf Lands Act

Browning, Some Aspects of Federal - State jurisdiction in the Marine Environment pp. 1-36

Krueger, The Development and Administration of the Outer Continental Shelf Lands of the U.S.

Krueger, The Development of the Coastal Zone and Beyond
U.S. vs. Maine, et al., complaint and brief filed by the U.S. against Maine and the other Atlantic States to determine offshore shelf boundaries; and the briefs filed by the Atlantic States in response.

McNichols, Legal problems regarding the extraction of minerals from the continental shelf

U.S. vs. Ray 423 F.2nd 16 (1970)

B. Major Elements of Federal Jurisdiction

Zabel vs. Tabb, 430 F. 199 (1970) and attached notes
 National Environmental Policy Act of 1969: A mandate to
 the Corps of Engineers to consider Ecological Factors
 (from Boston University Law Review 50: 616, 1970)
 Federal Power as a limit upon State Control of Marine
 Resources (chapter 15 of Volume 4, Maine Law affecting
 Marine Resources, pp. 843-871)
 The assault against Nature: Ecology and the Army Corps of
 Engineers (from California Western L. R. 8:488)

III. Ownership of the Tidelands

A. Delineation of Boundaries

Theurer, Mapping the Coastal Margin

Beazley, What the Mean High Water Line Means

Shalowitz, Sea and Shore Boundaries, Vol. 1, Part 1, Chapter
 Six and Appendix E

Garretson, Delimitation of Property Boundaries

Fluctuating Shorelines and Tidal Boundaries: An unresolved
 problem (from San Diego Law Review, Vol. 6, No. 3,
 July 1969, p. 447)

B. The Public Trust Doctrine - Alienation of Tidelands

Public Trust in Tidal Areas: A submerged doctrine (from 79
 Yale L. J. 762, 1970, pp. 772-789)

Sax, The Trust Doctrine in Natural Resources Law, (from 68
 Michigan 471, 1970)

Illinois Central RR. vs. Illinois, 135 Sup. 110 (1892)

Boone vs. Kingsbrury 273 Pac 797 (1929)

IV. State Jurisdiction

A. Fishing

Domestic Fisheries Regulation

Aquaculture: A New England Perspective, (Gaucher, ed.)

B. Navigation - Pollution

Environmental Law: Maritime Uniformity versus compelling
 State Interest in controlling oil pollution of navigable
 waters (from Univ. of Florida Law Review 24: 789)

Askew vs. American Water Way Operators Inc.

V. Rights of Littoral Owners - Public Beach Problem

Kane, Conflicting claims involving riparian landowners
Ratliff, Legal Aspects of Real Estate Development of the
 Coastal Margin

Leavell, Legal Doctrines concerning Ownerships and use in
 special areas

Public Access to Beaches (from Stanford Law Review, Vol. 22,
 p. 564)

VI. Land Use Controls

Halperin, Strategies and Institutions for Coastal Zone
 Management

Griffin, Legal Bases of State Coastal Zone Regulation
 Rhode Island's Barrier Beaches, Vol. 1, Chapter V, Tools
 At Hand: Controlling Use of the Land Resource

A. Zoning

1. Wetlands

Gannon, Constitutional Implication of Wetlands
 Legislation

Friedman, Changing Concepts of Property

State vs. Johnson, 265A 2nd 711 (1970)

Candlestick Properties vs. San Francisco Bay
 Conservation and Development Commission,
 89 Ca. Rpts. 897 (1970)

2. State vs. Local Control

Coastal Zone Land Use Development (from Vol. 49
 North Carolina Law Review, p. 866)

Key Issues in State Land Use Regulation (from Quiet
 Revolution in Land Use pp. 314-327)

Golden vs. Board of Selectmen of Falmouth, 265 N E
 2nd 573 (1970)

B. Eminent Domain

C. Taxation

D. Power Plant Siting

Meredith, Nuclear Power Plant Siting

Tarlock, Environmental Regulation of Power Plant Siting

(from So. Calif. L.R. 45:502)

VII. Environmental Protection

America's Changing Environment - Is NEPA a change for the better?

(from Fordham L. R. 40:898)

Cleaning Muddy Waters: The Evolving Federalization of Water

Pollution Control (from Georgetown Law Journal 60:742)

Ketchum, "Pollution Section"

Hershman, Coastal Zone Law (on dynamic water quality standards)

VIII. Management - Speakers from the Coastal Resources Management Council,

Coastal Resources Center, Statewide Planning

Ketchum, pp. 187-305, pp. 346-365

Lynch, Coastal Zone Inventory

Power, Development of a Plan for Coastal Zone Management

Rhode Island's Barrier, Beaches

University of Mississippi

School of Law

Law of the Coastal Zone

Professor Stephan Gorove

Major Topics

1. The Law of Littoral Titles
2. Agencies
3. Coastal Zone Authorities
4. Jurisdictional Conflicts
5. Boundaries
6. Pollution and Environmental Control
7. Regulations of Living Resources
8. Insurance Problems

Louisiana State UniversityCoastal Resources LawSea Grant Legal ProgramSeminar in Coastal Zone Management - Law 167Spring 1973Research Director Marc J. Hershman

The seminar will be balanced between senior law students and graduate students in various departments of the university. Graduate students from such fields as economics, geography, marine sciences, environmental design, wildlife management, engineering, etc., whose graduate research work concerns Coastal Zone Management issues, are welcome. Law students will be selected from among those interested who have demonstrated a concern for issues in Coastal Zone Management and have a desire to contribute meaningfully to the seminar. Previous law courses in environmental law and marine resources law will be helpful.

Coastal Zone Management focuses the efforts of many disciplines on environmental and resource allocation issues of the coastal region. The subject is extremely topical. Policies are being formulated by government daily. Coastal issues of major significance are being litigated ever more frequently. Congress has recently passed a Coastal Zone Management Act. Public awareness of coastal zone issues grows daily.

Coastal Zone Management considers these areas:

- Property law problems unique to the coastal region
- Environmental law
- Allocating living and non-living resources
- Controlling land and water uses
- Topical issues such as superports, coastal erosion, Atchafalaya Basin, estuaries and beaches, etc.

In an effort to build a truly meaningful and well balanced seminar group, care will be exercised in the selection of participants.

University of FloridaLW 643 - Natural ResourcesSpring 1973Professor Frank Maloney

1. Protection of the Environment
 - A. Common-Law Doctrines and Defenses
 - B. The Public Trust Concept
 - C. The National Environmental Policy Act
 - D. Pollution Control
 1. Federal Water Pollution Control Act, and the 1972 Amendments
 2. State acts - a comparison of Florida and Tennessee
 3. Oil and Hazardous Materials
 4. Herbicides, Pesticides

2. Resources: Protection and Use
 - A. Public Lands and Rivers
 - B. Fish and Wildlife
 - C. Waters and Water Lands
 - D. Coastal Protection
 - E. Wetlands Protection
 1. Federal Coastal Zone Management Act of 1972
 2. Wetlands Preservation in Florida and Other States

Text: Gray, Environmental Law (1970) plus mimeo materials

Examination: The entire grade will be based on the examination. If the class is small, other arrangements may be made if a majority of class members approve. For those using the pass-fail system, a grade of D or below will be considered a failure.

Attendance: Daily attendance is expected. The final examination will place considerable emphasis upon classroom material.

University of Southern California
School of Public Administration

Public Administration 576:

Problems and Issues in the Coastal Zone

Mr. Moss

This course will be concerned with exploring the pressures for coastal resources and the way in which public policies can be designed to respond to those pressures. The growth of populations in proximity to the coast is producing severe pressures for recreational, residential, industrial, and commercial facilities on or near the shore.

Public agencies and private firms seek to expand such activities while conservationists attempt to prevent or minimize further intervention in the coastal ecosystem. This course will examine a series of issues pertaining to the governance of the coast, and the way in which public agencies can increase their capacity to make informed and rational decision in the allocation of coastal resources.

Requirements:

All members of the class will be responsible for all assigned readings, and those items will provide the basis for each week's session.

Three short review essays and a research paper will be written during the semester. All written work should be submitted in duplicate, so that one copy can be returned with comments.

Suggested Texts:

Report of the Commission on Marine Science, Engineering, and Resources, Our Nation and the Sea: A Plan for National Action, Washington, D. C. Government Printing Office, 1966

Boswitch Ketchum, editor, Critical Problems of the Coastal Zone, Cambridge, MIT Press, 1972

Marx, Wesley, The Frail Ocean, Ballantine Books, New York, 1967

Course Outline and Readings:

1. The Human Relationship to the Coastal Zone
 - 1.1 Marx, Wesley, The Frail Ocean
 - 1.2 National Estuary Study, Vol. 5, Appendix F., "Technological Impacts on Estuary Resource Use."
 - 1.3 Davis, Kingsley, "The Urbanization of the Human Population," Cities, A Scientific American Book, 1965, p. 3-24
2. How does the market allocate and mis-allocate resources?
 - 2.1 Externalities
 - 2.1.1 Turvey, Ralph, "Side Effects of Resource Use," Environmental Quality in a Growing Economy, H. Jarrett, Editor, RFF, 1966
 - 2.1.2 Krutilla, John V., "Some Environmental Effects of Economic Development," Daedalus, Fall, 1967, pp. 1058-1070
 - 2.2 Common Property Resources
 - 2.2.1 Hardin, Garrett, "The Tragedy of the Commons," Science, 162, December 13, 1968, pp. 124-148
 - 2.2.2 Dales, J. H., Pollution, Property, and Prices, University of Toronto Press, 1968, Chapter V, pp. 58-76
 - 2.3 Provision of Public Goods
 - 2.3.1 Krutilla, John V. and Knetsch, Jack L., "Outdoor Recreation Economics," Annals of the American Academy of Political and Social Science, May, 1972, Vol. 389, pp. 63-70
 - 2.3.2 Robinson, Warren G., "The Simple Economics of Public Outdoor Recreation," Land Economics, Vol. XLIII, No.1, Feb. 1967, pp. 71-83
3. Organizational Arrangements for Governing Coastal Resources
 - 3.1 Warren, Robert, et. al., "Allocating Coastal Resources: Rationing and Trade-off Processes," Critical Problems of the Coastal Zone, chapter 7
 - 3.2 Grodzins, Morton, "The Many American Governments of Outdoor Recreation," Trends in American Living and Outdoor Recreation: A Report to the Outdoor Recreation Resources Review Committee, pp. 62-68

- 3.3 Crain, Lyle, "Institutions for Managing Lakes and Bays," Natural Resources Journal, XI, July 1971, pp. 519-545
- 3.4 Rosenthal, Albert J., "The Federal Power to Protect the Environment: Available Devices to Compel or Induce Conduct," Southern California Law Review, Vol. 45, No. 2, Spring, 1972, pp. 397-449
- 3.5 California State Bar Association Journal, Fall 1972, Special Issue: "Wetlands Management"
4. Modes of Public Intervention: Regulatory Commissions, Planning, Zoning, and Regulation
- 4.1 Schoop, Jack and Hirsten, John E., "The San Francisco Bay Plan: Combining Policy with Police Power," Journal of the American Institute of Planners, Vol. XXXVII, No. 1, pp. 2-10
- 4.2 Armstrong, John, et. al., "Coastal Zone Planning and Management," Critical Problems of the Coastal Zone, Chapter 9
- 4.3 Our Nation and the Sea, Chapter 3, pp. 49-79
- 4.4 Caldwell, Lynton K., "Authority and Responsibility for Environmental Administration," Annals of the American Academy of Political and Social Science, Vol. 389, May 1970, pp. 107-116
- 4.5 Gilbert, Jerome B. and Robie, Ronald B., "Control of Estuarine Pollution," Natural Resources Journal, April, 1971, pp. 256-273
- 4.6 Jackson, Reiner, "Zoning to Regulate On-water Recreation," Land Economics, XLVII, pp. 382-388
- 4.7 Ogle, Robert A., "Institutional Factors to Encourage Interagency Cooperation in the Management of Natural Resources," Public Administration Review, Vol. XXXII, No. 1, Jan.-Feb. 1972, pp. 17-23
5. Economic Techniques for Resource Management
- 5.1 Ruff, Larry E., "The Economic Common Sense of Pollution," The Public Interest, No. 19, Spring, 1970, pp. 69-85

