UNIVERSITY OF CALIFORNIA, LOS ANGELES

Department of Economics

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Economics 134 – Environmental Economics

Problem Set #2

DUE DATE: May 20, 1999
NOTE: Part I requires downloading of the EXCEL spreadsheet on fisheries. If you do not have a recent version of EXCEL on your own computer, you may have to complete this portion of the assignment in one of the on-campus labs. Part II requires that you access the EconLit database for another literature search.

Possible score: 50 points (scaled to 25 points for final course grade).

Part I. Theoretical and Empirical Modeling (30 points)

1. (10 points) Explain how the "Economics of Forests" has evolved. It used to be mostly about "how a forest manager should optimally decide upon the harvest cycle for an ongoing forest rotation." What issues are now relevant to economists concerned with the economics of forest management?

2. (20 points) Download the EXCEL Spreadsheet #1 from the Econ 134 Homepage. (If you are completely unable to do this, explain why. Partial points may be awarded for agony, if documented.) This exercise is designed to let you appreciate the effects of different characteristics of a fishery on the likelihood that the initial exploitation of a fish stock will "go wrong," leading to a crash of the fishery (and/or extinction of the species).

   a.) (5 points) The parameters of the dynamic model can be altered in the second column of the spreadsheet, where it says "Alter these:" The default values are recorded in a box, so you can always "put it back the way it was." Observe the current time paths of exploitation (yield) and the fish stock under the default parameter values. Describe in words what the model shows. Under the default parameters, does the fishery crash? Is the stock driven to extinction or near-extinction?

   b.) (5 points) Now think about what might cause a fishery to be exploited more aggressively. Try changing the relevant parameter (I.e. Double-click on the cell that contains it and delete the current entry then type the new value…do not hit ENTER yet. Use the slider to move the screen to the graphs, then hit enter, so you can see what difference the changed parameters make to the trajectories.) Report whether you have been able to achieve this, describing what difficulties you may have encountered. If you had very little trouble making the model "work," please report only this.

   c.) (10 points; 5 points each) Some parameter changes result in the fishery being exploited in such a way that the general first-round profile mimics the profiles for some actual fisheries which have had major problems:

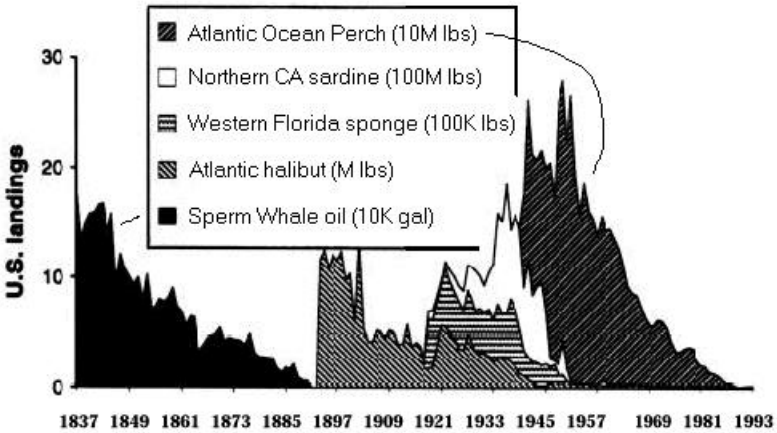

Figure 2-11
Fish resources are discovered, exploited, and depleted in open-access fisheries

http://www.st.nmfs.gov/st1/econ/oleo/chap2.pdf

Notice that these five fisheries seem to have an initial steep increase in exploitation, followed by a more gradual decline to virtually zero. You may ignore the smaller year-to-year fluctuations and focus on the general large pattern.

Investigate the roles of two of the model's parameters. (Do this separately, one at a time.) For each parameter which you change, report the following:

(i.) the letter and description of the parameter,
(ii.) the default value and the new value you tried,
(iii.) logically, why you think this parameter change would contribute to overexploitation,
(iv.) sketch the first exploitation cycle as a function of time,
(v.) mention whether just the yield goes to zero (exploitation becomes uneconomic), or even the stock, goes to zero (extinction)

Part II. Experimental Online Assignment (new technology) (20 points)

(As before, 5 points for criteria, 5 points for each citation)

The Econlit database (http://webspirs.silverplatter.com/cgi-bin/customers/ucla/ucla-econ.cgi) is another key source of information about research in economics. This database is different from **webofscience** in that it covers only "Economics" rather than all of social sciences, and it does not have the citation and reference information contained in **webofscience**. However, it also includes information about chapters in books, book reviews, and, perhaps most importantly, working papers. These are research articles that have not yet been published in refereed journals. (Some, of course, may never be published, but most will.) The most important distinction, relative to UCLA's subscription to webofscience.com, is that we have access to articles going back to 1969. Not all of these have associated abstracts, since not all journals required papers to have abstracts in the early years. At least with EconLit, you can be more confident that what you have found is, indeed, an economics paper.

Again, the intent of this assignment is two-fold. First, you will be engaging in another collaborative effort, with your classmates, to paint a picture of research in the discipline of environmental economics. Second, whenever you are faced with writing a paper on a particular topic (or jumpstarting a project for your job), you often need literature searching skills. This project will give you an incentive to become familiar with EconLit.

In this assignment, you will be looking for the earliest three "significant" articles on each topic. This exercise will allow you to develop a sense of when these issues began to emerge in the economics literature. Like the SSCI database search conducted for the first problem set, these finds will be "shared" and evaluated in upcoming problem sets 3 and 4.

The data entry page looks much as it did for the first literature project. Now, however, you will be asked to describe roughly **when** your assigned subject seems to have become interesting to economists (if at all?). You will also need to articulate the criteria you have used. E.g. one paper in 1973 followed by nothing at all until 1987, and several papers between 1987 and 1992 would suggest that the later period was the "beginning" of avid interest in the subject. Explain what you have found.

Topics for this exercise will be assigned according to the 7^{th} and 8^{th} digits of your UCLA student ID. These two digits occupy the third- and second-last positions: e.g. XXX-XXX-78X. Note the change from the procedure used in the last homework. This ensures that different subsets of people will be working on each topic. Note also that I have pared down the number of topics, combining some and eliminating others.

7^{th} & 8^{th} digits of student number:	Topic #	*Topic Name*
01-05	1	Biodiversity/Endangered Species
06-10	2	Contingent Valuation
11-15	3	Emissions Charges, Pollution Fees
16-20	4	Environmental Justice/Equity
21-25	5	Environmental Kuznets Curve
26-30	6	Fisheries (Commercial)

31-35	7	Fisheries (Recreational)
36-40	8	Forests or Forestry
41-45	9	Global Warming/Climate Change
46-50	10	Groundwater Resources
51-55	11	Hedonic Property Value Method
56-60	12	Mining or Minerals; Exhaustible Resources
61-65	13	Mobile-Source Air Pollution (e.g. cars)
66-70	14	Municipal Waste (Trash, Garbage)
71-75	15	Rivers and Streams, Surface Water
76-80	16	Toxic Substances/Hazardous Waste
81-85	17	Transferable Emission Permits
86-90	18	Individual Transferable Harvest Quotas
91-95	19	Travel Cost Method
96-00	20	Water Quality, Water Pollution

WARNING: again, you must access EconLit from an official UCLA IP address, since the university subscribes to this database and access is limited to members of the university community. When you go to the indicated URL for Econlit, just check the box for Econlit and then click on "Search." The next screen will be the one where you should enter your search terms. Notice that the author and source information in EconLit are links. To copy them using cntl-C, you will have to start outside the link and drag without clicking your mouse. Also: Eligible papers need not necessarily have been published in journals.