

Nova Scotia Seafood Processing Sector **State of the industry and competitiveness assessment**



For
Nova Scotia Department
of Fisheries and
Aquaculture



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SUMMARY

Overview

The Nova Scotia fish processing sector consists of just over 220 licenced enterprises of varying types (processors, shippers and buyers), with 182 in operation in 2006. This is down by about half since the 1980s. Plants range in size from under five to several hundred employees. They are concentrated in southwest Nova Scotia and Cape Breton, with a handful of others along the eastern shore and Northumberland Strait.

Processors buy fish from some 5,000 vessels, utilizing all 30 species landed in the province and producing a wide range of fresh, frozen and value-added products. Employment varies seasonally with fishing activity and landings, ranging from a low of 2,900 in winter to a peak of 4,850 in summer. The value of production is estimated at \$1.1 billion in 2006, with total exports of about \$975 million.

Major findings

- ❑ **Seafood processing a fragmented sector.** The Nova Scotia processing sector consists of some 180 active companies, all but a handful of which are small and specialized with limited market reach and little or no marketing and product development capacity. Most operate independently from the harvesting sector, resulting in intense competition for raw material and on-going cash flow constraints. In this environment, there is limited scope or appetite for collaboration and cooperation on policy or marketing issues. These factors combine to make the industry vulnerable to the increasing market power of large distributors and retailers.
- ❑ **Provincial licencing policy facilitates excess capacity.** Licencing policy has the scope to determine industry structure and capacity and, effectively, the degree of competitiveness amongst plants in their quest to secure raw material and sales. The industry holds varying views on the desirability of limiting access to processing licences. Some argue that limited access is essential to prevent destructive competition (both in buying and selling), while others contend that ease of entry is essential to ensure healthy competition.
- ❑ **Federal licencing policy determines terms of access to raw material.** Federal policy governing primary fisheries contributes to industry structure by limiting the vertical integration of vessels and plants to the offshore sector. Under the fleet separation policy inshore vessels and the landings they produce may not be controlled directly through plant ownership or control of fishing licences. While protecting the bargaining power of harvesters is the main objective of the policy, it also sets up a difficult operating environment for plants who cannot rely on secure supplies of raw material in order to establish marketing arrangements.
- ❑ **Competitive position is in decline.** Nova Scotia processors have seen their competitive position eroded over the past 10-15 years due to declining resources, competition from low-cost producers, rising raw material costs, increasing concentration of buying power in major markets, adverse exchange rate movements and the regulatory environment as it affects the terms and conditions of access to raw material.

- ❑ **Throughput is declining.** Groundfish stocks have not recovered and imported raw material has declined due to rising costs. Global competition is also driving processors to focus on the fresh market, resulting in less value adding activity in plants. Greater dependence on shellfish and changing technology also result in less on-shore processing.
- ❑ **Margins are narrowing.** Processor margins are squeezed on both the cost and revenue sides of the market. Higher raw material costs and rising operating costs are driving production costs up. Revenues have declined mainly because of the decline in the value of the U.S. dollar (30-35%), but also because of increased competitive pressures from low cost producers and greater market strength of buyers and distributors.
- ❑ **Labour force is disappearing.** Many processors report it is increasingly difficult to recruit and retain a labour force with the skills and interest needed to operate a fish plant. Out-migration is rising, the workforce is aging, and younger people have little or no interest in this type of employment, particularly with its seasonal structure and relatively low wages.
- ❑ **Limited investment in technology.** Most companies operate relatively labour intensive plants. Few have made significant investments in plant and equipment in the past several years. Investing in dry land lobster holding facilities has proved an exception as plants diversify their operations and take advantage of market opportunities.
- ❑ **Focus is on cash flow not return on investment.** Cash flow is a major concern because most processors can only keep the business going by selling product as soon as it is produced in order to cover the costs of raw material. Strong competition to acquire raw material and to make sales tends to result in narrow margins. In short, the industry tends to compete against itself at both ends of the market, virtually guaranteeing a position of on-going weakness.
- ❑ **Access to capital limited.** With few exceptions, firms report they have limited access to capital from conventional lenders (other than lines of credit for working capital). This presents a challenge for some plants wishing to diversify or up-grade facilities. But for many it is less of an issue because investment in plant and equipment simply means increased fixed costs, and in the current economic climate these plants want to avoid the risk this entails.
- ❑ **Product development is lacking.** Most plants in the province lack the size and resources to attempt to develop new products and markets, relying instead on what they know and what has worked in the past. But driven by declining margins and increasing resources, some are exploring new products and niche markets (lobster, scallop, crab, shrimp).
- ❑ **Some firms diversifying markets.** The historical dependence on the U.S. market appears to be diminishing, with the total value of Nova Scotia seafood exports destined for that market dropping from the 80% range during the early 1990s, to 65-70% in recent years. This is driven by two key factors – the declining value of the U.S. dollar (affecting all species) and increasing pressure on prices arising from oversupply in key markets.
- ❑ **Low cost producers are taking market share.** China and other Far East nations have entered the global seafood market, competing directly with the Canadian processing industry in its traditional markets. Low cost production also creates opportunities. One of Nova Scotia's largest seafood producers secures almost all its raw material from China, allowing it to remain competitive in various segments of the North American market.