- 5.2 Freeman, Myrick A. and Havemann, Robert H., "Clean Rhetoric and Dirty Water," The Public Interest, No. 28, Summer, 1972
- 5.3 Kneese, Allen V., "Strategies for Environmental Management," Public Policy, Vol. XIX, No. 1, Winter 1971, pp. 37-52
- 5.4 Baumol, William J., "Environmental Protection at Minimum Cost," The American Journal of Economics and Sociology, Vol. 30, No. 4, October 1971, pp. 337-343
- 5.5 Gordon, Scott, "Economics and the Conservation Question," Journal of Law and Economics, Vol. 1, October 1958, pp. 110-121
- 5.6 Goldin, Kenneth D., "Recreation Parks and Beaches: Peak Demand Quality and Management," Journal of Leisure Research, Spring 1971, pp. 81-107
- 5.7 Clawson, Marion and Knetsch, Jack L., Economics of Outdoor Recreation, RFF, 1966, Chapter 14, "Pricing and paying for public outdoor recreation facilities."
6. Legal Strategies for Environmental Protection
- 6.1 Sax, Joseph L., "Emerging Legal Strategies: Judicial Intervention," The Annals of the American Academy of Political and Social Science, Vol. 389, May 1970, pp. 71-76
- 6.2 McKeon, Steve A., "Public Access to Beaches," Stanford Law Review, Vol. 22, Feb. 1970, pp. 565-576
- 6.3 Finley, Susan P. and Vantel, David J., "Californians Need Beaches - Maybe Yours," San Diego Law Review, 7, 1970, pp. 605-626
- 6.4 Large, Donald W., "Is Anybody Listening? The Problem of Access in Environmental Litigation," Wisconsin Law Review, Vol. 1972, No. 1, pp. 62-113
- 6.5 "Water Pollution: Role of the Courts," Washington University Law Review, Vol. 1972, No. 2, Spring 1972, pp. 291-312.
- 6.6 Sax, Joseph L. and Conner, Roger L., "Michigan's Environmental Protection Act of 1970: A Progress Report", Michigan Law Review, Vol. 70, No. 6, May 1972, pp. 1003-1116

7. Whose Values Should Prevail?

- 7.1 deSilva, Donald P., "Recreation for the Future in the Coastal Environment," University of Miami, Rosenstiel School of Marine and Atmospheric Science, October 1971
- 7.2 Meier, Richard L., "Insights into Pollution," Journal of the American Institute of Planners, Vol. XXXVII, No. 4, July 1971, pp. 211-217
- 7.3 Wildavsky, Aaron, "Aesthetic Power or the Triumph of the Sensitive Minority Over the Vulgar Mass: A Political Analysis of the New Economics," Daedalus Fall 1967, pp. 1115-1128
- 7.4 Hare, Nathan, "Black Ecology," The Black Scholar, April 1970, pp. 2-8
- 7.5 Krieger, Martin, "Six Propositions About the Poor and Pollution," Policy Sciences, Vol. 1, No. 3, Fall 1970, pp. 311-324
- 7.6 Moss, Mitchell L., The Urban Coastal Zone: A Case Study of Marina del Rey, Center for Urban Affairs, University of Southern California, 1972
- 7.7 "A National Seashore Proves a Mixed Blessing for Its Surrounding County," City, Jan.-Feb. 1972, Vol. 6, No. 1, pp. 37-43

8. New Methods of Resource Management

- 8.1 Meier, Richard L., "Resource-Conserving Urbanism: Progress and Potentials," Proceedings of the International Future Research Conference, Kyoto, April 1970, pp. 385-407
- 8.2 Stone, Christopher D., "Should Trees Have Standing? - Toward Legal Rights for Natural Objects," Southern California Law Review, Vol. 45, No. 2, 1972
- 8.3 Barfield, Claude E. and Corrigan, Richard, "Environmental Report/White House seeks to restrict scope of environment law," National Journal, 2/26/72
- 8.4 Sorensen, Jens C., "A Framework for Identification and Control of Resource Degradation and Conflict in the Multiple Use of the Coastal Zone," College of Environmental Design, University of California, Berkeley, June 1971

- 8.5 Boulding, Kenneth, "The Economics of the Coming Space-ship Earth," Environmental Quality in a Growing Economy, RFF, 1966
9. Expanding the Carrying Capacity of the Coastal Zone
- 9.1 Lapp, Ralph E., "One Answer to the Atomic Energy Puzzle - Put the Atomic Power Plants in the Ocean," The New York Times Magazine, June 4, 1972
- 9.2 Lear, John, "Cities on the Sea," Saturday Review, Dec. 4, 1971
- 9.3 Leier, Richard L., The Settlement of the Seas: The Prospective Demand for Aquatic Surfaces, January 1964
- 9.4 Nettleton, Arthur, "Cities on the Sea," Oceans, March-April, 1972, Vol. 5, No. 2, pp. 71-75
- 9.5 "Building A City in the Ocean," The Futurist, June 1969, pp. 66-69
- 9.6 Sadao, Shoji, "Buckminster Fuller's Floating City," The Futurist, February 1969, pp. 14-16

APPENDIX 4D

Marine Resource Economics
Outlines and Readings

University of HawaiiEcon. 694 -Spring 1973Economics of Marine ResourcesProfessor S. Comitini

Reading List

I. Introduction

- A. FAO/UN, Basic Study No. 19, Fisheries in the Food Economy
F. T. Christy and A. Scott, The Common Wealth in Ocean Fisheries, 3, 4
- A. D. Scott, "Food and the World Fisheries Situation,"
M. Clawson, ed., Natural Resources and International Development
- B. S. Comitini, "Exploiting Marine Resources," Frank E. Firth, ed., The Encyclopedia of Marine Resources (Sinclair ref. rm.)
- C. C. J. Bottemanne, Principles of Fisheries Development, 1, 2

II. Economics of Fisheries Management

- A. G. M. Gerhardson, "Production Economics," Revista de Economia, Lisbon, 1952
Christy-Scott, 2, 5, 12
- J. A. Crutchfield and G. Pontecorvo, The Pacific Salmon Fisheries, 2
- B. Norman Wilimovsky, "Elements of Fishery Resource Management,"
C. L. Bretschneider, ed., Topics in Ocean Engineering, Vol. 2
FAO/UN, The Economics of Fisheries - papers by R. Turvey, A. Scott
FAO/UN, Economic Effects of Fishery Regulation - papers by
A. Scott, L. Dickie
- C. V. Smith, "Economics of Production from Natural Resources,"
Amer. Econ. Rev., Vol. 58 (June 1968), 409-31
- V. Smith, "On Models of Commercial Fishing," Jour. Pol. Econ., Vol. 77, No. 6, Jan/Feb 1969

- R. Turvey, "Optimization in Fishery Regulation," Amer. Econ. Rev., Vol. 54, Mar. 1964, 64-76

III. Case Studies on Fishery Economics

- A. J. A. Crutchfield and A. Zellner, Economic Aspects of the Pacific Halibut Fishery, 1-5, 8-10 (6-7 may be skipped)
- B. S. Comitini and D. Huang, "Production and Factor Shares in the Halibut Fishing Industry," Jour. Pol. Econ., Vol. 75, No. 4, August 1967
- F. W. Bell, "Technological Externalities and Common-Property Resources," Jour. Pol. Econ., Vol. 80, No. 1, Jan/Feb 1972
- F. W. Bell, The Measurement and Analysis of Labor Productivity Changes in U. S. Fisheries (draft manuscript)
- C. F. W. Bell and J. E. Hazleton, Recent Developments and Research in Fisheries Economics - papers by Bell and Holmsen Crutchfield - Pontecorvo, The Pacific Salmon Fisheries

IV. Policy Proposals for a Rational Management Regime

- A. Christy-Scott, 12, 13
- G. Pontecorvo, "Optimization and Taxation in an Open-Access Resource: The Fishery," M. Gaffney, ed., Extractive Resources and Taxation
- J. A. Crutchfield, "Economic Aspects of International Fishing Conventions," A. D. Scott, ed., Economics of Fisheries Management: A Symposium
- B. J. A. Crutchfield, "Management of the North Pacific Fisheries: Economic Objectives and Issues," Wash. Law Rev., Vol. 43, No. 1, Oct. 1967
- A. Tussing et al., Alaska-Japan Economic Relations, pp. 29-50, 168-69
- S. Comitini, "Economic, Institutional, Legal Aspects of Marine Resource Development," C. L. Bretschneider, ed., Topics in Ocean Engineering, Vol. 2

- C. F. T. Christy, "New Dimensions for Transnational Marine Resources," Amer. Econ. Rev., Vol. LV, No. 2, May 1970
- J. A. Crutchfield, "Marine Fisheries: A Problem in International Cooperation," Amer. Econ. Rev., Vol. 54, May 1964
- A. Zellner, "Management of Marine Resources: Some Key Problems Requiring Additional Analysis," A. D. Scott, Ed., Econ. Fish. Mgt.

V. Fisheries Planning and Development

- A. International Conference on Investment in Fisheries - selected papers
- Indian Ocean Fisheries Development Programme - selected reports
- B. Report of the International Conference on Investment in Fisheries, FAO Fish. Rep., No. 83, Vol. 1, Rome, 1970
- Manpower Planning in Fisheries Development Programs, FAO Fisheries Technical Paper No. 65, Rome, 1967
- Joint Fishery Ventures in the Indian Ocean Area, FAO Fisheries Technical Paper No. 111, Rome, 1972
- C. C. J. Bottemanne, 5
- M. Roemer, Fishing for Growth

VI. Case Studies on Fisheries Development

- A. S. Comitini, "Marine Resources Exploitation and Management in the Economic Development of Japan," Econ. Devel. Cul. Change, Vol. XIV, No. 4, July 1966
- S. Comitini, "An Economic Report of World Trends in Fisheries Development with Broad Implications for the Indo-Pacific Region," IPFC Occas. Papers, 71/1
- B. S. Comitini and D. Huang, "Licensing and Efficiency: An Empirical Study of the Japanese Tuna Fishing Industry," Malayan Econ. Rev., Vol. XVI, No. 1, April 1971
- S. Comitini, "Regional Cooperation in Fishery Sectors," SEADAG Papers, 1970

- C. Pacific Islands Development Commission, An American Fisheries Opportunity in the Central and Western Pacific, April 1971
An Industry Plan for Development of Tuna Resources of the Central, South and Western Pacific (manuscript proposal)

University of Florida
Food and Resource Economics Department

FRE-630Natural Resource Economics

Dr. K. C. Gibbs

This course has as its objective to introduce students with a good background in economics, to the theoretical and empirical problems in natural resource economics. Failure of the market system and conflicts in use of natural resources play a dominant role in the course. The prerequisites are FRE-460 and ES-401, or consent of instructor.

- (2 hours) 1. Introduction
- A. Identification and Delineation of Natural Resource Economics
 - B. The Role of Economics and Other Disciplines in the Social Decision Making Process
- (10 hours) II. Theoretical Considerations in Economics
- A. Theory of Consumer Behavior
 - B. Theory of Production
 - 1. Principle of Equimarginal Use
 - 2. Principle of Marginal Cost Pricing
 - C. Market Equilibrium - Pareto Optimality
 - D. Compensation Criteria - Kaldor-Hicks
- (6 hours) III. Market Imperfections
- A. Externalities
 - B. Public Goods
 - C. Income Distribution
 - D. Economic Value
 - E. Taxation
- (18 hours) IV. Application to Problems in Natural Resource Economics
- A. Outdoor Recreation
 - 1. Demand
 - 2. Supply

- B. Conservation
 - 1. Land and Water
 - 2. Optimum Use
 - C. Common Property Resources
 - 1. The Fisheries
 - 2. Rangeland
 - D. Environmental Quality
 - 1. Optimum Use
 - 2. Economic Value
- (2 hours) V. Summary
- A. Role of Natural Resource Economist
 - B. Future Problems and Orientation

Reading List:

I. Introduction

1. Gardner, B. Delworth and Allen LeBaron, The Economics of Water Resource Development and Conservation. Chapters 1 and 2
2. Friedman, Milton, Essays in Positive Economics. Chicago, University of Chicago Press, 1953
3. Gibson, W. L., Jr., R. J. Hildreth and Gene Wunderlich, eds., Methods for Land Economics Research. University of Nebraska, Lincoln, 1966. pp. 1-85
4. Ferguson, C. E., Microeconomic Theory. Illinois, Irwin Series, 1969, pp. 1-8
5. McKean, Roland N., Public Spending. McGraw-Hill, New York, 1968. Chapter 1.

