THE HARSH MARKET AND BUSINESS REALITIES FACING THE WEST COAST OF CANADA SEAFOOD INDUSTRY

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ABSTRACT

The British Columbia seafood industry has witnessed fundamental changes to its business environment since the early 1990's. These changes include worldwide phenomena such as changes in consumer tastes and world economies, globalization, the growth of aquaculture, the growing and influential environmental movement, and the need for greater traceability of food products. Changes also include more localized factors such as changes in North Pacific oceanographic conditions, Canadian government regulatory and policy developments, and currency fluctuations. Set against this background of change is an often fragmented industry without a strategic plan or vision and without the value chain cooperation and marketing prowess to compete effectively in today's global food business. This paper outlines this fiercely competitive business environment and the need for a new market-driven business model. In particular, the BC seafood sector must be substainable environmentally in order to be sustainable economically, and must adopt the discipline of the food business in order to realize the substantial opportunities that exist.

Keywords: competitive, global, market-driven, food industry, sustainability

INTRODUCTION

Since the early 1990s, BC's seafood sector has witnessed fundamental and unprecedented changes in a number of key areas. Changing oceanographic conditions until recently have led to lower salmon returns and catches. The Canadian regulatory and policy environment has altered substantially with the shift to stronger property rights in fisheries management, adoption of the precautionary approach and sustainability principles, and the introduction of the Aboriginal Fisheries Strategy and the Canadian Environmental Assessment Act review process.

Other changes relate to the effects of globalization, through the liberalisation of trade and technological advances, the growth of aquaculture, food safety issues, and changes in consumer tastes.

Industry, in general, can encounter difficulty adapting to the new business conditions of this global highly competitive economy. Constraints on industry success include:

- a lack of leadership, cohesion, and the will to respond to change;
- a focus on the short term, to the detriment of long-term strategic planning;
- production inefficiencies;
- the neglect of research and development such as developing new products, improving product quality, and investing in human resources;
- a lack of attention to changing consumer needs; and
- inefficient and/or inflexible government regulation.

As this paper will demonstrate, many of the above shortcomings characterise the seafood sector in BC. There is a compelling need and substantial opportunity to reposition and reorient the sector. This assessment of the fundamental changes in the business environment of the BC seafood sector can help launch needed reform to realize the substantial potential for the sector.

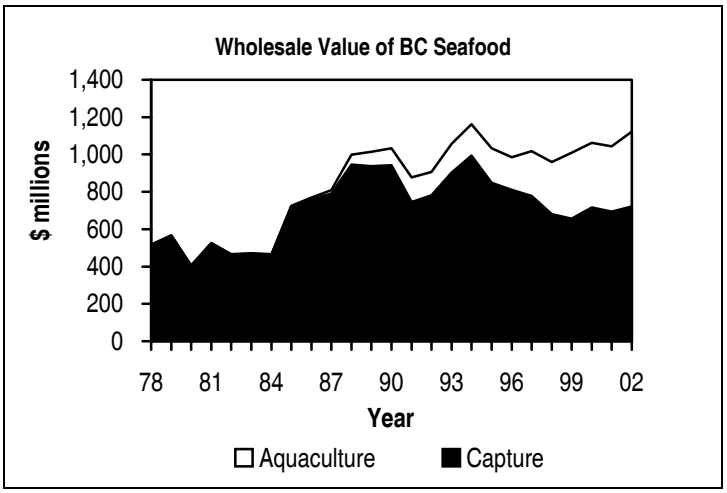
In this paper, all production is reported in round weight and all values are reported in current $Cdn (at the present time, $1 Cdn ≈ $0.75 US).

BC SECTOR PROFILE

The BC seafood industry produces, processes, and markets fish and shellfish into intermediate or finished food products that ultimately are consumed by retail and food service (restaurant) customers. Two main types of production exist – the capture (or wild) fishery sector and the aquaculture (or farmed) fishery sector.