- ❑ **Food security/traceability requirements becoming more stringent.** The industry has had to upgrade facilities and systems to meet CFIA standards. The industry can expect to be required to meet even more stringent standards of food safety as international concern over food security and traceability grows.
- ❑ **Eco-labeling likely necessary to meet product specifications in some markets.** Consumers are putting pressure on major distributors and retailers to ensure the seafood they sell originates from fisheries that are managed sustainably. With competitors seeking MSC certification for such species as shrimp and lobster, the pressure will be on to have our fisheries certified as well. Securing the certification would affect the ability to access markets and hence the value of the products.

Critical success factors

- ❑ **Good access to raw material.** The greatest weaknesses facing non-vertically integrated companies arise from the uncertainty surrounding the availability, price and quality of raw material, and also to the highly seasonal supply pattern characteristic of the inshore fishery. Though most processors work out seasonal supply arrangements with vessels or buyers, these can be and often are disrupted, with companies either losing supply to competing plants or facing abrupt changes in raw material prices. This leaves plants operating on a day-to-day basis, with limited ability to develop marketing plans and the production and investment decisions flowing from them. This leaves processors with limited bargaining power and places them in a high-risk category in the eyes of conventional lenders.

The most successful processing companies share one common characteristic – they are vertically integrated from ocean to customer. Subject to resource conditions and management considerations, these companies are able to rely on their own vessels to supply all or most of their raw material, allowing them to specify quality standards and delivery schedules. This allows them to exercise greater control over costs and to meet production plans, and enables them to establish long-term marketing arrangements with retail and food service companies in key markets. It also provides a basis for product development and investment in the technology and marketing needed to establish and expand market share. Access to capital tends to be less problematic for these firms as long as they are well managed and produce satisfactory financial results.

- ❑ **Adequate supplies of skilled labour.** Labour supply conditions are currently satisfactory for most processors most of the time, though many also report an aging workforce that is likely to be inadequate in the next few years, particularly for jobs requiring technical skills. People are also less willing to take jobs in plants because the work is seasonal or episodic, and the wages tend to be low. Neither of these conditions is likely to change in the foreseeable future, given the landing patterns for key species and the need to remain competitive with low cost producers.
- ❑ **Access to technology.** Plants have access to technology that would improve productivity, but for most, investing beyond minimum requirements would not make economic sense. Seasonal supply, potential supply disruptions and the need for operating flexibility combine to limit the attractiveness of capital investment. The labour intensive approach used in most plants suits the operating constraints, though it limits the ability to compete head-to-head with low cost producers.

- ❑ **Access to financing.** Most plants report limited access to long-term financing from conventional lenders. Lack of direct access to raw material, high raw material prices, adverse exchange rates and strong competition from low cost producers combine to produce a poor investment climate.
- ❑ **Access to markets.** The industry enjoys good access to its major markets, subject to meeting increasingly stringent regulations regarding food safety (traceability and country of origin labeling in the U.S.). The ability to demonstrate sustainable fisheries through eco-labeling is emerging as another factor that will affect the marketability of products to major retailers in the EU and the U.S.
- ❑ **Supportive regulatory environment.** Regulation provides many necessary controls and some desirable ones, but in doing so it also adversely affects the industry by undermining its ability to operate in the most efficient manner. Among the necessary controls are federal regulations aimed at promoting resource sustainability, and federal and provincial regulations aimed at ensuring food safety.

