Analogies to a Limited-Entry Fishery

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CONTENTS

ABSTRACT

Miller, R.J. 1982. Analogies to a limited-entry fishery. Can. Tech. Rep. Fish. Aquat. Sci. 1077: iv + 6 p.

Fisheries management regulations concerned with the best intentions to produce the greatest good often yield unintended results. Analogies to a contrasting type of business enterprise illustrate some unintended results.

Key words: limited-entry fishery, licensing, resource rent, fishery regulation.

RÉSUMÉ

Miller, R.J. 1982. Analogies to a limited-entry fishery. Can. Tech. Rep. Fish. Aquat. Sci. 1077: iv + 6 p.

Le gouvernement, en promulguant des lois et des règlements qui régissent l'industrie de la pêche, veut sans doute agir dans l'intérêt des citoyens; son action aboutit sovent, cependant, à des résultats non escomptés. Pour illustrer des résultats non escomptés auxquels peuvent aboutir des actions, l'auteur établit des analogies avec un type d'entreprise commerciale différent des types d'entreprise de pêche.

INTRODUCTION

Fisheries management regulations conceived with the best intentions to produce the greatest good often yield unintended results. The following examples illustrate some of the unintended results of some current eastern Canadian fisheries regulations and policy. Most of the points illustrated are common knowledge among fisheries economists; but for today's fishery biologists, some of who will be tomorrow's fishery managers, who feel no urgency to cross discipline barriers, these examples may be instructive.

ANALOGIES

FIRST ANALOGY

Two businessmen living on an oasis in the Sahara are given, by their government, exclusive licenses to the only well. The first year each businessman draws water from the well with a bucket on a rope. Cost of equipment is $5 each, and revenue from water sales is $50,000 each.

The second year, Businessman A adds a gasoline-powered pump at a capital plus operating cost of $500. His revenue is increased to $75,000. The revenue of businessman B, still using the bucket, is reduced to $25,000.

In year 3, Businessman B buys a bigger pump than Businessman A. B's costs and revenue are $5,000 and $75,000 respectively.

The trend of increasing capital and operating costs continues, and by Year 9 the income statements of both men are again the same.

Revenue	
Water Sales	$50,000
Expenses	
Amortized cost of pump (purchased from Europe)	$20,000
Fuel for pump (purchased from Middle East)	$10,000
Pump mechanic (brother-in-law)	$10,000
	$40,000
Profit	$10,000

In Year 10 the water table drops and, with help from the taxpayer, both businessmen again show a profit as follows:

Revenue

Water sales	$25,000
Taxpayer subsidy	$20,000
	$45,000

Expenses

Amortized cost of pump	$20,000
Fuel for pump	5,000
Pump mechanic	10,000
	$35,000
Profit	$10,000

SECOND ANALOGY

A businessman living on an oasis in the Sahara is given, by his government, an exclusive license to the only well. To maintain the resource rent in the primary sector, the government limits transfer of the license to a family member, an employee, or the government. The first year the businessman and an employee both draw water from the well with buckets on ropes. Cost of equipment is $10, and revenue from water sales is $100,000. The second year the businessman discretely offers to sell his license to his employee, to his parents, and to each of his three brothers and three sisters. A camel dealer, not related to the businessman, hears of the proposed sale and makes the highest bid, $800,000. To meet the government regulation the camel dealer agrees to become an employee of the businessman for a few months.

In his first year of owning the water license, the camel dealer's income statement was as follows:

Revenue

Water Sales	$100,000

Expenses

Debt service charges	$80,000
Employee salary	$10,000
Equipment	10
	$90,000
Profit	$ 9,990

The camel dealer retired on a disability pension with a sore back at age 50. The businessman lived on the Riviera until age 98 before dying of conspicuous consumption.

THIRD ANALOGY

The government of an oasis in the Sahara sells, to the two highest bidders, exclusive access to the only well. Based on wisdom gained from past experience, it collects sizable annual license fees for exclusive access to this publicly owned resource. The fee schedule is based upon the amount of water taken during the year and is collected at the end of the year. A small fraction of the fees is used to beautify the well site, and the remainder is used to lower the taxes of the oasis residents. After a few years, the income statement of each businessman is as follows:

Revenue

Water Sales	$50,000

Expenses

License fee	$39,000
Amortized cost of pump (purchased from Europe)	500
Fuel for pump (purchased from Middle East)	500
	$40,000
Profit	$10,000

The next year the water table drops and both income statements become:

Revenue

Water Sales	$25,000

Expenses

License fee	$19,500
Pump	500
Fuel	250
	$20,250
Profit	$ 4,750

After the water table returns to the original level one businessman openly sells his license to the highest bidder, a camel dealer, for $10,000. The income statement for the new license holder is:

Revenue

Water Sales	$50,000

Expenses

License fee	$39,000
Pump	500
Fuel	500
Debt service charges	1,000
	$41,000
Profit	$ 9,000

SUMMARY

With optimum fishing effort, most fish species could be harvested at costs far below their market value; i.e, the resource rent from fisheries is potentially large. In practice, resource rent is almost inevitably dissipated in the costs of excess industry capacity (Gordon, 1953; Anderson, 1977; Sinclair, 1978). Yet, fisheries policy calls for leaving resource rent with the industry (Levelton, 1979;

Anon., 1980). Not only is the rent lost from the fishing industry; much of it leaves the country for purchase of fuel, fishing gear, and vessel equipment. In years of reduced catches (or low prices), the taxpayer is often called upon to subsidize already marginal fishing enterprises with support payments (MacDonald, 1980; also cf. Fish Prices Support Board annual net loss averaged $1.3 million from 1975-1979).

The policy of limiting licence transfer to reduce their numbers and prevent their sale (Levelton, 1979; Anon., 1980) may simply reduce the number of customers. After limited entry is introduced and before rent from a resource is dissipated in overcapitalization, a fisherman who received his licence free may be able to sell it for a very high price (Meany, 1979; Pearce and Wilen, 1979), taking with him resource rent generated by the licence for the forseeable future.

Some method of taxing resource rent out of the fishery is probably the only way of assuring that resource rent accrues to the taxpayer, the owner of the resource.

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