The capture harvesting sector utilizes approximately 3,000 vessels to fish about 200,000 tonnes of fish from four main species groups: salmon (five species), herring and pelagics, groundfish (e.g., halibut, sablefish, rockfish, sole), and a variety of shellfish and invertebrates (e.g., crab, prawns, geoducks).

The aquaculture sector farms finfish, primarily salmon, and shellfish, mostly oysters and clams, on about 420 active sites – consisting of 80 finfish (on 121 licensed sites on 1,191 hectares) and 340 shellfish (on 455 licensed sites on 2,727 hectares) sites. The processing sector transforms the raw food material from fishermen and growers into a variety of processed products.



The seafood industry grew throughout the 1980s, achieving wholesale revenues of $1 billion in 1989. However, growth has since levelled off, with an industry wholesale value of $1,148 million in 2002. Adding retail and distribution margins results in an estimated total BC sales value of $1,315 million.

Different subsectors have shown different trends over the past 15 years, including:

- a substantial decline in landed (ex-vessel) values for wild salmon and herring, and an increase in landed values for wild groundfish and shellfish;
- a large increase in salmon farmgate value, but a more modest increase in shellfish farmgate value; and
- a transformation of the seafood industry with production shifting out of canned, frozen whole, and roe products (traditional salmon and herring products) and into fresh whole, live, and value-added fillet products in the aquaculture, groundfish, and shellfish sectors.

	Wholesale Value $ millions		
	1982	1992	2002
Capture			
Salmon	315	377	199
Herring	87	137	128
Groundfish	47	157	252
Shellfish	15	110	181
Subtotal	464	781	760
Aquaculture			
Salmon	1	119	359
Shellfish	2	7	29
Subtotal	3	126	388
Total Seafood	467	907	1,148

BC seafood is largely an export-oriented industry. Since 1990, there has been growth in sales to the United States, the principal market for farmed salmon, while sales to Japan and the United Kingdom, traditional markets for wild (capture) salmon, have declined. Today, the US market comprises more than 60% of total provincial exports of seafood.

The market value of assets in the BC seafood industry is approximately $3 billion, including $2.1 billion in the harvesting sector, of which 85% is in licences and quota. In 2002, the seafood processing, aquaculture, and salmon harvesting sectors did not meet EBITDA (or Earnings Before Interest, Taxes, Depreciation, and Amortization) revenue targets, while the herring, groundfish, and shellfish harvesting fleet segments of the capture fishery did.

	BC Seafood Financial Measures 2002		
Sector	**Asset Value ($ billions)**	**Revenues ($ billions)**	**EBITDA Target (%)**
Harvesting	$2.1	$0.36	40%
Aquaculture	$0.4	$0.30	15-25%
Processing	$0.4	$1.15*	10%

** includes harvesting and aquaculture revenue but excludes retail/distribution margins*

In 2002 the BC capture and aquaculture sectors together directly generated $1,315 million in sales, $750 million in Gross Domestic Product, $450 million in wages and 12,970 person-years of employment (see Table I). Much of the employment is seasonal, especially in the capture sector, with the result that the number of jobs exceeds 20,000. Over 50% of jobs and employment occur outside urban centres. Aboriginal people have about 25% of total jobs and employment.

WORLD SEAFOOD TRENDS

A number of worldwide developments affect production, markets and trade of all seafood.