From the perspective of plant operating efficiency, fleet separation presents the greatest challenge. The policy aims to protect the interests of harvesters by establishing competitive conditions (independence of vessels and plants) for the acquisition of raw material. Vessels benefit from competitive prices, while plants benefit (theoretically) from open access to raw material. But open access has resulted in a competitive structure in port markets where price functions poorly in its influence over the timing, quantity and quality of raw material supply.

Recommendations

Several factors – declining raw material supplies, challenging policy environment, dysfunctional port markets, adverse exchange rate shifts, intense global competition, emerging labour shortages, excess capacity and weak margins, poor access to capital – have combined to undermine the viability of the Nova Scotia processing sector. To address these issues, action on several fronts would appear to be necessary.

Recommendation 1: Take steps to rationalize processing capacity

The industry is characterized by too many plants with too much capacity chasing too few fish. This weakens the industry because it results in plants bidding up the price of raw material to unprofitable levels in order to secure enough supply to cover fixed costs.

Resolving this issue could take years, but could start immediately with the following steps:

- ❑ Revoke licences that have not been used for a specified period (say, two years)
- ❑ Ensure all plants and fishermen-packers meet a common set of QMP standards
- ❑ Provide no financial support for troubled plants (no exceptions)
- ❑ Establish firm criteria for issuing new licences (based on industry consultations)
- ❑ Impose a moratorium on new licences until criteria have been established

Recommendation 2: Establish a clear policy on inter-provincial trade in unprocessed fish

Nova Scotia has traditionally allowed unrestricted trade in unprocessed fish. This recommendation calls for the formulation and adoption of a trade policy that would establish principles governing restrictions and spell out circumstances where Nova Scotia might implement restrictions. This would follow consultations on the matter with the fishing industry.

Recommendation 3: Review provincial financial assistance policy

Opinion in the industry is divided on the need for or desirability of a provincial financial assistance program. Those in favour cite the need to upgrade facilities and equipment in order to remain competitive, noting that conventional financing often is not available. Those against recognize the need, but express concern about the competitive advantage this would give companies particularly at a time when the industry, or at least segments of it, do not need additional capacity. To guide policy development, the province should engage in industry-wide consultations.

Recommendation 4: Conduct policy consultations on licencing, financing and trade

Acting on recommendations 1-3 would require extensive consultation with industry. Consultation meetings should be conducted around the province, following a format familiar to the industry: circulation of material outlining the issues and options, open hearings to receive comment and positions, circulation of report outlining policy positions and rationale.

Recommendation 5: Encourage formation of a single industry association

Several issues identified in this study require policy decisions by the province, and action by the industry. These include licencing, inter-provincial trade, programs to assist with product and market development, emerging human resource constraints, product traceability and eco-labeling requirements, and financial assistance. Government should initiate and assist discussions with industry to further this goal.

Recommendation 6: Update industry human resource demand-supply analysis

Human resource constraints are emerging as a major issue in the industry. The last comprehensive analysis of the issue was conducted over five years ago. An update of this 2002 study would appear to be warranted.

Recommendation 7: Strengthen market intelligence

The Department of Fisheries and Aquaculture has an important role to play in supporting the marketing efforts of the industry, particularly since many firms lack the resources to carry out effective marketing. Consultation with industry would be required to identify specific needs and methods of disseminating information.

Recommendation 8: Improve industry information base

This report serves as a useful baseline of industry structure and operations in 2006. On-going collection of all or some of the data would contribute greatly to a better understanding of sector trends, and would improve policy development. The Department of Fisheries and Aquaculture should make it a condition of licence that companies provide basic information. The industry should receive feed-back in the form of annual reports showing industry trends and analysis.

Recommendation 9: Encourage fishing industry/DFO to pursue MSC certifications

The processing sector, and the industry generally, has much to gain from MSC certification (or some other well established and widely accepted eco-label) of the various fisheries. Indeed, the industry may in the coming years have little option but to secure certification if it wishes to supply major retailers in key markets. The processing sector, with the support of the province, could take the lead in urging eco-label certification for key fisheries.