II. Elements of Welfare Economics

Review of Relevant Economic Theory

1. Henderson, James M. and Richard E. Quandt, Micro-economic Theory. New York, McGraw-Hill, 1958. Chapters 1, 2 and 3
2. Ferguson, C. E., Chapters 1, 2, 5, 6 and 7
3. Gardner, B. Delworth, Chapters 3, 4, 5 and 6

4. Henderson, Alexander M., "The Pricing of Public Utility Undertakings," in Readings in Welfare Economics, ed. by Arrow and Satovsky, 1969
5. James, L. Douglas and Robert R. Lee, Economics of Water Resources Planning, McGraw-Hill, 1971
Chapters 3 and 4
6. Boulding, Kenneth, Economic Analysis, Vol. I, Micro Economics, Harper and Row, New York, 4th Edition, 1966
7. Hirshleifer, J., James C. DeHaven and Jerome W. Milliman, Water Supply. University of Chicago Press, 1960

Welfare Criteria

1. Henderson, James M. and Richard E. Quandt. pp. 85-109, and Chapters 6 and 7
2. Ferguson, C. E. Chapters 8, 9, 10, 11 and 16
3. Graaff, J de V., Theoretical Welfare Economics. Cambridge University Press, London, 1967. Chapters 1, 2 and 3
4. Eckstein, Otto, Water Resource Development, Harvard University Press, Cambridge, 1961. Chapter 2
5. McKean, Roland N., Public Spending. McGraw-Hill, New York, 1968. Chapter 3
6. Gardner, B. Delworth. Chapters 7, 8, 9 and 10
7. Loehman, Edna and J. Richard Conner, "Perspectives on Economics, Social Choice and Environmental Quality," in Economics and Decision Making for Environmental Quality, University of Florida Press, 1973
8. James, L. Douglas and Robert R. Lee, Economics of Water Resources Planning, McGraw-Hill, 1971. Chapter 5
9. Mishan, E. J. "A Survey of Welfare Economics, 1939-59," in Surveys of Economic Theory, Volume 1, St. Martin's Press, 1967. pp. 154-222
10. Baumol, W. J., Welfare Economics and The Theory of The State, London: Longmans, 1952

11. Batar, F. M., "The Simple Analytics of Welfare Maximization," American Economic Review, 1957. p. 22
12. Samuelson, Paul A., Foundations of Economic Analysis, Atheneum, 1967. Chapter 8

III. Market Imperfections

1. Maass, Arthur, et. al., Design of Water-Resource Systems, Cambridge, Harvard University Press, 1962
2. McKean, Roland N. Chapters 2, 4, 5 and 6
3. Castle, Emery N., "The Market Mechanism, Externalities, and Land Economics," Journal of Farm Economics, 47: 542-556, August 1965
4. Haefele, Edwin T., "Social Choices and Individual Preferences: Is There a Connecting Mechanism" in Economics and Decision Making for Environmental Quality, University of Florida Press, 1973
5. Goetz, Charles J., "Political Equilibrium vs. Economic Efficiency in Effluent Pricing," in Economics and Decision Making for Environmental Quality, University of Florida Press, 1973
6. Samuelson, P. A., "Diagrammatic Exposition of a Theory of Public Expenditure," Review of Economics and Statistics, Vol. 37, 1955. pp. 350-56
7. Barlowe, Raleigh, Land Resource Economics: The Economics of Real Property, 2nd Edition, Prentice-Hall, Inc. 1972
8. Samuelson, P. A., "The Pure Theory of Public Expenditures," Review of Economics and Statistics, Vol. 36, 1954.
9. Buchanan, James M. and William C. Stubblebine, "Externality," Economica, N.S. 29 (1962). pp. 371-384
10. Due, John F., Government Finance: An Economic Analysis, Irwin, 1959
11. The Analysis and Evaluation of Public Expenditures: The P. P. B. System Vol. 1, Joint Economic Committee of Congress, Washington, D. C., U.S. Government Printing Office, 1969

IV. Application to Problems in Natural Resource Economics

Outdoor Recreation

1. Brown, William G., Ajmer Singh, and Emery N. Castle, An Economic Evaluation of the Oregon Salmon and Steelhead Sport Fishery, Oregon Agricultural Experiment Station Technical Bulletin 78, September 1964
2. Clawson, Marion, Methods of Measuring the Demand for and Value of Outdoor Recreation, Resources for the Future, Inc., Reprint #10, 1959
3. Collection of papers presented at the Annual Meeting of the Cooperative Regional Research Technical Committee, An Economic Study of the Demand for Outdoor Recreation, Report #1, San Francisco, California, March 1968
4. Edwards, J. A., K. C. Gibbs, L. J. Guedry and H. H. Stoevener, The Demand for Non-unique Outdoor Recreational Services: Methodological Issues, to be published as Oregon Agricultural Experiment Station Technical Bulletin, 1973
5. Gibbs, Kenneth C., The Estimates of Recreational Benefits Resulting from an Improvement of Water Quality in Upper Klamath Lake: An Application of a Method for Evaluating the Demand for Outdoor Recreation, unpublished doctoral dissertation, Oregon State University, June 1969
6. Grubb, Herbert W., and James T. Goodwin, Economic Evaluation of Water-Oriented Recreation in the Preliminary Texas Water Plan, Texas Water Development Board, Report 84, Texas, September 1968
7. Johnson, Hugh A., Demand for Outdoor Recreation, presented at the Outdoor Recreation Workshops (Soil Conservation Service) New Mexico, February 1968
8. Johnson, Hugh A., Some Research Needs in Recreation, presented at the National Workshop in Extension Recreation, University of Georgia, Athens, Georgia,

February 2, 1967

9. Johnson, Hugh A., The Role of Recreation in Our Play-Oriented Society, paper given at the 10th Annual Meeting, Mississippi Section, American Society of Agricultural Engineers, University of Mississippi, Oxford, Mississippi, November 1969
10. Norton, G. A., "Public Outdoor Recreation and Resource Allocation: A Welfare Approach," Land Economics, 1970
11. ORRRC Study Report 20, Participation in Outdoor Recreation: Factors Affecting Demand Among American Adults, a report to the Outdoor Recreation Resource Review Commission, Washington, D. C., 1962
12. Pearse, Peter H., "A New Approach to the Evaluation of Non-Priced Recreation Resources," Land Economics, February 1968, pp. 87-99
13. Reiling, S. C., K. C. Gibbs, and H. H. Stoevener, Economic Benefits From an Improvement in Water Quality: Upper Klamath Lake, Oregon, to be published by Environmental Protection Agency
14. Stevens, J. B., Measurement of Economic Values in Sport Fishing: An Economist's Views of Validity, Usefulness and Propriety, presented to the Annual Meeting of the American Fisheries Society, September 1968
15. Stevens, Joe B., "Recreation Benefits from Water Pollution Control," Water Resources Research, Vol. 2, #2, 1966
16. Stoevener, H. H., and L. J. Guedry, Sociological Characteristics of the Demand for Outdoor Recreation, for discussion by Technical Committee Wm-59, San Francisco, California, March 25-26, 1968
17. Trice, Andrew H., and Samuel E. Wood, "Measurement of Recreation Benefits," Land Economics, Vol. 34, 1958, pp. 196-207

18. Wennergren, E. Boyd, Demand Estimates and Resource Values for Resident Deer Hunting in Utah, Utah Agricultural Experiment Station Bulletin 469, June 1967
19. Brown, Gardner M., and Judd M. Hammack, Economic Evaluation of a Fugitive Recreation Resource: Migrant Waterfowl, paper presented at a RFF Natural Environments Workshop, Missoula, Montana, August 1971
20. Cicchetti, Charles J., Some Economic Issues in Planning a Wilderness Recreation, paper presented at a RFF Natural Environments Workshop, Missoula, Montana, August 1971
21. Fisher, Anthony C., and John V. Krutilla, Operational Concepts of Optimal Recreational Capacity for Low Density Resource-Based Recreational Facilities, paper presented at a RFF Natural Environments Workshop, Missoula, Montana, August 1971
22. Cato, James C., and Kenneth C. Gibbs, Weather Forecasts for Coastal Recreation: A Bayesian Analysis, paper prepared for Experiment Station Bulletin, University of Florida. In review.
23. Gibbs, Kenneth C., and J. Richard Conner, Components of Outdoor Recreational Values: Kissimmee River Basin, Florida, Florida Agricultural Experiment Station Journal Series No. 4692, November 1972
24. Conner, J. R., J. E. Reynolds, and K. C. Gibbs, Activities, Characteristics, and Opinions of Lakefront Residents: Kissimmee River Basin, Florida, Florida Agricultural Experiment Station Bulletin No. 755, January 1973
25. Conner, J. R., K. C. Gibbs, and J. R. Reynolds, The Effects of Water Frontage on Residential Property Values, Florida Agricultural Experiment Station Journal Series No. 4349, March 1972

Common Property Resources

1. Gordon, H. Scott, "The Economic Theory of a Common-Property Resource: The Fishery," Journal of Political Economy, Vol. LXII, No. 3, April 1954, pp. 124-142
2. Scott, Anthony, "The Fishery: The Objectives of Sole Ownership," Journal of Political Economy, Vol. LXII, No. 2, April 1955, pp. 116-124
3. Crutchfield, J. A., "Economic Objectives of Fishery Management," The Fisheries: Problems in Resource Management, ed. J. A. Crutchfield, Seattle, Washington, University of Washington Press, 1965, pp. 43-65
4. Gardner, B. Delworth. Chapter 17
5. Bromley, Daniel W., "Economic Efficiency in Common Property Natural Resource Use: A Case Study of the Ocean Fishery," Working Paper No. 28, U. S. Bureau of Commercial Fisheries, U. S. Department of Interior, July 1969
6. Turvey, Ralph, "Optimization and Suboptimization in Fishery Regulation," Journal of Political Economy, September 1965, pp. 65-75

Conservation

1. Herfindahl, Orris C., "What is Conservation," Readings in Resource Management and Conservation. University of Chicago Press, Chicago 1965, pp. 229-236
2. Krutilla, John V., "Conservation Reconsidered," American Economic Review 57: 77-786, 1967
3. Ciriacy-Wantrup, S. V., Resource Conservation: Economics and Policy, University of California Press, Berkeley, 1952
4. Committee on Soil and Water Conservation, Principles of Resource Conservation Policy, National Academy of Sciences, National Research Council Publication 885, Washington, D. C., 1961, pp. 1-24

5. Galbraith, John Kenneth, "How Much Should a Country Consume," Readings in Resource Management and Conservation, University of Chicago Press, Chicago, 1965, pp. 261-267
6. Barlowe, Raleigh, Land Resource Economics: The Economics of Real Property, 2nd Edition, Prentice-Hall, Inc., 1972, Chapter 10
7. Gardner, B. Delworth, Chapter 18
8. Jarrett, Henry, ed., Perspective on Conservation: Essays on America's Natural Resources, Resources for the Future, Johns Hopkins Press, Baltimore, 1961

Environmental Quality

1. Sanford, Rose, "The Economics of Environmental Quality," Fortune Magazine, February 1970
2. Kneese, Allen V., Approaches to Regional Water Quality Management, Resources for the Future, Washington, D. C., Reprint No. 64, 1967
3. Freeman, A. Myrick III, The Economics of Pollution Control and Environmental Quality, General Learning Press, New York, 1971
4. Lugo, Ariel E., et al., Models for Planning and Research for the South Florida Environmental Study, Final Report, National Parks Service Contract, University of Florida, 1971
5. Kneese, A. F., R. U. Ayres, and R. C. d'Arge, Economics and the Environment: A Materials Balance Approach, Johns Hopkins Press, Baltimore, 1970
6. Edwards, W. F., Max Langham, and J. C. Headley, "Pesticide Residues and Environmental Economics," Natural Resources Journal, October, 1970
7. Spofford, Walter O., Jr., "Closing the Gap in Waste Management," Environmental Science and Technology, December, 1970

8. Loucks, Daniel P., Charles S. Revelle, and Walter R. Lynn, "Linear Programming Models for Water Pollution Control," Management Science, December, 1967
9. York, E. T., "Wait! Do You Want to Upset the Balance of Nature"? University of Florida Magazine, Fall, 1970
10. Jaksch, John A., and Herbert H. Stoevener, Effects of Air Pollution on Residential Property Values in Toledo, Oregon, Oregon Agricultural Experiment Station, Special Report 304, September, 1970
11. U. S. Council on Environmental Quality, Environmental Quality: The Second Annual Report, Washington, D. C., August, 1971
12. Dorfman, Robert and Nancy S. Dorfman, eds., Economics of the Environment, Nortorn, 1972
13. Jarrett, Henry, ed., Environmental Quality in a Growing Economy, Resources for the Future, Johns Hopkins Press, Baltimore, 1968

University of MiamiEconomics 570 -Fall 1972Economics of Natural ResourcesDr. Lee G. Anderson

There will be two tests - a midterm and a final. Two written book reviews are required of each student. See final section of this handout for suggested books and complete instructions.