Globalization

Globalization refers to the erasure of national boundaries from an economic and trade perspective. Trade agreements such as the North American Free Trade Agreement (NAFTA), the World Trade Organization (WTO), and the European Union (EU), have decreased many tariffs on seafood and liberalized and facilitated international trade. Greater capital mobility and technological advances in transportation,

Table I: Direct Economic Contribution of British Columbia Seafood 2002

	Capture					Aquaculture			Total Seafood
	Salmon	Herring	Ground-fish	Shellfish	All	Salmon	Shellfish	All	
$ millions									
Sales Value									
Harvesting & Farm Level	57	47	153	107	364	289	15	304	668
Processing Margin*	142	81	99	74	396	70	14	84	480
Wholesale Value	199	128	252	181	760	359	29	388	1,148
Retail/Dist[n] Margin					110			57	167
Total					870			445	1,315
Wages & Benefits									
Harvesting & Farm Level	18	10	44	43	115	50	8	58	173
Processing*	54	25	47	17	143	50	9	59	202
Wholesale Level	72	35	91	60	258	100	17	117	375
Retail/Dist[n]					49			26	75
Total					307			143	450
Gross Domestic Product					545			205	750
Employment PYs**									
Harvesting & Farm Level	950	300	830	1,330	3,410	1,410	320	1,730	5,140
Processing*	1,635	660	1,225	515	4,035	1,405	250	1,655	5,690
Wholesale Level	2,585	960	2,055	1,845	7,445	2,815	570	3,385	10,830
Retail/Dist[n]					1,400			740	2,140
Total					8,845			4,125	12,970

* Processing margin, wages, and employment include activity from processing imported fish and shellfish raw material.

** Person-years

Source: GSGislason & Associates Ltd. "British Columbia Seafood Sector and Tidal Water Recreational Fishing: A Strengths, Weaknesses, Opportunities, and Threats Assessment – Final Report", Prepared for BC Ministry of Agriculture, Food and Fisheries, February 2004.

refrigeration, and communications also have spurred trade in perishable food products. For example, fish no longer needs to be processed adjacent to the fishing grounds of growing areas. One result is the increased processing of seafood from imported raw material in SE Asian countries such as China and Thailand.

Very large food discounters, such as COSTCO, and large food broadliners selling a variety of foodstuffs, such as SYSCO, have emerged. These companies source food from around the world and exert enormous influence on markets. There also has been dramatic consolidation in food retailing internationally.

These changes confer increased power to the food distribution and retail sector, and decreased power to food manufacturers. The result is severe price pressure on margins for food manufacturing.

The Growth of Aquaculture

World fisheries production increased from 100 million tonnes in 1987 to 142 million tonnes in 2001 – 94 million tonnes from the capture fishery and 48 million tonnes from aquaculture. Virtually all of the increase in fisheries production since the late 1980s can be attributed to the growth in aquaculture production. And essentially all the projected future growth of fisheries production results from aquaculture.

A Growing Environmental Ethic

The environmental ethic is growing worldwide, with major implications for both the capture fishery and aquaculture. This change is evidenced by the Marine Stewardship Council (MSC) certification process for sustainable seafood and the growing influence of environmental organizations on fisheries management decisions.

Environmental sustainability requirements affect both supply and demand. Without demonstrable sustainability, the seafood industry will not be allowed to operate, or will have their operation severely limited. Buyers, increasingly, are instituting sustainable sourcing policies for seafood, particularly in Europe. For seafood sectors to be sustainable economically, they must be sustainable environmentally.

Traceability is a Growing Business Requirement

In recent years, the outbreaks of BSE and e. coli, as well as other food safety issues, have highlighted instances of poor production practices and the need to know more about the source of products, how they are treated and/or modified, and what food safety controls have been applied. In light of this heightened scrutiny, there is a need to document all information regarding a food product's history "from conception to consumption" or, in the case of seafood, "from sea to table".

The 2002 US Farm Bill requires detailed country-of-origin-labelling (COOL) for fish and shellfish products. The 2002 US Bioterrorism Act and subsequent regulation requires registration of food manufacturing facilities for product imports to the US, and requires "prior notice" of food import shipments.

Consumer Needs and Tastes are Changing

World seafood demand is growing in part due to consumer awareness and interest in fresh, quality food products. Increased consumption of seafood high in omega-3 fatty and has been shown to help reduce high blood pressure, ensure a healthy heart, and develop and maintain brain functioning.