BACKGROUND AND CONTEXT

1. Overview

The Nova Scotia fishing industry (harvesting and processing) is a major source of direct and indirect employment and income, and is one of the province's leading sources of export earnings. An important element of the industry's economic significance derives from its rural location. Fishing and fish processing, together with the industries dependent on them, form the economic base for many of Nova Scotia's coastal communities.

Nova Scotia's fishing industry derives its strength from an abundant and diverse resource base. The industry faced considerable turmoil during the early 1990s, with the collapse of groundfish stocks. The industry recovered during the second half of the decade as stocks of other species expanded. By the early 2000s, the value of landings had reached \$800 million, with the value of final production exceeding an estimated \$1.5 billion.¹

The commercial fishery, with some 5,000 fishing vessels, targets over 30 species. Shellfish is the main species group, with lobster, scallop, snow crab and shrimp the main species. This group took over from groundfish as the main contributor to the industry, in recent years accounting for about 85% of landed value. Groundfish continues to play a significant role, though is much diminished from the 1970s and 1980s, when this species group accounted for over 50% of the total. Cod, haddock, flatfishes and hake are the leading species. Within the pelagic group, herring, swordfish and tuna are the main species.

The Nova Scotia fish processing sector consists of 223 enterprises of varying types, with just over 180 in operation in 2006. They range in size from under five to several hundred employees. The sector utilizes all the species landed in the province, producing a wide range of fresh, frozen and value-added products. The sector has declined over the past 20 years, with many plants ceasing to operate and others combining their operations to gain strength through consolidation. Overall, the number of licenced facilities has dropped from just over 370 in the late 1980s. Currently, plants are concentrated in southwest Nova Scotia and Cape Breton, with a handful of others along the eastern shore and Northumberland Strait (see Fig. 1.1).