The required text is Economic Growth and Environmental Decay: The Solution Becomes the Problem by Barkley and Seckler.

Two other books that should be very useful are:

Technology and Growth: The Price We Pay by E. J. Mishan

The Limits to Growth by Meadows et al.

Below is a general outline of the semester's work. During the course of the semester other topics and/or readings may be added. The books denoted by an * will be in the reserve library.

Weeks of September 18, September 25, October 2 and October 9

Main Topics:

Introduction

Why study natural resources?

Review of Basic Economic Skills

Application of these skills to environmental problems

Required Reading

Barkley and Seckler, Chapters 1, 2, 3, 4, 5, 6, 8, 9

*Crocker and Rodgers, Environmental Economics

*Boulding, K., The Economics of the Coming Spaceship Earth
in Environmental Quality in a Growing Economy, Ed. by

H. Jarrett

Kneese, Allen, "Background for the Economic Analysis of
Environmental Pollution," The Swedish Journal of
Economics, Vol. 73 No. 1, March 1971 (you may want
to glance at the other articles in this volume)

- Ayres and Kneese, "Production, Consumption and Externalities," American Economic Review, June 1969
- Milliman, "Can People be Trusted with Natural Resources," Land Economics, August 1962
- Gordon, "Economics and the Conservation Question," Journal of Law and Economics, 1958
- Turvey, "On Divergences between Social Cost and Private Cost," Economica, Aug. 1963
- White, "The Historical Roots of Our Ecological Crisis," Science, March 10, 1967
- Coase, R. "The Problem in Social Cost," Journal of Law and Economics, October 1959
- *Boulding, K., "Economics as an Ecological Science," in Economics as a Science by K. Boulding
- Meadows et al., "The Limits to Growth"
- Mishan, E. J., "Technology and Growth: The Price We Pay"
- Brown and Mar, "Dynamic Economic Efficiency of Water Quality Standards or Charges" Water Resources Research, December 1968, pp. 1153-1159
- Ruff, Larry, "The Economic Common Sense to Pollution," The Public Interest, Vol. 19, Spring 1970

Week of October 16

Topic: Natural Resource Availability

Required Reading: *Barnett and Morse, Scarcity and Growth
Barkley and Seckler, Chapter 13

Weeks of October 23 and October 30

Topic: Fisheries

Required Readings: Christy and Scott, The Common Wealth in Ocean Fisheries, Chapters 2 and 12
Smith, "On Models of Commercial Fishing,"
Journal of Political Economy, Vol. 77,
No. 2, March/April 1969
Turvey, "Optimization and Suboptimization in

- Fishery Regulation," American Economic Review, March 1964
- Copes, "The Backward-Bending Supply Curve of the Fishing Industry," Scottish Journal of Economics, February 1970
- Crutchfield, "An Economic Evaluation of Alternative Methods of Fishery Regulation," The Journal of Law and Economics 1961, p. 131
- Smith, "Economics of Production from Natural Resources," AER, June 1968, pp. 409-431
- Fullenbaumer, "Economics of Production from Natural Resources: Comment," AER, June 1971, pp. 483-487
- Smith, "Economics of Production from Natural Resources: Reply," AER, June 1971, pp. 488-491
- _____ "Symposium on Commercial Fishing," JPE July/August 1972, pp. 761-778
- Bell, "Technological Externalities and Common Property Resources: An Empirical Study of the U. S. Lobster Fishery," JPE, January/February 1972, pp. 148-158
- Gould, "Extinction of a Fishery by a Commercial Exploitation: A Note," JPE September/October 1972, pp. 1031-1038

Week of November 6

Topic: Water

Required Readings:

- *Hirshleifer et al., Water Supply: Economics Technology and Policy, Chapters 1, 2, 3, 4, 5, 9, 12
- *Kneese, The Economics of Regional Water Quality Management, Chapters 1-4 (Engineering Library)

Week of November 13

Review and Exam

Weeks of November 20, November 27, and December 4

Topic: A Quality Environment as a Resource

Required Reading:

*Herfindahl and Kneese, Quality of the Environment

Knetsch, "Outdoor Recreation Demands and Benefits," Land Economics, November 1963

Crutchfield, "Valuation of Fishery Resources," Land Economics, May 1962

Krutilla, "Conservation Reconsidered," American Economic Review, September 1967 (Other works of Krutilla will be discussed in class)

Isard and Others, "On the Linkage of Socio-economic and Ecological Systems," Papers of the Regional Science Association, Vol. 21, 1968, pp. 79-99

Isard, "Some Notes on the Linkage of the Ecologic and Economic Systems," Papers of the Regional Science Association, Vol. 22, 1969, pp. 85-96

Leontief, "Environmental Repercussions and the Economic Structure: An Input-Output Approach," Rev. Economics and Statistics, Aug. 1970, pp. 262-271

Hite and Laurent, "Empirical Study of Economic Ecological Linkages in Coastal Study," Water Resources Research, October 1971, pp. 1070-1077

*Ramsay and Anderson, Managing the Environment

Weeks of December 11, December 18, January 1, and January 8

Topic: Benefit Cost Analysis

1. What's a benefit
2. What's a cost
3. What's the discount rate

Required Reading:

Prest and Turvey, "Benefit-Cost Analysis: A Survey,"
Economic Journal, December 1965

Hirshleifer et al., Water Supply, etc. cited above,
Chapter 6 and 7

Baumol, "On the Social Rate of Discount," American
Economic Review, September 1968

Haveman & Krutilla, "Unemployment Excess Capacity and
Benefit-Cost Investment Criteria," Review of
Economics and Statistics, November 1967

*Mishan, Cost-Benefit Analysis

*Marglin, Public Investment Criteria

Week of January 15

Exam

Instructions for Book Reviews:

Each student will be required to complete two written book reviews.
They will be due on January 15 but will be accepted any time before
that date.

You may choose your books from the list below or from any of the
multitude of recent books on natural resources, the environment, etc.
If you choose a book not on the list please check with me for an okay.
In your reviews, apply the economic reasoning that you will learn in
the early part of the semester. Many of the books listed are written
from an emotional point of view. Compare the results when the problem
is looked at from an economic point of view. When are they the same?
When are they different? Why?

Some possible books (in no particular order) are:

Dales, J. H., Pollution, Property, and Prices

Wise, William, Killer Smog

Marx, Wesley, The Frail Ocean

Rienow and Rienow, Moment in the Sun

Whiteside, Thomas, Defoliation

Laycock, George, The Diligent Destroyers

Commoner, Barry, Science and Survival

- De Bell, Garrett, The Voter's Guide to Environmental Politics
- Swatck, Paul, The User's Guide to the Protection of the Environment
- United Nations Report, Chemical and Bacteriological (Biological) Weapons and the Effects of Their Possible Use
- De Bell, Garrett, The Environmental Handbook
- Laycock, George, The Alien Animals
- Goldmar, Marshall, Controlling Pollution: The Economics of a Cleaner America
- Godfrey, Arthur, The Arthur Godfrey Environmental Reader
- Bryerton, Gene, Nuclear Dilemma
- Curtis, Richard, and Elizabeth Hogan, Perils of the Peaceful Atom
- Landsberg, Hans H. and Sam H. Schurr, Energy in the United States: Sources, Uses, and Policy Issues
- Wagner, Richard H., Environment and Man
- Helfrich, Harold, The Environmental Crisis
- Mishan, E. J., The Costs of Economic Growth
- Odum, E. H., Environment, Power, and Society
- Crutchfield, James, and G. Pontecorvo, The Pacific Salmon Fishery: A Study in Irrational Conservation
- Ward and Dubes, Only One Earth
- Brubaker, Sterling, To Live on Earth
- Dolan, Edwin, The Economic Strategy for Environmental Crisis
- Kapp, William, The Social Costs of Private Enterprise
- Johnson and Hardesty, Economic Growth vs. the Environment
- M.I.T., Man's Impact on the Global Environment
- Murphy, Earl, Governing Nature
- Disch, Robert, The Ecological Conscience
- Helfrich, Harold, The Environmental Crisis
- Ehrlich, Paul, The Population Bomb

Ehrlich and Harriman, How to Be a Survivor

Downing, Paul, Air Pollution and the Social Sciences

Ridker, Ronald, Economic Cost of Air Pollution

Boulding, Kenneth, et al., Economics of Pollution

Institute of Ecology, Man in the Living Environment

University of Hawaii, HonoluluDepartment of Agricultural and Resource EconomicsAg. Economics 432:Fall 1972Introduction to Natural Resource EconomicsProfessor GopalakrishnanTopical Outline

The purpose of this outline is to show the principal topics included in the course and their interrelationships. The topics do not correspond to lecture periods and they will not necessarily be discussed in the exact order listed.

I. Introduction

- A. Scope and disciplinary context of natural resource economics.
- B. Economic concepts relevant to natural resources.
- C. Types of natural resources
- D. Marine resource economics - an emerging field of inquiry

II. Economics of Resource Use and Allocation

- A. Economic principles of resource allocation
- B. Demand and supply relationships
- C. Locational factors affecting resource use
- D. Resource quality and technological change
- E. Economic rent and resource prices
- F. Temporal aspects of resource use
- G. The availability and use of natural resources

III. Natural Resources and Economic Development

- A. Impact of natural resources on economic development
- B. Natural resources in the context of developing economics
- C. Natural resource endowment and regional economic growth

IV. Common Property Natural Resources

- A. Characteristics of common property natural resources
- B. The economic theory of a common property resource: the fishery
- C. The demand for and the supply of a common property resource:
the fishery

- V. Natural Resource Development
- A. Objectives and criteria for resource development
 - B. Multiple and alternate use considerations
 - C. Benefit - cost analysis
 - D. Problems in measuring benefits and costs
 - E. Comprehensive planning of resource development

Reading List

Textbooks:

1. Jack Hirshleifer et al., Water Supply: Economics, Technology, and Policy, Chicago, The University of Chicago Press, Latest Printing
2. Glen A. Love and Rhoda M. Love, Ecological Crisis, Readings for Survival, New York, Harcourt Brace Jovanovich, Inc., 1970

Reading Assignment (September 11-15)

Chapter 1, "Scarcity and Growth: A Summary View", pp.1-13, and Chapter 2, "Contemporary Views on the Social Aspects of Natural Resources" of Scarcity and Growth by Barnett and Morse (see Reading List)

Ciriacy-Wantrup, S. V., Resource Conservation Economics and Policies, University of California, Division of Agricultural Sciences, 1963 (Revised Edition)

Burton, Ian and Robert W. Kates, (Eds.), Readings in Resource Management and Conservation, Chicago: University of Chicago Press, 1965

Ciriacy-Wantrup, S. V. and James J. Parsons (Eds.) Natural Resources: Quality and Quantity, Berkeley and Los Angeles: University of California Press, 1967

*Morse, Chandler and Harold Barnett, Scarcity and Growth, Baltimore, Maryland: Johns Hopkins Press, 1965

Western Resources Conference (1964), New Horizons for Resources Research: Issues and Methodology, Boulder: University of Colorado Press, 1965

- Landsberg, Hans H., Natural Resources for U. S. Growth: A Look Ahead to the Year 2000, Baltimore: Johns Hopkins Press, 1964
- *Patton, Donald, The United States and World Resources, Princeton, New Jersey: D. Van Nostrand Company, Inc., 1968
- Clawson, Marion (Ed.) Natural Resources and International Development, Baltimore: Johns Hopkins Press, 1964
- *Fisher, Joseph and Neal Potter, World Prospects for Natural Resources, Baltimore: Johns Hopkins Press, 1964
- Herfindahl, Orvis, Natural Resource Information for Economic Development, Baltimore: Johns Hopkins Press, 1969
- RFF Staff, Design for a Worldwide Study of Regional Development, Baltimore: Johns Hopkins Press, 1966
- Jarrett, Henry (Ed.), Comparisons in Resource Management, Baltimore, Johns Hopkins Press, 1961
- *Eckstein, Otto, Water-Resource Development, Cambridge, Mass.: Harvard University Press, 1958
- *Krutilla, John and Otto Eckstein, Multiple Purpose River Development, Baltimore, Maryland: Johns Hopkins Press, 1958
- Smith, Stephen and Emery Castle (Eds.), Economics and Public Policy in Water Resource Development, Ames: Iowa State University Press, 1964
- *Kneese, Allen and Stephen Smith (Eds.), Water Research, Baltimore, Maryland: Johns Hopkins Press, 1966
- Wollman, Nathaniel, Value of Water in Alternate Uses, Albuquerque: New Mexico University Press
- Hirshleifer, Jack, et al., Water Supply: Economics, Technology, and Policy, Chicago: University of Chicago Press, 1960
- Tolley, G. S. and F. E. Riggs (Eds.), Economics of Watershed Planning, Ames: Iowa State University Press, 1961
- Maass, Arthur, et al., Design of Water-Resources Systems, Cambridge: Harvard University Press, 1962
- *Kneese, Allen, The Economics of Regional Water Quality Management, Baltimore, Maryland: Johns Hopkins Press, 1964