Smaller families, two working parents, greater urbanization and a faster pace of life mean the consumers are pressed for time. Busy consumers are looking for fresh chilled fish products and for a variety of higher-valued, more processed products that are easy to prepare and serve (e.g., "heat and serve" protein). This applies not only to the home consumer but also to institutions and restaurants that are having

difficulty in finding workers and need food that is ready to cook or serve. Foodservice demand is growing faster than food retail demand.

Japanese consumer tastes have changed, with a growing preference for red meat and the acceptance of farmed fish as a substitute for wild fish. Young Japanese have different tastes and consumption patterns than their parents. In North America, per capita consumption of seafood is flat – battered fish sales are down while sales of fresh fish, boneless portions and fillets are up.

BRITISH COLUMBIA SEAFOOD ISSUES

There are also a number of substantial "made in Canada" issues or concerns that the BC seafood industry faces (Figure 1).

Resource Assessment and Issues

A healthy aquatic environment and resource base is important to sustain a viable seafood industry. The majority of wild fish stocks are "healthy". Some have a "mixed" status including coho salmon, lingcod, and shelf/slope rockfish. Most species are fully exploited with the notable exception of salmon which has been managed very conservatively in recent years.

A number of ocean conditions have affected and will continue to affect ocean productivity. These include: 1) short term El Nino (warm) and La Nina (cooler) conditions. 2) decadal scale cycles affecting juvenile rearing, and 3) longer time climate change issues such as in increases in summer temperatures in salmon spawning rivers.

There is considerable confusion in the minds of the public, environmentalists, and some fisheries managers as to the true meaning of the precautionary approach and the far more restrictive precautionary principle. The precautionary approach is consistent with sustainability principles, principles that include both environmental and economic objectives. Under the precautionary approach, fishing can be allowed while more information on resource status is assembled. In contrast, under the precautionary principle, the threat of serious or irreversible damage results in a ban on fishing even thought there may be considerable uncertainty due to incomplete knowledge.

Capture Seafood Issues

A trend to individual quota (IQ) fisheries management began in the late 1980s. Canada Department of Fisheries and Oceans (DFO) required that industry assume responsibility and pay for activities such as dockside monitoring of offloads, onboard observers and at-sea enforcement before it would agree to change the management to a IQ format. The move to IQs and co-management has more closely aligned the interests of the resource, the resource manager, and the fishermen-owner. It has increased greatly the net income of operations – both through increased product quality/value and decreased costs – and increased sustainability through decreasing overages to the Total Allowable Catch (TAC).

But the IQ program also has spurred controversy and debate because it has caused a shift in the capital - labour balance of power in fishing towards capital, decreased vessel crew shares on a percentage basis, and raised questions as to whether the Crown is earning an appropriate return on a public resource.

Today, about two-thirds of the BC landed value derives from fisheries, including herring pool fisheries, managed under individual quotas. The only major fisheries not under IQ management are the salmon, prawn, crab, and tuna fisheries.

A number of important capture fishery issues specific to salmon exist - in fact, many would say that salmon issues comprise 90% or more of all "problems" associated with the BC capture fishery. In the late 1990s stock declines for many salmon species and the curtailment of traditional mixed stock fisheries, to

Figure 1: Market and Business Realities for BC Seafood

WORLDWIDE SEAFOOD TRENDS

1. Globalization
   - trade liberalization & technology
   - discounters, broadliners, retail consolidation
   - seafood processing in SE Asia
2. Growth of Aquaculture
3. Growing Environmental Ethics
   - sustainability as operating principle
   - MSC & other ecolabelling
4. Traceability as Business Requirement
   - food safety issues e.g., BSE, e. coli
   - US requirements – COOL, Bioterrorism Act
5. Consumer Tastes & Trends
   - health/nutrition focus
   - convenience & eating out
   - shifts in Japanese protein markets

