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Economics of Fisheries Management: A Symposium

By

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Price Unknown.

This book contains the papers and prepared commentary presented at the annual assembly of scholars concerned about fisheries research, sponsored by the University of British Columbia. For the first time, the "H. R. MacMillan Lectures in Fisheries" has been extended beyond the physical domain of the field, a departure which, hopefully, will be repeated.

In the first of seven papers, James Quirk and Vernon Smith conduct the reader on an extended tour, using control theory as their vehicle. Beginning with a simple, general equilibrium number involving risk and one other good, the tour formally stops with the study of multispecies; "stops", not "ends", since the level of complexity now is such that the existence of a unique steady state equilibrium remains to be proven. The authors conclude that central authority always performs better than a market economy, unless the fish are no longer common property.

Myopic analysts, preferring the spatial dimension, will want to study the Judge and Takayama contribution. Recognizing that resources and commodities quite rightly are not massed at a point, they spell out the properties of solutions to different problems cast within a dynamic programming framework. Their decentralized decision-making structure is Pareto optimal, because their assumptions effectively remove the physical interdependence commonly observed in the fishery. Given partial equilibrium competitive conditions, prices differ by transport costs when trading is ubiquitous, a useful but not surprising conclusion.

Seasonality is the major topic of Paul Bradley's paper. The correct season length, rate of catch, and units of effort are derived from two rent maximizing models: one in which a unit of gear makes contact with a constant population density typified by a stylized in-shore salmon fishery; the other—basically a Smith-Quirk model—in which the population is thinned by earlier contact, thereby producing a Marshallian external diseconomy. In the first instance, a constant unit tax produces the desired results. In the second case, a daily variable tax is in order.

Once referred to as "things of the negative community," ownership

rights of species *ferae naturae* clearly differ from pieces of property belonging to the positive community. Steven Cheung's paper helps the reader to understand better how the richness of actual contracts brings market performance in common and private property situations closer together. He thus questions the faddish concern for externalities. A neat formal description of rent dissipation in the fishery enhances the paper.

Experienced hands in the field contributed the remaining papers. Anthony Scott and Clive Southey describe and evaluate a pure property rights system, a central agency with taxing authority and an organization employing rules and regulations as alternative guidance systems. Dubious about the first approach and agnostic about the remaining two, they caution the reader about second-best decision-making which improves one margin, but worsens our lot. James Crutchfield's vivid portrayal of actual international fisheries provides gristle for synopticians to chew on. In the real world, where physical ignorance, political machinations, conflicting expectations and disparate definitions of distributive justice abound, Crutchfield eschews simplistic nostrums, favoring an overall quota and transferable national quotas established by an international agency. New entrants would obtain quotas from a reserve.

Arnold Zellner, in an appropriate final chapter, indicates the direction for further study: introducing lagged variables; introducing more species interaction; and making the economic and physical functions stochastic.

The collection would have been enhanced by a paper which identified common themes, resolved, or at least specified internal contradictions, and corrected the more glaring errors and cited omissions. Fisheries biologists generally obtain population data using a production function which is homogenous of degree two. If they are correct, the formal models in this symposium are simply bad science fiction. If, however, they are wrong, then together we just grope for an acceptable new structure and new data. Contrasting the practitioners' perceptive views of real fisheries problems with the synopticians' view is a sobering exercise. The optimizers seem barely to have left port. The symposium makes it clear that much remains to be done.

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