- Wollman, Nathaniel, The Water Resources of Chile: An Economic Method for Analyzing a Key Resource in a Nation's Development, Baltimore: Johns Hopkins Press
- Krutilla, John, The Columbia River Treaty, Baltimore: Johns Hopkins Press, 1967
- Bain, Joe, et al., Northern California's Water Industry, Baltimore: John Hopkins Press, 1967
- Cleary, Edward, The Oransco Story: Water Quality Management in the Ohio Valley Under an Interstate Compact, Baltimore: Johns Hopkins Press, 1967
- *Kneese, Allen, Water Pollution: Economic Aspects of Research Needs, Baltimore: Johns Hopkins Press, 1962
- *Barlowe, Raleigh, Land Resource Economics, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1958
- *Clawson, Marion, et al., Land for the Future, Baltimore: Johns Hopkins Press, 1967
- Clawson, Marion, The Federal Lands Since 1956: Recent Trends in Use and Management, Baltimore: Johns Hopkins Press, 1967
- Ruttan, Vernon, The Economic Demand for Irrigated Acreage, Baltimore: Johns Hopkins Press, 1965
- Goss, R. O., Studies in Maritime Economics, London: Cambridge University Press, 1968
- Bell, F. W., and Hazleton, J. E. (Eds.), Recent Developments and Research in Fisheries Economics, New York: Oceana Publication Inc., 1967
- Bottemanne, C. J., Principles of Fisheries Development, Amsterdam, Netherlands: North-Holland Publishing Company, 1959
- Christy, Francis T., Jr., and Anthony Scott, The Common Wealth in Ocean Fisheries, Baltimore: Johns Hopkins Press, 1965
- Crutchfield, James A., Biological and Economic Aspects of Fisheries Management, Seattle: University of Washington, College of Fisheries, 1959
- *Crutchfield, James A., The Fisheries: Problems in Resource Management, Seattle: University of Washington Press, 1965

Turvey, Ralph, and J. Wiseman, The Economics of Fisheries, Food, and Agriculture Organization of the United Nations, Rome, Italy, 1956

University of Washington, College of Fisheries, The Future of the Fishing Industry of the United States, Seattle, 1968. (Proceedings of the Conference on the Future of the U. S. Fishing Industry. Edited by Gilbert De Witt.)

*Books on reserve at Sinclair Library

University of Rhode IslandMarine Affairs ProgramEconomics of Marine ResourcesProfessor Niels Rorholm

"In my course I spend about half the semester dealing primarily with microeconomics, starting with production functions and working up through perfect competition to various forms of imperfect competition and firm response to outside influences. I've used several textbooks-- I would say that Leftwich "The Price System and Resource Allocation" is one of the better ones. I think that next fall I might try Dorfman's "Prices and Markets." The last half of the semester we go through various research projects that are underway in marine resource economics. We discuss aspects of coastal management and resolution of conflicts in the coastal zone; we touch on benefit cost analysis and on some other techniques, for example, input-output analysis. We try to concentrate on some frequently used techniques. For that part of the course I take anything and everything I can get hold of, including the newspapers if there are some exciting things going on in the coastal area or in the area of shipping.

Purposes are:

1. Students should be able to appreciate the economic dimension of marine resource issues.
2. They should have a feel for the types of solutions the market system would impose and why.
3. Students should be able to read critically, reasonably straight-forward studies of marine economic issues.

Florida State UniversityEconomics of Ocean Resources

Fall 1972

Professor M. R. Colberg

Selected Bibliography On Property Rights (Including Fishing Rights)

Bajt, Aleksander. "Property in Capital and in the Means of Production in Socialist Economies." Journal of Law and Economics. April 1968

Buchanan, J. M. and Stubblebine, W. C. "Externality." Economica. November 1962

Cheung, Steven N. S. "The Structure of a Contract and the Theory of a Non-Exclusive Resource." Journal of Law and Economics. April 1970. (Good on fishing.)

Cheung, Steven N.S. "Transactions Costs, Risk Aversion, and the Choice of Contractual Arrangements." Journal of Law and Economics. April, 1969

Christy, F. M. and Scott A. The Common Wealth in Ocean Fisheries. Johns Hopkins Press, 1965

Coase, R. H. "The Problem of Social Cost." Journal of Law and Economics. October 1960
also reprinted in Sidney M. Blummer, ed., Readings in Microeconomics and Edwin Mansfield, Microeconomics, Selected Readings.

Crutchfield, James A. "An Economic Evaluation of Alternative Methods of Fishery Regulation." Journal of Law and Economics. October 1961

Crutchfield, James A. "Valuation of Fishery Resources." Land Economics. May 1962

DeAlessi, Louis. "Implications of Property Rights for Government Investment Choices." American Economic Review, March 1969

Demsetz, H. "Toward a Theory of Property Rights." American Economic Review. May 1967

Demsetz, Harold. "The Exchange and Enforcement of Property Rights." Journal of Law and Economics. October 1964

Downs, Anthony. Inside Bureaucracy. Little, Brown & Co., 1967

Gordon, Howard Scott. "The Economic Theory of a Common Property Resource: The Fishery." Journal of Political Economy. April 1954

Gordon, Scott. "Economics and the Conservation Question." Journal of Law and Economics. October 1958

- McKean, Roland N. "Property Rights Within Government, and Devices to Increase Governmental Efficiency." Southern Economic Journal. October 1972
- McKean, Roland N. "The Unseen Hand of Government." American Economic Review. June 1965
- Milliman, J. W. "Commonality, the Price System, and Use of Water Supplies." Southern Economic Journal. April 1956
- Milliman, J. W. "Water Law and Private Decision-Making: A Critique." Journal of Law and Economics. October 1959
- Pejovich, Svetozar. "Liberman's Reforms and Property Rights in the Soviet Union." Journal of Law and Economics. April 1969
- Smith, Vernon. "On Models of Commercial Fishing." Journal of Political Economy. 1969
- Tullock, Gordon. The Politics of Bureaucracy. Public Affairs Press. 1965
- Turvey, Ralph. "Optimization and Suboptimization in Fishery Regulation." American Economic Review. March 1964

APPENDIX 4E

Maritime History - Marine Geography - Coastal Anthropology
Outlines and Readings

University of DelawareDepartment of HistoryMaritime History1972-1973Dr. James M. Merrill

This course is designed to acquaint students with the historical shifts, or events, which shaped the development of certain nations as trading, fishing and/or naval powers. It is not, however, a lecture and memorization course. It emphasizes historical concepts which have evolved into the present maritime situation rather than exact names and dates. Class lecture will be kept to a minimum. Student research and writing will be stressed with particular emphasis on primary documentation and proper use of the library. Each student shall prepare one major paper for each semester which shall be written as for possible publication in a chosen historical journal. Papers of requisite quality will be submitted for actual publication. The attached reading list consists of publications basic to each semester. Each semester, further readings will be chosen from which students will give oral presentations. Admission to the class will be limited to graduate students and qualified upper-level undergraduates.

H605 - European maritime history from the Greeks and Romans to the age of exploration (fall, 3 cr.)

H606 - Maritime history from the age of exploration of the American colonies to the present day world maritime situation (spring, 3 cr.)

Basic Reading List

H605:

1. Dugan, James, The Great Mutiny
2. Hakluyt, Richard, The Voyages
3. Villiers, Alan J., Captain James Cook
4. Mahan, Alfred T., Influence of Sea Power Upon History
5. Mattingly, Garrett, The Armada
6. Schurz, William L., Manila Galleon

H606

1. Villiers, Alan J., Sea Dogs of Today
2. Merrill, James M., Quarterdeck and Fo'c'sle
3. Morrison, Samuel E., John Paul Jones
4. Morrison, Samuel E., Maritime History of Massachusetts, 1783-1860
5. Wohlsteter, Roberta, Pearl Harbor

University of Rhode IslandAmerican Maritime HistoryHistory 455Summer Session, II, 1972Professor J. C. Crandall

Information for Students:

Survey of the maritime development of the United States from the founding of the colonies to the present time. Emphasis will be placed upon the growth of American merchant shipping and naval power and their relationships to American political, economic, military and cultural history.

Publications:

The publications from which assignments will be made during this course are as follows:

a. Paperback editions of books available in the bookstore:

Albion, R. G., Sea Lanes in WartimeBryant, S. W., The Sea and the StatesSprout, H. & M., The Rise of American Naval Power, 1776-1918

b. Books on reserve in the library:

Albion, R. G., Seaports South of SaharaAlbion, R. G., Square Riggers on ScheduleAlbion, R. G., Rise of the Port of New YorkCowburn, P., The Warship in HistoryCutler, C. C., Queens of the Western OceanCutler, C. C., Greyhounds of the SeaLandstrom, B., The ShipLivezey, W. E., Mahan on SeapowerMahan, A. T., Influence of Seapower Upon History, 1660-1783Morison, S. E., Maritime History of MassachusettsMorison, S. E., Two Ocean WarToland, J., The Rising Sun

Because of the limited numbers of copies of books on reserve from which reading assignments will be made, those assignments will be by the week. Reading for the week should be completed by the last session of the week.

Students will be required to submit a 2000 word historical essay on some aspect of maritime history (see attached). A tentative title and partial bibliography should be submitted to the instructor by 9 August. The paper itself is due 28 August.

Examinations will be held as indicated on the below schedule .

Quizzes may be unannounced.

Schedule

Week beginning 31 July:

(M) Introduction to American Maritime History

(T) European Backgrounds

(W) Sailing Vessels - Merchant and War

(T) Early Navigation and Aids

(F) Colonial Maritime Activity

Assignment: Albion, Sea Lanes, Ch. 1; Bryant, Sea and States, Ch. 1-6; Cutler, Queens, Ch. 1-2; Landstrom, The Ship (Browse); Cowburn, Warships in History, Ch. 1-5

Week beginning 7 August:

(M) Patterns of Colonial Trade

(T) British Mercantilism

(W) The American Revolution at Sea (bibliographies due)

(T) The Expansion of American Trade

(F) Jefferson's Embargo

Assignment: Albion, Sea Lanes, Ch. 2-4; Bryant, Sea and States, Ch. 7-10; Sprout, Naval Power, Ch. 1-5; Cutler, Greyhounds, Ch. 4; Cutler, Queens, Ch. 2-3; Morison, Maritime Mass., Ch. 8

Week beginning 14 August:

(M) Holiday (Mystic Seaport Trip - Optional)

(T) Maritime War of 1812

(W) Examination

(T) Development of American Trade to the East

(F) The Beginnings of Steam

(S) The African Slave Trade

Assignment: Albion, Sea Lanes, Ch. 5; Bryant, Sea and States, Ch. 11-14; Sprout, Naval Power, Ch. 6-8; Albion, New York, Ch. 8; Albion, Square Riggers, Ch. 2 and

6; Cutler, Queens, Ch. 6 and 9; Cutler, Greyhounds,
Ch. 5

Week beginning 21 August:

- (M) The Golden Age
- (T) The Civil War at Sea
- (W) Mahan and the Development of Modern Naval Power
- (T) The Spanish American War at Sea
- (F) Early Twentieth Century Maritime Activity

Assignment: Albion, Sea Lanes, Ch. 6-9; Bryant, Sea and States, Ch. 15-19;
Sprout, Naval Power, Ch. 9-16; Livezey, Mahan, Ch. 1-3; Mahan,
Influence, Ch. 1; Cutler, Greyhounds, Ch. 12-16 and 25

Week beginning 28 August:

- (M) World War I at Sea (Papers due)
- (T) Maritime Activity between the Wars
- (W) World War II- Atlantic
- (T) World War II- Pacific
- (F) Post War Maritime Decline and Prospects for the Future
- (S) FINAL EXAMINATION

Assignment: Albion, Sea Lanes, Ch. 9-11; Bryant, Sea and States, Ch. 20-24;
Sprout, Naval Power, Ch. 17-20; Albion, Seaports, Ch. 1 and 5;
Morison, Two Ocean War, Ch. 1-3; Toland, Rising Sun, Ch. 6-8

SUGGESTED TOPICS FOR AMERICAN MARITIME HISTORY PAPERS:

The topics listed below are suggestive only. The list is not intended
to be complete by any means. Students are welcome and encouraged to
develop other topics.