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BRITISH COLUMBIA TRENDS & ISSUES

1. Ocean Productivity & Resource Changes
2. Capture Seafood
   - move to IQs & co-management
   - salmon issues
     - stock declines
     - poor economics/fleet Buyback
     - Wild Salmon Policy & Species-at-Risk Act
   - workforce – aging, low literacy & education
   - uncertainty – tenure & aboriginal issues
3. Aquaculture Seafood
   - regulatory hurdles & delays
   - feed e.g., pollutants, waste
   - fish health e.g., IHN, sea lice
   - poor financial performance
   - public acceptance

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MARKET AND BUSINESS REALITIES FOR BC SEAFOOD

A. General Business Realities

1. There are no products/markets/businesses/jobs for life
2. Successful businesses
   - adapt and reposition in face of change
   - listen to the market & customer needs
   - embrace "lifelong learning" for workforce

B. BC Seafood Realities

3. Favourable conditions of 1980s have disappeared/changes are structural not cyclical
4. Seafood markets are very competitive & global
5. Aquaculture has fundamentally changed seafood markets
   - new source of supply: downward pressure on price
   - new standards re consistency: supply, quality, price
6. Economic viability is tied to environmental sustainability
   - access to resources/production
   - access to markets
7. Can not "afford" inefficiencies, and the pursuit of social goals as in the past
   - poor product quality and foregone revenue
   - higher-than-necessary costs
8. Two distinct ends of seafood market spectrum exist
   - commodity: driven by volume & costs
   - niche: driven by quality & uniqueness
9. Need to adopt discipline/principles of the food industry
   - emphasize the “food” part of seafood, think globally, think long term
   - adopt market-driven business model
   - fix the capture salmon management system, fix the aquaculture tenure system
   - the potential BC advantage is quality

meet sustainability and associated selective fishing requirements, resulted in dramatic declines in salmon catches. Salmon catches have recently increased somewhat but only to a level half that in the early 1990s. Due to worldwide farmed salmon production and other market changes, real prices to salmon fishermen have declined by a half or more – the result is that landed (ex-vessel) values to salmon fishermen have declined by 75% or more from the late 1980s and early 1990s.

The poor economic performance of the salmon fleet resulted in two major salmon licence Buyback programs in the late 1990s whereby the licenced fleet was cut from 4,400 to 2,200 licences – but the remaining fleet is still not viable (Figure 2). The economic health of the capture salmon processing sector is also precarious, with the sector earning a adequate return on investment only once in the last ten years.

The Wild Salmon Policy under development and the 2003 Species-at-Risk Act (SARA) could have major impacts on particular salmon fisheries through closures and other restrictions where endangered stocks are mixed with strong stocks.

In contrast to salmon, the non-salmon capture fisheries of herring, groundfish, and shellfish are operating reasonably well. They are viable and generally market-driven; their fisheries organizations have strong and constructive relationships with DFO, processors, and others; and there is a degree of trust among individual fishermen, processors/buyers, and DFO. The BC salmon fishery has none of these characteristics. The four barriers – a lack of viability, an inability to meet market needs, ineffective industry organizations, and insufficient cooperation and trust – are related; they are linked by the inadequacy of the current management regime for salmon. This competitive management system for salmon does not foster the appropriate incentives, enlightened self-interest, and cooperation needed to operate successfully in the global seafood industry.

The workforce on BC boats and in processing plants, especially wild fish plants, is aging. Half of fishermen and plant workers have not completed high school. Today's vessel and plant operations require knowledge of more sophisticated equipment and electronics. Tomorrow's workers will need improved skills and knowledge to meet emerging sustainability, traceability and handling/quality control challenges. By and large, a training culture does not exist in the BC seafood industry.

