

Course Hours: MWF 4:00 – 4:50 PM, Center 212

Instructor: Dale Squires
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Office: 113 Economics

Office Hours: Immediately preceding class or by appointment

Course Objectives

The Economics of Ocean Resources is designed to provide students with both the economic theory and management concepts of natural resource use as they apply to ocean resources, and the factual and institutional knowledge necessary for well-informed applications.

The course develops several basic themes and applies them to different resources. First, the common thread running throughout the course is the theme of optimal allocation of ocean resources. Second, property rights for ocean resources are often limited or incomplete, and many resource allocation decisions are intertemporal in nature. As a consequence, competitive markets for ocean resources often fail to form, or when they do form, they fail to optimally allocate ocean resources among the competing uses. The market failure and subsequent suboptimal use of ocean resources therefore calls into play explicit options of management and public regulation. Third, population dynamics of species forms the basis of bioeconomic models for renewable resources, which combines population dynamics, habitat, biodiversity, and economics. Fourth, standard bioeconomics has neglected the broad role of the ecosystem, which raises the issue of ecosystem management. Fifth, the economic concepts of total economic value (use, existence, and option value) and mixed goods (a mixture of private and public goods) are applied to dolphins, whales, sea turtles, and coral reefs in which management requires attention to both private and public uses and total economic value.

This first section of the course will include one video discussing the current plight of the world's fisheries and discussing various policy measures. It will also include an in-class presentation of a computer game graphically illustrating the effects on a fish population of alternative harvesting strategies and fishery management policies.

The second section of the course is more applied and broader in nature, covering environmental issues associated with living marine resources. The section first develops an overall economic analytical framework, focusing on management of mixed goods (a mixture of private and public goods) and accounting for total economic value. Mixed good

management forms one the current "hottest" environmental issue of the oceans, including dolphins, whales, sea turtles, and coral reefs. Specific analytic topics covered include public and mixed goods, total economic value, biodiversity, habitat, and wildlife management. Ecosystems management and sustainability are also touched upon. Videos and guest lectures will supplement the in-class treatment of several topics. Students are responsible for the readings on their own.

Course Requirements and Grading

1. Midterm examination in approximately week six -- 35% of course grade.
2. Final examination – 35% of course grade
 - Covers all of the course material between the midterm and the class end but not the material covered by midterm.
3. Term paper – 30% of course grade
 - Due on the day of the final exam.
 - 8-10 pages, double-spaced and typewritten.
 - The paper should primarily rely upon direct field research and/or library research. Research primarily drawn from the world-wide web will not receive full credit.
 - To help the student focus interest upon a tractable problem, a brief, one paragraph outline of the selected topic is required at the end of the sixth week of class. However, students should feel free to discuss these topics with the instructor at any time.

Reading Material

Most required reading material can be purchased in a packet from Cal Copy. The number of students wanting a packet will be determined on the second day of class and the order given to Cal Copy at that point. A few articles will be placed on reserves in the Undergraduate Library.

* denotes required reading available by purchase

**THE ECONOMICS OF OCEAN RESOURCES
READING LIST**

(* required material packet to be purchased from Cal Copy)

I. INTRODUCTION

1. Ocean Resources: An Overview

Note: The reference in this section should be skimmed to capture the main points.
The material is primarily for background.

* "The Sea," Survey in *The Economist*, May 23, 1998, 18pp.

2. Property Rights, Public Goods, Externalities, and Environmental and Resource Problems

* Tietenberg. Chapter 4, pp. 61-73..

* Grafton, R.Q. "Governance of the Commons: A Role for the State?" *Land Economics*, 76 (2000): 504-517.

II. THE ECONOMICS AND MANAGEMENT OF RENEWABLE MARINE RESOURCES

1. The Theory of Open Access and Bioeconomics

* Wilen, J. "Life Histories of Organisms," Section 4.2.(pp. 91-93) in "Bioeconomics of Renewable Resource Use," Chapter 2 in A.V. Kneese and J.L. Sweeney, eds., *Handbook of Natural Resource and Energy Economics*, Vol. I. New York: Elsevier Science Publishers B.V., 1985.

* Hartwick, J. and N. Olewiler. *The Economics of Natural Resource Use*. New York: Addison-Wesley, 1997, Chapter 4.

Computer simulation game in class to illustrate population dynamics and fisheries management.

2. Regulation and Public Policy within a Bioeconomics and Property Rights

Framework

- * Hartwick and Olewiler. Chapter 5.
- * Grafton, Q., D. Squires, and J. Kirkley. " Private Property Rights and the Crisis in World Fisheries: Turning the Tide?" *Contemporary Economic Policy* XIV (1996): 90-99.
- * Stone, C. "Can the Oceans be Harboured? A Four Step Plan for the 21st Century." *RECIEL* Vol. 8, Issue 1 (1999): 37-47.

Video in class on fisheries issues and policy, "Empty Oceans, Empty Nets"

MIDTERM EXAMINATION

(First class day in Week 6. Review session in Week 5.)

III. THE MANAGEMENT OF MIXED GOODS IN AN ECOSYSTEMS FRAMEWORK: DOLPHINS, WHALES, SEA TURTLES, AND CORAL REEFS

1. Public Goods, Mixed Goods, Total Economic Value, Biodiversity, International Environmental Agreements

- * Heal, G. "Biodiversity (Chpt. 6)," "Valuation (Chpt. 7)," "Sustainability (Chpt. 9)" in *Nature and the Marketplace*. Island Press (2000).

2. Dolphins

- * Hedley, C. "The 1998 Agreement on the International Dolphin Conservation Program: Recent Developments in the Tuna-Dolphin Controversy in the Eastern Pacific Ocean." *Ocean Development and International Law* 32 (2001): 71-92.
Available online at: <http://www.oceanlaw.net/hedley/pubs/32odil71.pdf>

Video in class and possible guest lecture or two.

3. Whales

- * Mazzanti, M. "The Role of Economics in Global Management of Whales: Re-Forming or Re-Founding IWC?" *Ecological Economics* 36 (2001): 205-221.

Guest lecture.

4. Sea Turtles

- * Dutton, P., L. Sarti, R. Márquez, and Dale Squires. "Sea Turtle Conservation Across The Shared Marine Border." In L. Fernandez and R. Carson, eds., *Both Sides of the Border: Transboundary Environmental Management Issues Facing Mexico and the United States*. Kluwer Academic Publishers (2002).
- * Dutton, P., T. Groves, and D. Squires. TBA (2003)

Guest lecture.

5. Coral Reefs (Readings supplied if we get this far)

Video and lecture in class.

- * Pennisi, E. "Brighter Prospects for the World's Coral Reefs?" *Science* 277 (25 July 1997): 491-493.
- * Moberg, F. and C. Folke. "Ecological Goods and Services of Coral Reef Ecosystems." *Ecological Economics* 29 (1999): 215-233.