The Guerre de Course as a Naval Strategy

Ships vs. Forts

The American Topsail Schooner (or clipper ship or packet or Down Easter)

Privateering in the War of 1812 (or in the American Revolution or in Colonial
Times)

The Confederate Privateers

Northern Seaborne trade with the Confederacy

Thomas Jefferson and the Navy

The Development of the Military Sealift Command

The Dilemma of the American Tramp

The Schooner in the Post Civil War Period

The Trent Affair: Neutral Rights, the Navy and Diplomacy

Rhode Island's Legal Slave Traders (or Illicit Slave Traders)

The Development of the Tanker

Seventeenth Century Shipbuilding on Narragansett Bay

Shore Whaling

The Fur Seal Hunters

Salem's Pepper Trade

Sailing Ice to India

The Effect of Jefferson's Embargo on Newport

Benjamin Isherwood and a Modern Navy

The Mediterranean Squadron (or East India, South Atlantic, Caribbean, Pacific, African, etc.)
American Trade with Prussia, 1783-1860

The Dilemma of the American Fisherman

Yankee Trade with California before Annexation

The Steamer in the Transatlantic Trade, 1817-1860

The Royal Navy and the American Forests

Smuggling During the Embargo

The U.S. Lighthouse Service (or the U.S. Lifesaving Service)

The Coffee Trade under Sail in World War II

Marine Insurance and the Civil War

The Blockade Runners of the Civil War

The Rumrunners of the 1920's

The Contributions of Matthew Fontaine Maury (or Nathaniel Bowditch)

The Navy and Demon Rum

Commodore Lawrence Kearney and the Opium War

American Ships under Foreign Flags- Civil War to the Present

Riverine Warfare- the Mississippi and the Mekong, a comparison

Coastwise Trade Today

The Baltic Exchange and American Shipping

Fish and Territorial Jurisdiction

Charleston and the Slave Trade after 1820

The "Hog Islander"

The Demogolog Story

The Decline of Newport After the Revolution

Steamers to Stonington

Stoddard's 74's

Lake Ontario's Ships-of-the-Line

Rhode Island and Impressment

Rutgers - The State UniversityDepartment of GeographyGeography 509:Fall 1969-70Problems in Port GeographyMr. G. G. WeigendMr. D. Glickman

Course Outline

Sept. 17	Methodology in Port Geography: readings of sample port studies
Sept. 24	Elements and Functions of Ocean Ports; readings on the Port of New York
Oct. 1	Trends in Port Commerce, and Factors Affecting Port
8	Competition (Mr. Glickman)
Oct. 15	Recent Developments in Ship Design and Their Effects on Port Planning and Development (Mr. Glickman)
Oct. 22	Port Geography and the Port of New York
Oct. 29	Functions of the Port Administration (Mr. Glickman)
Oct. 30	Field Trip to Port Newark-Elizabeth
Nov. 5	Seminar Reports
Nov. 12	Seminar Reports
Nov. 19	Seminar Reports
Nov. 26	Seminar Reports
Dec. 3	Seminar Reports
Dec. 10	Seminar Reports
Dec. 17	No meeting

Seminar papers must be handed in by Monday, January 5, 1970

Some Publications of the Port of New York Authority

- A. Read: Port of New York Authority. Metropolitan Transportation - 1983, New York, Comprehensive Planning Office, Port of New York Authority, 1963, Chapters 9, 10, 11, 12, 18
- B. Skim the following publications of the Port of New York Authority; read sections of interest:

1. Annual Report, 1970
 2. Container Shipping: Full Ahead, May 1967
 3. The New York Port Handbook, 1971
 4. The Next Twenty Years ...1965-85
 5. A Plan for a New Consolidated Passenger Ship Terminal in the Port of New York, April 1967
 6. The Port and the Community, May 1956. Reprinted March 1963
 7. Transportation by Helicopter 1955-1975, November 1952
 8. Via Port of New York. Published monthly
 9. The Port of New York's Foreign Trade, 1971
- C. Of special interest to everyone is the following publication of the Port of New York Authority:
- A Selected Bibliography, 1921-68, 1969
Previous publications are for the years:
1921-1962, 1921-1964, 1921-1966

Reading List: General Port Geography

1. Alexandersson, Gunnar and Nordstrom, Goran, World Shipping, New York: John Wiley & Sons, 1963, pp. 110-121
2. Beaver, S. H., "Ships and Shipping: The Geographical Consequences of Technological Progress," Geography, Vol. 52, Pt. 2 (April 1967), pp. 133-156
3. Bird, James, The Major Seaports of the United Kingdom, London and New York: Hutchinson & Co, 1963, Chapter 1
4. Bird, James, Seaports and Seaport Terminals, London: Hutchinson & Co., 1971
5. Britton, John J. H., "The External Relations of Seaports; Some New Considerations," Tijdschrift voor economische en sociale Geografie, Vol. 56, May/June 1965, pp. 109-112
6. Brockel, Harry C., "Today's Port - A Trade and Transport Hub," Annals, American Academy of Political and Social Science, Vol. 345, 1963, pp. 95-102
7. Chinitz, Benjamin, Freight and the Metropolis, Cambridge, Mass.: Harvard University Press, 1960
8. Dymaza, William A., Foreign Trade Zones and International Business, Small Business Management Research Reports, Rutgers School of

Business, 1964

9. Elliott, N. R., "The Functional Approach in Port Studies,"
in House, J. W. (ed.), Northern Geographical Essays in Honour
of G. H. J. Daysh, pp. 102-118, Newcastle-Upon-Tyne, England,
Oriel Press, 1966
10. Klimm, Lester, "Man's Ports and Channels," International Symposium
on Man's Role in Changing the Face of the Earth, W. L.
Thomas, ed., 1955, pp. 522-541
11. Patton, Donald, "Some Recent Literature on Ports," Annals,
Association of American Geographers, Vol. 47, June 1957,
pp. 193-195
12. Polanyi, Karl, "Ports of Trade in Early Societies," Journal of
Economic History, Vol. 23, 1963, pp. 30-45
13. Rimmer, Peter J., "The Problem of Comparing and Classifying
Seaports," The Professional Geographer, Vol. 18, March 1966,
pp. 83-91
14. Sargent, H. J., Seaports and Hinterlands, London: A & C. Black,
1938, Ch. I, X
15. Thoman, Richard S., Free Ports and Free-Trade Zones, Cambridge,
Md.: Cornell Maritime Press, 1956, Ch. I, VI.

Seminar Paper Topics:

1. The Erie Canal and the Port of New York
2. The Hinterland of the Port of New York
3. The History of Railroad Port Differential Rates
4. Petroleum Movements through the Port of New York
5. Grain Movements through the Port of New York
6. New York's Trade with France
7. New York's Trade with Japan
8. The Impact of Trade Policy on the Port of New York
9. Containerization and the Port of New York
10. The Port-Dependent Industries of the Port of New York
11. The Impact of the St. Lawrence Seaway upon Port Development
in the Western Great Lakes Region
12. The St. Lawrence Seaway and its Relation to Manufacturing
Patterns in the Great Lakes Region

13. The Development of the St. Lawrence Seaway Concept
14. The Forelands of the Port of New York

University of Rhode Island
Master of Marine Affairs Program

Marine Geography

Professor Lewis M. Alexander

"There is no formal text for the subject, but rather a series of readings, designed to emphasize the spatial aspect of marine activities.

The first part of the course deals with the world ocean, including its component basins, semi-enclosed seas, islands and island groups, etc. Uses of the world ocean are also discussed with special emphasis on economic and jurisdictional problems. The second part concerns the 'marine orientation' of the United States - how we as a nation perceive and utilize the marine environment, together with variations in such orientation among the various geographic sections of the United States. Finally, there is consideration of the coastal zone as a geographic concept, including its limits, and the qualities which hold it together as a functional region. Emphasis is then given to a specific coastal zone area - namely the Northeastern sector of the United States.

By highlighting variations in scale of observation the student is provided with data indicating the different nature of problems and decisions associated with local, national, and international marine activities."

Louisiana State University
Dept. of Anthropology and Geography

Geography 129:

Marine and Coastal Environments: Cultural

Dr. Harley J. Walker

- A. Introduction (1 week)
 - 1. Man and the sea
 - 2. History of marine technology
- B. Regional Oceanography (3 weeks)
 - 1. Arctic Ocean
 - a. size, shape, structure, etc.
 - b. water masses, circulation, etc.
 - c. temperature, salinity, etc.
 - d. biota
 - 2. Antarctic Ocean
 - as under Arctic Ocean
 - 3. Atlantic Ocean
 - as under Arctic Ocean
 - 4. Pacific Ocean
 - as under Arctic Ocean
 - 5. Indian Ocean
 - as under Arctic Ocean
- C. Marine Resources
 - 1. Physical Resources (4 weeks)
 - a. Minerals
 - 1. Sub-bottom - petroleum, gas
 - 2. Bottom - manganese nodules, etc.
 - 3. From sea water
 - b. Power
 - 1. Currents
 - 2. Tides
 - c. Fresh water - desalination
 - 2. Biotic Resources (2 weeks)
 - a. Marine food chain

1. Phytoplankton - zooplankton
 2. Pelagic types and benthos
 - b. Marine fisheries - economic aspects
 - c. Aquaculture
 3. Other uses of the sea - navigation, recreation, industrial
- D. The Oceans and Pollution ($\frac{1}{2}$ week)
- E. Coastal Resources (4 $\frac{1}{2}$ weeks)
1. Coastal ecosystems
 2. Coastal resources
 - a. Mineral
 - b. Non-mineral
 3. Habitation of Coasts
 - a. Transportation, trade, etc.
 - b. Settlement, urbanization, etc.
 4. Coastal pollution
 5. The future of coastal development

Textbooks:

None decided on at present - probably Carter, George, Texas A&M
(if it is ready in time)

Readings in:

1. Scientific American, Oceans, 1969
2. Mero, J., The Mineral Resources of the Sea, N Y.,
Elsevier Publ. Co., 1965
3. Bradach, John, Harvest of the Sea, New York, Harper and
Row, 1968
4. Gullion, E. A., ed., Uses of the Sea, Englewood Cliffs,
Prentice-Hall, Inc., 1966
5. Troehst, Cord-Christian, Conquest of the Sea, New York,
Harper and Row, 1962
6. Numerous reprints

Oregon State University
Department of Anthropology

Anthropology 407:

Winter 1973

Man in the Marine Environment

T. C. Hogg

C. L. Smith

W. A. Davis

H. B. O'Connors

1. General

This marks the sixth offering of the Man in the Marine Environment Seminar of the Department of Anthropology at Oregon State University. Originally conceived in 1970 as a program to investigate human values and cultures in marine environments, the program was sponsored by a grant from the National Endowment for the Humanities in the 1970-71 academic year. The seminar was offered three times during that academic session and was augmented by a special public speakers program. A fourth offering was conducted in the Spring of 1972 and a fifth offering was held at the Marine Science Center in Newport, Oregon during the summer of 1972.

Research and curricular developments stemming from this program have carried as far as Thailand, Japan, Newfoundland, and Wales as well as to a local and national public. Students in the seminar series have worked at both undergraduate and graduate levels from fields of science, social science, the humanities, fine arts, engineering, forestry, education, agriculture and business and technology. The seminar series has to date reached over 1400 participants. Primary contributors to the program, in addition to students, have been the faculty and staff of the Department of Anthropology and the Marine Anthropology Research Unit at Oregon State University, individuals from Oceanography and the Marine Advisory Board at OSU, faculty of the University of Oregon, members of State and Federal agencies of government, business, and environmentalist organizations in Oregon and California.

II. Course Objectives

As a general set of objectives for this course, we see the following:

1. Examination of the field of Marine Anthropology and its chief foci
2. Review of major findings from earlier MIME seminars
3. Explorations of new dimensions of MIME through student projects and seminar contributions
4. Identification of key issues and points of inquiry in MIME

It is expected that both instructor and student contributions will make inputs to each of the above objectives. Objective 3 will be met primarily by student project identification and research through March 6. Objective 4 is a joint faculty-student endeavor. Objectives 1 and 2 are primarily those related to instructor presentations.