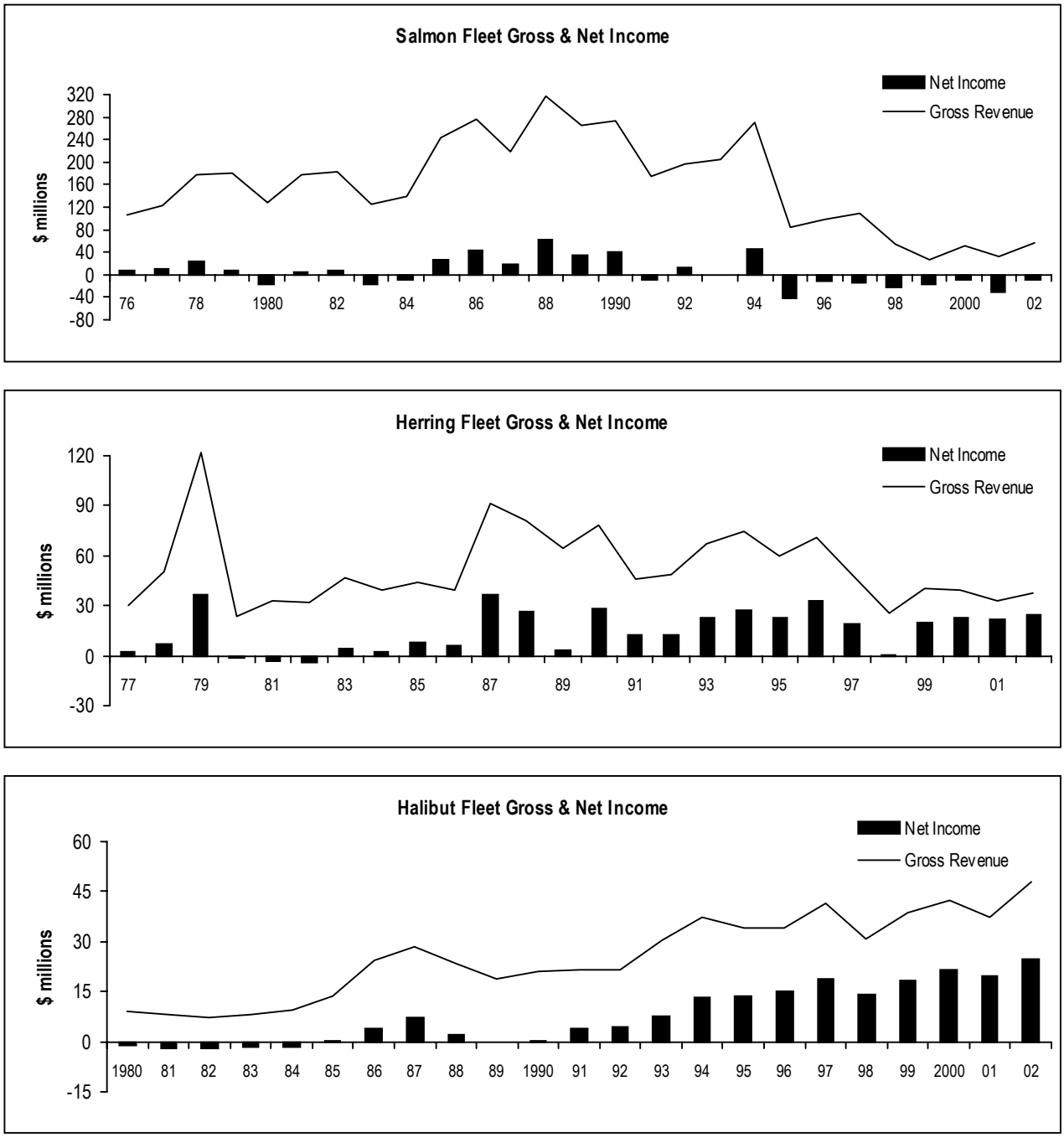
There is substantial uncertainty in the capture harvesting sector and, by implication, raw material supply to processors. Fishing licences are issued only for a one year term. The fact that fishing licences and/or quotas represent limited fishing privileges and not property rights per se, together with the unfettered discretionary authority of the federal Minister of Fisheries and Oceans, cause substantial business uncertainty. This uncertainty is exacerbated by the prospect of aboriginal treaty settlements and special government policy measures, such as the Aboriginal Fishing Strategy, that enhance aboriginal access to fisheries but could erode rights of existing users. Industry maintains that the lack of certainty shortens the business planning horizon, prevents financing of operations, and diminishes business value.

