

Industry Perspective on the Effect of Fisheries Management on Seafood Markets: The B.C. Geoduck Example

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Abstract. Individual Vessel Quota (IVQ) management provides geoduck harvesters in British Columbia with a greater stake in the fishery, by enhancing certainty of harvest access to the fishery. IVQ management has encouraged harvesters to become more interested in the economic and environmental sustainability of the fishery and less in developing strategies to better their individual competitive position.

Because of the change to IVQ management, B.C. geoduck harvesters have been able to co-operate with each other, buyers, and fishery managers in changing harvesting operations to meet market preferences while still maintaining a well managed sustainable fishery. The end result from a market perspective has been a fishery which has gone from ex-vessel prices of 17 cents CDN per pound in 1977 to an average of \$8.50 per pound in 1999.

Keywords: geoduck, individual vessel quotas, markets, property rights, market sensitive management

1. INTRODUCTION

The purpose of this paper is to give an industry perspective on the evolution of the management of the geoduck fishery in British Columbia and relate the changes in fisheries management to market conditions for geoduck.

When the fishery started in 1976, geoducks were a product with a limited market and an average ex-vessel price of 17 cents CDN per pound. Geoducks are now the largest single export commodity from British Columbia to Hong Kong with an average ex-vessel price of \$8.50 CDN per pound in 1999. What follows is a brief description of the policies and events that facilitated this transformation.

2 GEODUCK FISHERIES MANAGEMENT

2.1 Management History

In the early 1970's US Navy divers were using high pressure water jets to retrieve practice torpedoes from the mud and sand bottom of the Hood Canal in Washington State. The water jets were effective in digging up torpedoes, but also revealed great numbers of geoducks, a large buried clam living 2 or 3 feet under the bottom and feeding through a snorkel-like siphon.

These giant clams had previously been observed and occasionally harvested inter-tidally at very low tides but their abundance at greater depths was not generally recognized. Commercial harvesting began and methods were refined in Puget Sound, Washington.

The geoduck fishery in British Columbia began in 1976 as an open access fishery without catch limits. In 1979 entry to the fishery was limited to 55 licences and total

allowable catches were introduced based on a fixed harvest rate of the original biomass.

In 1989, individual vessel quotas were introduced, at industry request, in response to excessive effort and concerns over product supply and handling, safety, and conservation. Equal quotas of 1/55 of the commercial total allowable catch are assigned to each of the 55 limited entry licences each year. Licences are assigned to one of three licence areas on the B.C. coast.

2.2 Effects of IVQ's on Management

Much has been written in fisheries literature about the improvements to management, conservation, economic efficiency, safety, and cost recovery, which are highlights of the benefits of going to a property rights or quasi property rights system of managing fisheries. All of these effects have been evident in the geoduck fishery in B.C.

An industry funded dockside monitoring program has improved the timeliness and quality of reporting catch and effort data. Quota overages have been limited to less than 0.1% annually compared to overages of 55% in pre-IQ periods. Improved tracking of product has aided in enforcement.

The geoduck fishermen's association (the Underwater Harvesters Association) now provides over \$1 million CDN annually towards the management and assessment of the fishery. Funds cover water quality certifications, bio-toxin monitoring, funding for a fishery manager, dockside monitoring, fisheries research, stock assessment, and enhancement research.

An important and fundamental reason the Underwater Harvesters Association (UHA) has been able to undertake

greater responsibilities in improving the management of the fishery is that the Individual Quota system fostered, and indeed initially required, co-operation amongst the fishermen for its implementation because of a need for 100% third party dockside monitoring of landings in the fishery. Co-operative behaviour in this fishery is also facilitated by the relatively small number of harvesters in the fishery and the non-migratory nature of the species.

The other important aspect of moving to IQ management in the fishery has been the ability of the industry to improve its financial performance by adjusting to market demands and new higher value products. Having a profitable fishery has resulted in the industry participants actively financing and participating in improving the management of the fishery.

For example, the industry has contributed to the costs of an extensive bio-toxin monitoring program (\$187,000 CDN in 1999), and for a growing water testing program (\$100,000 CDN in 1999). These programs are essential to a molluscan fishery which now exports the vast majority of its product live. These programs allow fishery managers to confidently open remote areas while still complying with various international agreements regarding product safety. The joint benefits of being able to harvest more product for the live market are easily translated into action because of the existence of an all inclusive commercial harvesters association – the UHA.