III. Course Design and Grading Procedure

The course is designed to allow students to focus upon projects related to their individual interests and/or needs. Each student will receive a copy of all student project reports. Project efforts may be individual or joint, depending upon the convergence of interests. Grades will be determined on the basis of (1) project reports, (2) meeting contributions, and (3) general seminar effort (see outline).

IV. Reading Materials

Each registrant is provided with the publication "Man in the Marine Environment" as one of the base documents for the course. Selections beyond this include Man and the Sea: Human Factors in Marine Environments (Andersen and Stiles (eds.)), as required readings for the course, and student selections related to individual projects or interests.

Seminar Topics	Reading Assignment
January 9	Introduction and Background Andersen and Stiles, I
January 16	Oceanographic Overview Andersen and Stiles, II
January 23	Prehistory Andersen and Stiles, III-IV
January 30	Prehistory Andersen and Stiles, IV

February 6	Aboriginal Cultural Diversity	Andersen and Stiles, V
February 13	Aboriginal Cultural Diversity	Andersen and Stiles, VI
February 20	Contemporary Problems of Adapta- tion	Andersen and Stiles, VII
February 27	Contemporary Problems of Adapta- tion: Pacific Coast Settlement & Fisheries	All previous
March 6	Review	All previous
March 13	Final	All previous

Text: Man and the Sea: Human Factors in Marine
Environments, Raoul Andersen and Geoffrey
Stiles (eds.), Memorial University of
Newfoundland

APPENDIX 4F

Special Topics of Marine Affairs:

Marine Transportation - Fishery Ecology - Systems Analysis

Outlines and Readings

University of WashingtonGeography 449:Geography of Ocean TransportationSpring 1973D. K. Fleming

Course Outline

1. General Procedure
 - A. Three lectures / discussions weekly
 - B. Midterm and final examinations (usually short essay questions)
 - C. 5-10 page research paper on approved topic for those expecting 5 credits
 - D. Field trip to Port of Seattle
11. Lecture Sequence (approximate)
 - A. Introduction to transportation geography
 - B. Perspectives of the trading system
 - C. Brief historical view of the technological factor
 - D. Tramp shipping
 1. Voyage costs
 2. The making of freight rates
 3. The role of the chartering broker
 4. An overview of tramp routes and flows
 - E. Liner service
 1. The decline and fall of the passenger liner
 2. The berth service for freighters
 3. Institutional framework; subsidies
 - F. Modern innovations
 1. Containerization
 2. The supercarrier
 - G. Port geography
 1. Harbors, sites, facilities
 2. Port-oriented services
 3. Port-oriented industries
 4. Hinterlands
 - a. Port promotion
 - b. Port planning

III. Reading List

A. General Reference

1. Sargent, Seaways of the Empire, 1918 (revised 1930)
2. Alexanderrson, World Shipping, 1963
3. D. W. Couper, The Geography of Sea Transport, 1972
4. Beaver, "Ships and Shipping," Geography, April, 1967
5. Fleming, "Spatial Interaction," Chapter 6 of Focus on Geography, 1970
6. Morgan, Ports and Harbors, 1952
7. Bird, Seaports and Seaport Terminals, 1971
8. Locklin, Economics of Transportation

B. Cartographic and Statistical Reference

1. Lloyds Maritime Atlas, 8th edi., 1971
2. Bureau of Census, U. S. Waterborne Foreign Trade
3. U. S. Corps of Engineers, Waterborne Commerce of the U. S.
4. Maritime Research Inc., Chartering Annual, 1972
5. Fearnley and Egers, Review 1972
6. Emery, "The U. S. Effective Control Fleet," U. S. Naval Institute Proceedings, May, 1970 (Naval Review Issue)
7. Port of Seattle Annual Report 1971

C. Tramp Shipping and Bulk Cargoes

1. Sargent, III A 1 (above)
2. Fleming, "The Independent Transport Carrier in Ocean Tramp Trades," Economic Geography, Jan., 1968
3. Manners, The Changing World Market for Iron Ores, 1950-1980 Chap. 9), 1971

D. Maritime Technology

1. Bruffey, The Impact of the Supercarrier on Ocean Cargo Flows, Routes and Port Activity, (Ph.D. dissertation) 1971
2. Nakayama, "Japan's Phenomenal Shipbuilders," U. S. Naval Institute Proceedings, August 1966

E. Passenger Service

1. Brinnin, The Sway of the Grand Saloon, 1971
2. Fleming, The Transatlantic Alternative, (unpublished), 1970

F. Port Geography

1. Bird, (III A, 7, above)
2. Albion, The Rise of New York Port, 1939
3. Weigend, "Some Elements in the Study of Port Geography,"
Geographical Review, April, 1958
4. J. Kenyon, "Elements in Inter-port Competition in the
United States," Economic Geography, January, 1970
5. "The Port of London Authority," U. S. Naval Institute
Proceedings, Sept. 1971
6. McDonald, "Oil and the Environment: The View From
Maine," Fortune, April, 1971
7. Hance and Van Dongen:
 - a. "Matadi," Annals AAG, March, 1953
 - b. "Lobito," Geographical Review, Oct., 1956
 - c. "Lourenco Margues," Economic Geography, July, 1957
 - d. "Beira," Annals AAG, Dec. 1957
8. Siegfried, Suez and Panama, 1940
9. Port of Seattle: Annual Reports, Economic Impact Study,
Reporter

Texas A&M University
Texas Maritime Academy

Mart I:

Fall 1972

Ocean Transportation I

Texts:

1. Ocean Transportation - McDowell and Gibbs
2. U.S. Merchant Marine Today - Labor-Management Maritime Committee
3. American Merchant Seaman's Manual - Cornell and Hoffman
4. American Merchant Marine Officer's Handbook - Turpin and MacEwen

Reference Texts:

Because of the numerous reference texts and publications involved, the individual reference will be cited as the course progresses.

Optional Programs:

In order to offer you an opportunity to better grasp a particular-likeable phase of the marine industry, arrangements can be made to place you as an observer or trainer in various locations with various organizations. Approval and time being the most difficult, still, it would be most beneficial for you to take advantage of these opportunities. Additional information will be furnished during lectures.

First Week

Introductions

Scope and Purpose of Course

Opportunities and Developments within Course

Optional Programs explained

Tests and Assignment Procedures detailed

Library Regulations and facilities presented

Introduction to Ships, Shipping and Seamen

Introduction - AMSM

Ship Operation

Chapter 11 - OT

First Assignment

Submit a typed 3 page paper - Subject:

The American Seaman's Image

(past, present & future)

This paper due at the commencement of the First Exam

Second Week

Seaman's Law

Chapter 16 - OT

Chapter 18 - MMOH - appropriate sections

Chapters 21 & 22 - MSM

The Law of Vessels

Chapter 17 - OT

Chapter 18 - MMOH (appropriate sections)

Third Week

Shipping in the World Economy

Chapters 1 - 3 OT

Second Assignment

Present a 3 page paper - Subject:

What Can TMA and the Marine Industry do for me?

Fourth Week

Shipping in the World Economy

Chapters 3 - 6 OT

Parts I, II & V USMM Today

Fifth Week

The Shipping Process

Chapter 7 - OT

Chapter 18 - MMOH

Chapter 8 - OT

Third Assignment

Present a 3 page paper - Subjects (optional)

1. The Common Market and the US
2. The Growth of Russian Trade and MM since WW II
3. President's 1971 - 1972 10% Surcharge
4. The Greek MM since WW II
5. The Suez Canal and Petroleum

Sixth Week

The Shipping Process (cont.)

Chapter 9 and 10 - OT

Chapter 18 - MMOH (appropriate sections)

Seventh Week

The Shipping Process (cont.)

Chapter 12 - OT

Fourth Assignment

Present a 3 page paper - Subject:

The Solution for Shippers to Ship American Flag

Eighth Week

The Finance of Shipping - Government Aid

Chapter 13 - OT

Parts 1 - 6 USMM Today

Ninth Week

The Problems of the USMM Today

Parts 1 - 6 USMM Today, Chapter 14- OT

Fifth Assignment

Submit a 3 page paper - Subject:

A Subsidized Merchant Marine - Pro or Con

Tenth Week

Laws and Agencies Governing Shipping

Chapter 20 - OT

Chapter 18 - MMOH

Eleventh Week

International Conventions and Treaties

Chapter 21 - OT

Sixth Assignment

Submit a 3 page paper - Subject:

The American Merchant Marine and the Balance of Payments

Twelfth Week

Merchant Shipping in Wartime and Emergency

Chapter 22 - OT

Rutgers University - The State University

Department of Geography

Geography 410:Spring 1971Ocean Trade and TransportationD. L. GlickmanPort of New York Authority

Reading List

- Alexandersson, G. and Norstrom, G., WORLD SHIPPING, John Wiley and Sons, 1964
- Bennathan, E., THE ECONOMICS OF OCEAN FREIGHT RATES, Praeger, 1969
- Bown, A. N. J., and Dove, C. A., PORT OPERATION AND ADMINISTRATION, Cornell Maritime Press, 1956
- Cufley, C. F. H., OCEAN FREIGHTS AND CHARTERING, Staples Press, 1962
- Fair, M. L. and Reese, H. C., MERCHANT MARINE POLICY, Cornell Maritime Press, 1963
- Fair, M. L., PORT ADMINISTRATION IN THE UNITED STATES, Cornell Maritime Press, 1954
- Ferguson, A. R., ECONOMIC VALUE OF THE UNITED STATES MERCHANT MARINE, Transportation Center, Northwestern University, 1962
- Gorter, W., UNITED STATES SHIPPING POLICY, Harper & Bros., 1956
- Goss, R. O., STUDIES IN MARITIME ECONOMICS, Cambridge University Press, 1968
- Grossman, W. L., OCEAN FREIGHT RATES, Cornell Maritime Press, 1956
- Hedden, W., MISSION: PORT DEVELOPMENT, American Association of Port Authorities, 196
- Jensen, V. H., HIRING OF DOCK WORKERS, Harvard University Press, 1964
- Joint Economic Committee of the Congress, ECONOMIC POLICIES AND PRACTICES, PAPER NO. 6, Subsidies of Eleven Foreign Countries, 1964
- Lawrence, S. A., UNITED STATES MERCHANT SHIPPING POLICIES AND POLITICS, Brookings Institution, 1966
- Mance, H. O., INTERNATIONAL SEA TRANSPORT, Oxford University Press, 1945

- Mark, D., INTERNATIONAL SHIPPING CARTELS, Princeton University Press, 1953
- McDowell, C. E. and Gibbs, H. M., OCEAN TRANSPORTATION, McGraw-Hill, 1954
- Norgan, F. W., PORTS AND HARBORS, Hutchinson & Co., revised ed., 1964
- Nunro-Smith, R., MERCHANT SHIPS AND SHIPPING, A. S. Barnes, 1970
- Oram, R. B., CARGO HANDLING AND THE MODERN PORT, Pergamon Press, 1965
- Ouren, T. and Somme, A., TRENDS IN INTERWAR TRADE AND SHIPPING, J. W. Eides Forlag, (Bergen, Norway) 1949
- Port of New York Authority, METROPOLITAN TRANSPORTATION, 1980, Ch. 5, 9 - 12, 18, 1963
- Proceedings of the International Association of Ports and Harbors, 1967
- Rosenthal, M., TECHNIQUES OF INTERNATIONAL TRADE, Ch. 5 - 10, 18 - 25, McGraw-Hill, 1950
- Sturmev, S. G., BRITISH SHIPPING AND WORLD COMPETITION, Athlone Press, 1964
- Svendsen, A. S., SEA TRANSPORT AND SHIPPING ECONOMICS, Institute for Shipping Research, (Bremen), 1958
- Thoman, R. S. and Conkling, E. C., GEOGRAPHY OF INTERNATIONAL TRADE, Prentice-Hall, 1967
- Woytinsky, W. S., WORLD COMMERCE AND GOVERNMENTS, Ch. 3, 4, 10, Twentieth Century Fund, 1955

University of Rhode IslandDept. of Fisheries and Marine TechnologyFMT 416:Spring 1973Marine TransportationProfessor G. A. Motte