Aquaculture Seafood Issues

The aquaculture industry is subject to more than 50 separate federal, provincial, and regional regulatory processes governing land use and development. A key concern is the federal Canadian Environmental Assessment Act (CEAA) screening and approval process for new and renewed farm site tenures. These reviews can take two years or more. The lack of timely approvals stymies industry growth, puts individual companies in dire financial straits, and eliminates employment opportunities for economically disadvantaged coastal communities.

The farmed salmon industry faces a variety of environmental issues, some potentially valid and in need of further investigation (e.g., Infectious Hematopoietic Necrosis or IHN, sea lice), and others based on a lack of understanding or misinformation that requires correcting (e.g., animal waste, fishmeal use, pollutants in

Figure 2: BC Fishing Fleet Viability – Salmon, Roe Herring, Halibut



Note: 1. Fleet rationalization measures.

- salmon – 1996 & 1998-2000 "Buyback" of half the fleet licences
- halibut – IQ program launched in 1991
- herring – "2 for 1", "3 for 1" licencing from 1986 to 1997
  – mandatory pool fishery starting in 1998

2. Net income is earnings after interest and depreciation but before taxes payable.
3. Licence lease costs are not treated as a revenue or an expense in the net income estimates.

Source: GSGislason & Associates Ltd. estimates

feed, carotenoid use, antibiotics, drugs). IHN is a naturally-occurring viral disease that can infect Atlantic salmon resulting in the death of individuals and/or early harvest of year classes. Some farms have increased production of chinook which have a high resistance to IHN.

All farmed fish and shellfish go through a federally registered plant. The Canadian Shellfish Sanitation Program (CSSP) and other measures provide greater traceability for aquaculture compared to the wild fishery. Nevertheless, a HACCP-based Farm Food Safety program is being planned for shellfish and finfish aquaculture to provide traceability back to the farm site equivalent to that for terrestrial agriculture.

The recent financial performance of both salmon and shellfish aquaculture sectors has been poor. Farmed salmon prices are down about 40% from 2000 levels due to increased worldwide supply. The 2002 BC shellfish aquaculture industry earned essentially zero cash flow after paying the operator a wage, a poor performance typical of recent years.

The Canadian public has mixed emotions about salmon farming, and aquaculture in general. On the one hand, farmed salmon is a staple of the restaurant menu and the retail seafood counter alike. On the other hand, the industry has been under attack, mainly by environmental groups, with respect to its impact on the environment (e.g., wild fish), human health issues (e.g., from carotenoid use), and the economy (e.g., wild fish markets). Many of these issues are spurious or misrepresented. Others require scientific research that is already underway with the support and cooperation of aquaculturists.

Shellfish farming is not immune from public controversy. For example, a key issue in the BC coastal planning process are the conflicts with viewscapes and upland property owners arising from shellfish tenure expansion. To a large extent, these controversies and mixed public opinion reflect the newness of the industry.

MARKET AND BUSINESS REALITIES FOR BC SEAFOOD

The British Columbia seafood industry to prosper needs to more closely align its business practices with those of mainstream business, and in particular the practices of the global food business. The business environment has changed dramatically – these changes are not short term and cyclical but rather long term and structural. This necessitates major bold initiatives.