Harvesters have also agreed amongst themselves to maintain a one price system for all product landed in order to avoid economic incentives for high-grading and discarding. Once harvested, a geoduck cannot re-bury itself and will die. One of the criticisms of IVQ programs is that they can encourage high-grading and discarding as fishermen attempt to maximize the value of their individual allocations of the resource. Since no grading is done for the purposes of determining ex-vessel prices, the incentive for high grading and discarding is significantly reduced in the B.C. geoduck fishery. The harvesters have agreed that every clam harvested should be sold. While the market in Asia prefers, and will pay more for, a light creamy coloured siphon than a darker siphon – the harvesters realise that any incentive for high grading and discarding is to the long term detriment of the stocks. This can be contrasted to the situation in Washington State where the product is graded when sold. In Washington, in areas where the fishery managers have made observations, high grading ranges from 2% to 28% of the landed catch (Sizemore, 2000). Corroborating reports confirm this range and indicate that high grading may occur at higher rates. Wastage and non-reporting of wastage at a 28% level translates into a 3.5% harvest rate rather than their target of 2.7% of the commercial stock.

Today many regard the B.C. geoduck fishery as a model for management success in the fishery. The volume of

the harvest has been reduced, but the economic return has increased (see Figure 1).

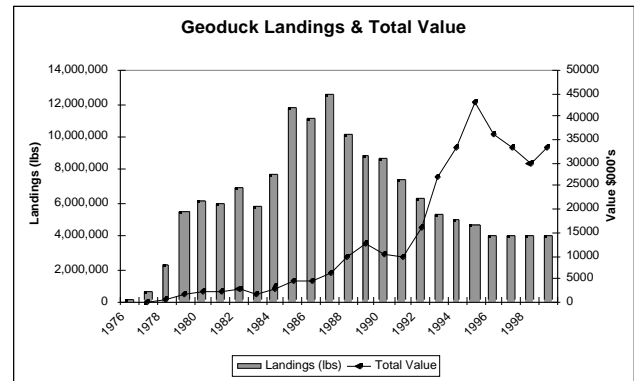


Figure 1

3 GEODUCK MARKETS

3.1 Market History

When the geoduck fishery first started in 1976, the market for the product was extremely limited. In Washington State, there was local knowledge and market acceptance of large clams - geoduck clams were regularly harvested and the mantle of the clam served as clam steaks in the domestic and restaurant trade. The mantle steak comprises about 30% of drained body weight excluding the shell. In British Columbia, however, the product was basically unknown and sold to fish processors who would either export the product to Washington or freeze it into blocks and sell the product as clam meat for use in items such as clam chowder. The ex-vessel price for geoducks in 1977 averaged 17 cents CDN per pound.

The 1980's saw a market developed for frozen necks or siphons for the sushi market, both locally and in Japan. An observant and ultimately very successful geoduck buyer in Washington State noticed that geoduck is very similar in look, taste and texture to the Japanese local Mirugai (giant clam). The ex-vessel price for geoducks in this time period averaged from 35-50 cents CDN per pound. Geoduck necks for the Japanese market were processed, frozen and often elegantly packaged in wood boxes. In 1989 frozen siphons were selling for between 95 cents and \$2.50 CDN per pound FOB Vancouver (Cox, 1989). Since Geoduck in Japan is a substitute for Mirugai, the price for the product is limited by the price of Mirugai.

The Japanese sushi market did not utilize the whole clam. Remaining body meat was largely chopped up and frozen as bulk clam meat. Remaining viscera were processed for fish food, bait or pet food (Cox, 1989).

3.2 Effects of IVQ's on Geoduck Markets

The fisheries management system, prior to the introduction of IVQ's, involved a rush for fishermen to harvest as many geoducks as possible before the fishery was closed when the total allowable catch was exceeded. This form of management resulted in product gluts and in much of the product being processed and often frozen. In the 1980's, a trend towards more live product started to develop, however this trend was limited by the nature of the competitive race for the fish.

The biggest change to the geoduck market resulted from the Individual Vessel Quota management scheme which gives harvesters ability to fish as the market requires and to work co-operatively to improve markets and prices.

IVQ management has removed the periodic market gluts, and has allowed the industry to develop a steady supply. This is particularly true for the live market, which benefits from a consistent supply because of the perishability of the product. Geoducks are harvested one day and flown live to Asian markets the very next day.

The geoduck market has changed from largely frozen neck meat to live clams as illustrated by Figure 2 (Industry Canada, 1999). In 1989, 39% of geoduck were exported either as processed fresh products or live. By 1999 the percentage sold live rose to 99%. Currently, as much as possible, geoducks are sold as live product .

The target market has also changed. In 1989, the first year of IVQ management, 37% of geoduck exports from B.C. went to Japan, 33% to Hong Kong, and 26% to the United States. By 1999, 87% of exports were to Hong Kong (Brickley, 2000).

Figure 2: B.C. Exports of fresh and frozen geoduck

In addition, higher quality product is being landed, as a result of improved harvesting techniques and product handling.