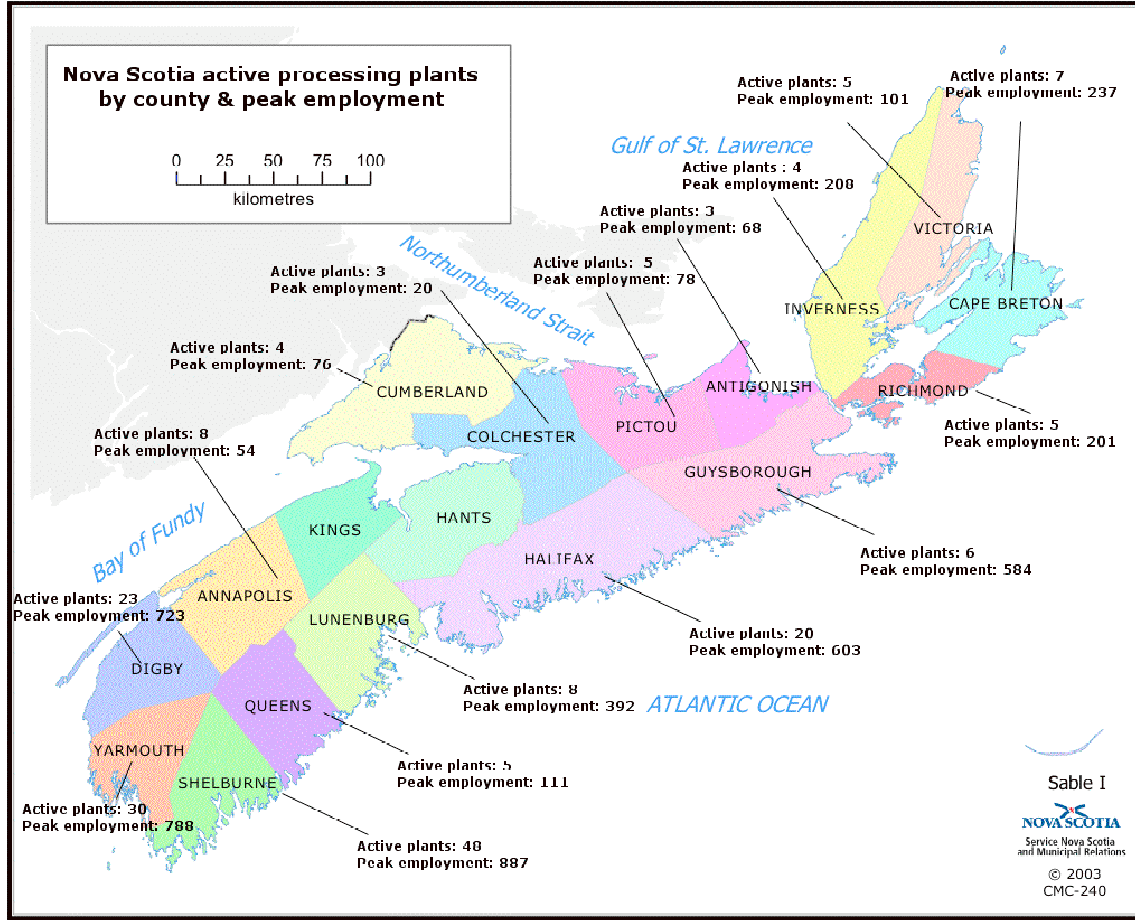
2. Policy context and regulation

The structure and operation of the processing sector are affected directly by provincial and federal licencing regulations, but also by federal regulation of fisheries.

- Nova Scotia fish processing is regulated through the *Fish Inspection Regulations* and the *Fish Buyers Licencing and Enforcement Regulations* under the *Fisheries and Coastal Resources Act*.

¹ Final product value is estimated on the understanding that Nova Scotia export sales (\$1,241 million in 2002) represent about 80% of final product value.

Fig 1.1: Map of Nova Scotia



- The *Fish Inspection Regulations* require all processing plants to hold a valid licence. To be issued a licence, an establishment must meet specified criteria regarding facility design and construction, as well as health and safety requirements set out in the regulations. The Minister has the discretion to refuse to issue a licence where issuing one is not considered in the public interest.
- Under the *Fish Buyers Licencing and Enforcement Regulations*, all fish buyers must hold a valid licence. This applies to processors who own and maintain licenced processing facilities (as well as their designated agents). Special conditions apply to individuals who wish to obtain a buyers licence for lobster. A buyer must meet specified criteria, including a requirement to own and maintain distinct live lobster holding and handling facilities.
- Fish processing in Nova Scotia is also regulated at the federal level through the *Fish Inspection Regulations* of the Canadian Food Inspection Agency (CFIA). These regulations set out standards regarding food safety and the requirements to meet these standards. These include the need for all plants to implement a Quality Management Program (QMP) in accordance with internationally recognized HACCP principles. A valid QMP is essential not only to meet health and safety standards, but also to meet increasingly stringent traceability and labeling requirements.
- As a matter of federal fisheries licencing policy, fish processing plants may not acquire commercial fishing licences in the inshore fisheries (licences for vessels <65'). This has a direct bearing on industry structure because it precludes vertical integration of harvesting and processing enterprises (except where a harvester acquires a fish processing licence). The policy was motivated by a desire to ensure inshore harvesters benefited from competition amongst processing companies. While the policy achieves this objective, it also creates the detrimental effect of fostering a climate of uncertainty with respect to the timing and quantity of raw material a plant may secure.

Provincial licencing and federal registration requirements are not intended as barriers to entry, or mechanisms to constrain the competitive environment in the fish processing sector. Except for groundfish and eel, where a licence moratorium has been in place since the early 1990s, obtaining a licence or registering a plant are formalities from a competitive standpoint. As long as an applicant meets the criteria, a licence will be issued and the plant will be registered.

Federal fisheries licencing policy is designed to promote competition amongst processors. While this is a good thing from the harvester's perspective, it creates major challenges for processors who must deal with the inherent uncertainty a lack of a secure supply of raw material represents. Processors have responded in two ways:

- By trying to develop supply security. This is achieved through informal arrangements such as providing various services (e.g., ice, bait, filing EI and tax forms, financing), and also through formal arrangements including the purchase of ITQ and controlling trust agreements. DFO has announced modifications to licencing policy to that would have the effect of eliminating controlling trust agreements in all but a few fisheries.
- By limiting investment in plant and equipment that is predicated on supply certainty and focusing more on the day-to-day challenges of finding raw material than on market and product development. The net effect is that the industry probably extracts less than maximum value from the resource.