General Business Principles

Business of today is fast-paced, volatile, and inherently risky. Product lives are shortening, competition is increasing global, and new technology can dramatically and quickly affect product market position. Businesses and their workers need to be able to adapt quickly to changing circumstances and, if necessary, reposition themselves. Businesses need to take their cue from the marketplace and their customer needs and desires. There are no longer products, industries or jobs "for life". Workforce skills development and learning are now lifelong processes.

BC Seafood Realities

The late 1980s were an era of prosperity for the capture component BC seafood industry, but these favourable conditions have disappeared or reached maturity. Favourable oceanographic conditions that resulted in large salmon returns and record catches no longer exist. Increased fish resource access and landings made possible by the 200 mile extended jurisdiction have levelled. Moreover, in the 1970s Japan changed from a net seafood exporter to a net seafood importer spurring demand for BC seafood. Canadian seafood exporters during the 1980s and 1990s also benefited from the weak Canadian dollar relative to US and Japanese currencies, an advantage which has eroded with the recent strengthening of the Canadian dollar. In short, the buoyancy of the BC seafood industry in the past was illusionary and did not reflect an underlying structural soundness.

Seafood markets today are very competitive and increasingly global due to trade liberalization and advances in technology. The BC seafood industry competes not only with other seafood producers but also other protein producers of meat and poultry for the "centre of the plate".

The growth of aquaculture has had profound supply and demand impacts, the former through downward pressure on prices and the latter through setting new industry standards or expectations for consistency of supply, quality, and price throughout the year. Aquaculture also has helped spur a new recruitment of seafood consumers, particularly in the foodservice sector.

The results of these three phenomena – the lapse of short term favourable conditions, the increasing competitive and global seafood industry, and the growth of aquaculture – has been a conversion from a "seller's market" to a "buyer's market" for seafood. This market repositioning as well as emerging sustainability and traceability requirements for food in general necessitates a different seafood business focus and strategy.

The BC seafood industry of today can no longer afford to ignore market signals and forgo revenues, and can no longer afford inefficiencies that result in higher-than-necessary costs. With respect to management of capture fisheries, the evidence from British Columbia is clear that "command and control" fisheries management approaches, such as exist for the BC salmon fishery, are inefficient and do not provide the incentives and individual accountability needed to operate successfully in today's business environment. More incentive-laden approaches, whether they are IQs or pool, cooperative or other systems, are needed. It is also necessary to have longer term licence tenure to reduce uncertainty and to facilitate long term planning and investment. We endorse the views of McRae and Pearse (2004) that:

> *Effective licencing arrangements must be clear, secure, renewable and transferable…licences be given terms [of] 25 years, replaceable after 15 years on an "evergreen" basis.*

The aquaculture licencing and regulatory system also needs to be streamlined to facilitate business planning and operations.

With the forces of globalization and improvements in technology, British Columbia is at a severe disadvantage in commodity seafood markets. Commodity seafood markets are international seafood markets that are driven by volume, economies of scale, low production costs, and low prices. This is the production-driven end of the seafood trade.

The other, smaller end of the seafood trade is characterized by high quality, high priced niche seafood products. This market segment is smaller and more regional in nature. It comprises high quality fresh, frozen, live and roe products that command premium prices for premium quality products that meet the needs of particular market segments. This potentially is where the BC seafood advantage lies as:

- BC has a clean, cold marine environment that ensures the intrinsic quality of our capture and aquaculture raw material.
- The nearshore location of most BC harvesting and farming operations allows quality raw material, if handled well, to be maintained until reaching the processing plant door.
- BC's strategic geographic location promotes cost-effective access to very large seafood markets in the US (by truck) and Asia (by air).

This focus on quality and attendant changes in practices to deliver quality is but one aspect of a more fundamental tenet, namely that the seafood industry needs to reorient itself as a food business. Food businesses market rather than sell their products, identify and stimulate consumer needs, and develop products and delivery systems to meet these needs. This market-driven business model is an imperative for the BC seafood sector.

ACKNOWLEDGMENT

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