1. 416 Marine Transportation II, 3
 Marine transport and the carriage of seaborne cargoes: trade and cargo patterns, ship types, international and governmental organizations, business, legal and insurance aspects, position of U. S. merchant marine, ports. (Lec. 3) Prerequisite: Permission of instructor. Motte
 In alternate years, next offered Spring, 1973
2. Expected distribution of students
 5 - 10 graduate students, 15 upper level undergraduates
3. Place in curriculum
 - (a) Major area of concentration or directed elective course in Marine Resources option of Natural Resources curriculum.
 - (b) Elective in Master of Marine Affairs Program
4. Overlap
 There is no overlap with any existing course
5. Facilities
 No new facilities are needed
6. Availability of personnel
 Course will be taught by G.A. Motte, and offered alternate years
7. Date first offered
 Spring 1973
8. Course Outline
 - A. World Trade
 - (1) Principal trading routes
 - (2) Pattern of seaborne trade
 - (3) Coasting trade
 - B. Shipping
 - (1) Flag distribution
 - (2) Flags of convenience
 - (c) Cargoes

C. Ship Types

- (1) General cargo
- (2) Oil carriers
- (3) Bulk carriers
- (4) Container ship
- (5) Lash
- (6) Roll on - roll off
- (7) Passenger
- (8) Other special types

D. Chartering

- (1) Brokers and agents
- (2) Types of charter
- (3) Legal aspects
- (4) Freight rates

E. Bills of Lading

- (1) Legal aspects
- (2) Responsibilities and liabilities
- (3) U. S. carriage of goods by sea acts
- (4) Traditional clauses
- (5) General and particular average

F. Marine Insurance

- (1) Hull and cargo
- (2) Standard clauses
- (3) Underwriting
- (4) P & I

G. Shipping Organizations

- (1) International
- (2) Governmental

H. Ship Management

- (1) Ship owner
- (2) Fleet operation
- (3) Conference lines
- (4) The Shipmaster

I. The Merchant Marine

- (1) Worldwide
- (2) United States

J. Port Operation

- (1) Port control
- (2) Organization and planning
- (3) Functions
- (4) Management

Massachusetts Institute of TechnologyDept. of Ocean EngineeringMarine Transportation EconomicsJ.W. DevanneyH.S. Marcus

This subject attempts to develop the student in three areas: (1) familiarity with the operation of the principle marine transportation markets, (2) understanding of what it means to allocate resources in a real wealth maximizing manner, and (3) ability to apply this understanding to various public policy issues in marine transportation.

Course Topics

1. Survey of trade theory
2. Description of ship charter markets
3. Analysis of the conference system
4. Treatment of balance of payments
5. Analysis of maritime subsidy and protection policies
6. Port pricing and expansion
7. Efficient versus inefficient regulation of vessel pollution

State University of New York at Stony BrookMarine Sciences Research CenterMAR. 553:Spring 1971Fishery EcologyJ. L. McHugh

Course Outline

1. Introduction

The objectives of fishery research and management -
History of marine fishery research - Development of
distant water fisheries - The need for international
arrangements.

2. Development of marine fishery research and management in the
United States prior to World War II. The early
fishery laboratories and their work - Species and
fisheries of primary emphasis - Successes and failures -
Development of international cooperation.3. Developments after World War II. Trends in world catch - The
quantitative approach - Difficulties in translating
research into effective management - Federal and
State jurisdiction and responsibilities - Rapid
proliferation of world fisheries - Growing problems
of the U. S. fishing industries - The ecological
approach.

4. Case histories of domestic marine fisheries

- (a) Pacific salmon
- (b) Pacific sardine
- (c) The oyster industry
- (d) Atlantic menhaden
- (e) The blue crab fisheries
- (f) Marine sport fisheries
- (g) Fisheries of the Middle Atlantic Bight

5. Case histories of international fisheries

- (a) International Council for the Exploration of the Sea
- (b) International Fur Seal Commission
- (c) International Pacific Halibut Commission
- (d) International Pacific Salmon Commission

- (e) International Whaling Commission
 - (f) Inter-American Tropical Tuna Commission
 - (g) International Commission for the Northwest
Atlantic Fisheries
 - (h) International North Pacific Fisheries
 - (i) International Great Lakes Fisheries Commission
 - (j) International Commission for the Conservation
of Atlantic Tunas
 - (k) Department of Fisheries, Food and Agriculture
Organization of the United Nations
6. Bilateral fishery agreements
 - (a) with Japan
 - (b) with the Soviet Union
 - (c) with other nations
 7. The law of the seas as applied to fisheries
 - Early arrangements - The 1958 and 1960 Geneva
Conventions - Recent developments
 8. Fishery oceanography
 - Early history - NASCO - The Intergovernmental
Oceanographic Commission - International expeditions
 9. Fishery economics
 - The need for research in economics - Early attempts
to apply economic reasoning to fishery research and
management - Modern theory and its practitioners
 10. The future of marine fishery research and management

Literature Reference List

There is no specified text for the course. No single book, or even a manageable small group of books and scientific papers, would be an adequate library on this subject. Therefore, lists of useful references will be handed out periodically. None of these is a mandatory purchase, but I will be glad to advise any student who would like to accumulate a small but reasonably comprehensive fishery library.

The following books are good general references. They range in quality and coverage from good to mediocre, but all have some

good sections.

- 1) Benson, Norman G. ed., 1970. A Century of Fisheries in North America. Amer. Fisheries Society, Spec. Pub. No. 7. Washington, D.C.: ix + 330 pp. \$10. Can be obtained from American Fisheries Society, 1040 Washington Bldg., 15th and New York Avenue N.W., Washington, D.C. 20005
- 2) Shapiro, Sidney ed., 1971. Our Changing Fisheries. U.S. Department of Commerce, Nat'l. Oceanic and Atmospheric Admin.: x + 54 pp. \$9. Can be obtained from Supt. of Documents, U.S. Gov't. Printing Office, Washington, D.C. 20402
- 3) Saults, Dan ed., 1971. Sport Fishing USA. U.S. Department Interior, Bureau of Sport Fisheries and Wildlife, Washington, D.C.: x+ 464 pp. \$10. Available from Supt. of Documents, Washington, D.C.
- 4) Royce, William F. 1972. Introduction to the Fishery Sciences Academic Press, N.Y. City: x + 351 pp. Price unknown; would guess about \$10.
- 5) Gerking, Shelby D. ed., 1967. The Biological Basis of Freshwater Fishery Production. John Wiley and Sons, N.Y. City. Price unknown.
- 6) Rounsefell, George A. and W. Harry Everhart, 1953. Fishery Science: Its Methods and Applications. John Wiley and Sons, N.Y.: xii + 444 pp. Probably out of print.
- 7) Lagler, Karl F. 1956. Freshwater Fishery Biology, 2nd edition. Wm. C. Brown Co., Dubuque, Iowa: xii + 421 pp.
- 8) Graham, Michael ed., 1956. Sea Fisheries: Their Investigation in the United Kingdom. Edward Arnold (Publishers) Limited., London: xii + 467 pp.

As noted on the previous list, these readings are not mandatory, but students should try to locate one or more books or articles on each list and select their reading to amplify the subject matter of the course.

- 1) Galtsoff, Paul S., 1964. The American Oyster. U.S. Department of Interior, Bureau of Commercial Fisheries,

- Fishery Bull. 64: iii + 480 pp.
- 2) Sindermann, Carl J. 1968. Oyster mortalities, with special reference to Chesapeake Bay and the Atlantic coast of North America. U. S. Department of Interior, Bureau of Comm. Fish., Spec. Sci. Rept.- Fisheries 569: 1-10
 - 3) Yonge, C. M. 1960. Oysters. Collins, London: xiv + 209
 - 4) MacKenzie, C. L., Jr. 1970. Oyster culture in Long Island Sound, 1966-69. U. S. Department of Interior, Bu. Comm. Fish. Commercial Fisheries Review. Vol. 32, No. 1: 27-40
 - 5) Walford, Lionel A. 1958. Living Resources of the Sea. Ronald Press Co., New York: xv + 321 pp.
 - 6) Ryther, John H. and John E. Bardach. 1968. The status and potential of aquaculture. Vol. I. Particularly invertebrate and algae culture. U. S. Dept. of Commerce, Clearinghouse for Fed. Sci. and Tech. Information, PB 177, 767: vi + 261 pp.
 - 7) Bardach, John E. and John H. Ryther. 1968. The status and potential of aquaculture. Vol. II. Particularly fish culture. U. S. Dept. of Commerce, Clearinghouse for Fed. Sci. and Tech. Information, PB 177, 768: vi + 225 pp.
 - 8) Harden Jones, F. R. 1968. Fish Migration. St. Martin's Press, N. Y.: 325 pp.
 - 9) Laevastu, T. and I. Hela. 1970. Fisheries Oceanography. New ocean environmental services. Fishing News (Books) Ltd., London: 238 pp.
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University of Delaware
College of Marine Studies
CMS-866 Systems Analysis of Marine Problems
Special Problem in Marine Affairs
Dr. Dennis F. Polis

Course Description

The qualitative analysis of marine systems: system definition and analysis; models; value problems, decision-making philosophies, elementary notions of cost-benefit analysis, risk analysis; forecasting techniques, scenarios, Delphi techniques. Examples from various marine disciplines. Combined lecture and seminar format.

Course Objectives

In addition to familiarizing the students with basic technique, the course will attempt to produce a set of systematic procedures for the analysis of environmental decisions in the Coastal Environment at various levels of intensity.

I. Introduction

- A. Definition of systems analysis
- B. Course content and outline

II. Objective Identification and Definition

- A. Decision
- B. Decision making rules
- C. Analytical tools
- D. Information
 - 1. Prediction
 - 2. Forecasting
 - 3. Insight

III. System Definition

- A. Identification of pertinent features
- B. Limitation of system
- C. Division into subsystems

IV. System Analysis

- A. Detailed inspection to fill in overview
- B. Categorization of details and definition of relations
- C. Setting-up the model
 1. Definition
 2. Problem of scale - theory of integrative levels
 3. Qualitative models
 - a. Logic diagrams
 - b. Flow charts
 - c. Matrices
 - d. Decision trees
 4. Mathematical models
 - a. Deterministic models
 - b. Stochastic models
 - c. Models exhibiting both features
 - d. Dynamic models
 - e. Kinematic models
 - f. Calibration and verification
 - g. Alternate formulations
 5. Special Purpose Models
 - a. Scratch pad models
 - b. Dummy models
 6. Sources of modeling errors
 - a. Bad theory
 - b. Bad approximations
 - c. Errors from numerical methods
 - d. Errors in data-insufficiency of data
 - e. Errors in assumed initial conditions
 - f. Errors in interpretation
 - g. Extension beyond design range
 - h. Faulty machine operation

7. Generation of Data
 - a. Specification of data needs
 - b. Objective data
 - c. Subjective data: Delphi technique

D. Assignment of values

1. Hierachy of values
 - a. Values
 - b. Goals
 - c. Objectives
 - d. Targets
2. Roles of decision-maker and of analyst
3. Decision-making philosophies
 - a. Optimization
 - b. Satisfaction
 - c. Combination
4. Basis of value

Philosophical analyses of value
5. Types of values
 - a. Utility functions
 - b. Monetary
 - i. Social function of money
 - ii. Discounted present value
 - iii. Marginal costs
 - iv. Opportunity costs
 - v. Externalities
 - vi. Cost of ignorance
 - c. Non-monetary Values
 - i. Measures of effectiveness
 - ii. Risk
 - Expected value
 - Cost-risk curves
 - Time-risk curves
 - Stability - resiliency
 - Reliability
 - Cost of removal

- iii. Subjective probability
- iv. Aesthetics
- 6. Variation of value
 - a. Time-dependence
 - b. Geographics dependence
 - c. Population dependence
- 7. Non-well ordered values
 - Voter model

V. Embodiment and Presentation of the Analysis

- A. Modes of Presentation
 - 1. Static presentation - Scenarios
 - 2. Models
 - 3. Games
- B. Making analysis understandable to user
 - 1. Details of assumptions
 - 2. Details of solution limitations
 - a. Accuracy
 - b. Reliability
 - 3. Interpretation of results
 - 4. Early involvement of user
 - 5. Minimal explanation of internal intricacies
- C. Effectiveness of analysis
 - 1. Objective component
 - a. Accuracy of solution
 - b. Cost of use
 - 2. Subjective component
 - a. Requirements of decision maker
 - b. Credibility of analysis

Course Bibliography

As far as I know there is no single book which covers the material in this course. I have abstracted the material from numerous books, papers, and seminars as well as informal conversations, and my own experience. The following represents a sampling of the sources in which the techniques of systems analysis are embodied, or from which

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