Figure 3 shows the historic trend in ex-vessel prices for geoduck in B.C.

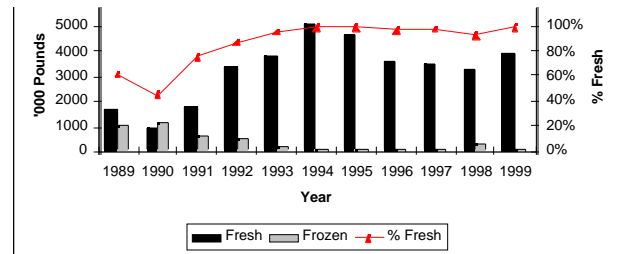
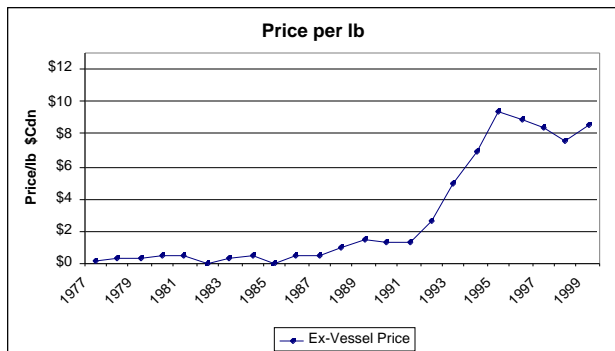


Figure 3: Geoduck Ex-vessel Prices

3.3 Effects of IVQ's on Geoduck Market Oriented Management and Marketing

Geoduck harvesters now have a greater stake in the industry because of increased profitability and the enhanced certainty of access to the fishery from the IVQ program. Consequently, geoduck harvesters have become more interested in the economic and environmental sustainability of the fishery and less in developing strategies to better their individual competitive position.

From a marketing perspective, this has led to harvesters requesting more stable quotas to avoid both high and low fluctuations that can accompany fixed harvest rates. Stability of supply and managed growth in supply are more important than maximizing supply in any given year since fluctuations are often viewed, by the market, as a sign of instability in the fishery. If the fishery were still managed as a competitive harvest fishery with each licence holder racing for a greater share of the overall catch, considerations of annual supply stability would not occur.

Competition from Washington State wild harvest is keenly watched. When Washington State geoduck fisheries are producing significant amounts of product, Canadian buyers cut back on purchases to try to stabilize overall market supply. Washington State management is based on issuing harvest permits through a bidding process for geoduck harvesting tracts. The State then allocates the same volume to Tribal fisheries and manages the fishery in such a way that product supply gluts are common as successful bidders on the tracts try to recoup their investments as quickly as possible. Washington State and B.C. each produce about half of the world supply of geoduck.

The potential for a significant growth in geoduck supply from Alaska and cultured or farmed product from both Washington State and B.C. creates long term supply uncertainty. In addition, almost 90% of geoducks exported from British Columbia are going into one market – Hong Kong. This is a concern to the UHA because of the vulnerability of the value to any changes in the Chinese market which currently supports an exclusive and high end market.

For these reasons, the UHA is also involved in generic market promotion of geoducks in target markets and is

looking to work co-operatively with B.C. geoduck aquaculturists to improve the overall market. In addition, the UHA is following developments in China and Taiwan acceding to the World Trade Organization with great interest because of the 40% tariff on live shellfish to both of those markets.

Marketing and attention to trade issues are certainly not exclusive to fisheries managed by some form of quotas or input controls. However, the commonality of purpose amongst harvesters and the existence of an association representing 100% of the licence holders and many of the crew and processors of geoducks in B.C. has facilitated joint efforts in marketing.

6. CONCLUSIONS AND RECOMMENDATIONS

Individual Vessel Quota management in the B.C. Geoduck fishery has provided enhanced certainty of harvest access and has facilitated cooperation amongst fishermen, buyers and the government to improve the management of the resource and at the same time respond to new markets for the end product.

The IVQ management system has resulted in two major changes which have lead to moving geoduck from ex-vessel prices of 17 cents CDN per pound to \$8.50 CDN per pound since the inception of the fishery in 1976.

First, the IVQ system fostered co-operation between fishermen to devise strategies to improve the long term economic benefits from the fishery through sustainable fisheries management and development of excellence in live product handling practices.

Second, IVQ's have allowed fishermen and buyers to provide a consistent supply of product from B.C. and to adjust fishing activities when other sources are producing large amounts of competing product.

The experience of the B.C. geoduck fishery illustrates the market and marketing benefits of moving to Individual Quota type management schemes which create incentives for co-operative, rather than competitive, solutions to management and marketing challenges.

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