3. Industry structure and competition

The processing sector may be divided into two main components – plants supplied by independent vessels and plants supplied at least in part by their own vessels. Most Nova Scotia plants rely on independent inshore vessels for their supply of raw material, and hence are in direct competition with one another. The few integrated plants relying on their own vessels – both inshore and offshore – enjoy an important measure of supply security. The plants holding inshore fishing licences are holdovers from the days prior to fleet separation.

Inshore processing plants relying on independent fishermen lack control over the timing, species mix, quantity and quality of raw material supply. In most industries, manufacturers would have the ability to set such specifications and hence be more responsive to market demand. Integrated processors have some advantage in this respect. The lack of direct control facing most plants means landings are subject to greater competition, resulting considerable potential uncertainty.

The structure of the fishing industry is such that there is a strong incentive for processors to try to avoid price competition when buying raw material. This is because they know that paying more does not generally lead to increased supply (or better quality) for any individual plant, nor for the sector as a whole (because landings are quota- or resource-limited). As soon as one processor offers more, others are forced to pay the higher price or risk losing boats. Prices easily can be bid up to unprofitable levels resulting in a transfer of revenue from processors to vessels with no supply gain to any processor.

The fishery and competition for raw material shape the industry and its ability to compete effectively in export markets. Short seasons and excess processing capacity lead companies to volume-driven behaviour, bidding aggressively for raw material. This results in the need for immediate sales, leaving processors little or no opportunity for market or product development, or to hold supply in inventory in an effort to secure better prices. Processors then compete against each other for sales facing large importers and distributors who understand very clearly the cash flow pressures.

The main implication of these structural and operating constraints is that processors are forced to take the market as they find it on a day-to-day basis. They have little or no ability to plan or work out marketing arrangements with customers that could result in higher prices. They rely on importers and distributors to channel their output. In short, they are unable to be market-driven – to work from the market back to production. All their decisions are based on supply conditions.

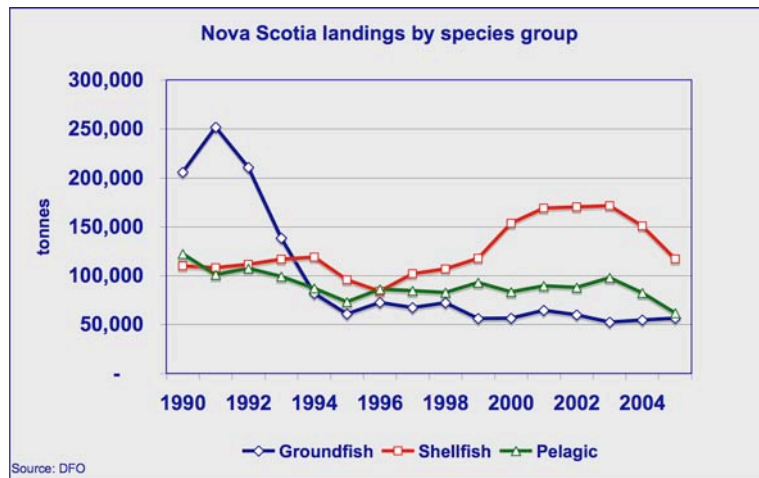
Adding to the challenge of structuring the industry so that it meets its potential is the separate jurisdiction over the parts. The federal government has jurisdiction over the fishery, while the provincial government is responsible for processing (though not trade). If the objectives of the two levels of government are not aligned, this would contribute to the challenges the industry faces in operating more effectively.

Non-price incentives to secure vessel loyalty are common in the industry. Securing control over raw material supply indirectly through arrangements with vessels is perhaps the oldest strategy followed by inshore plants not permitted to hold licences. Among the strategies are service arrangements (ice, bait, filing EI and tax forms), vessel and gear financing, and trust agreements. Recent announcements by DFO signal the intention to bring controlling trust agreements to an end in order to return to strict adherence to fleet separation.

4. Raw material supply

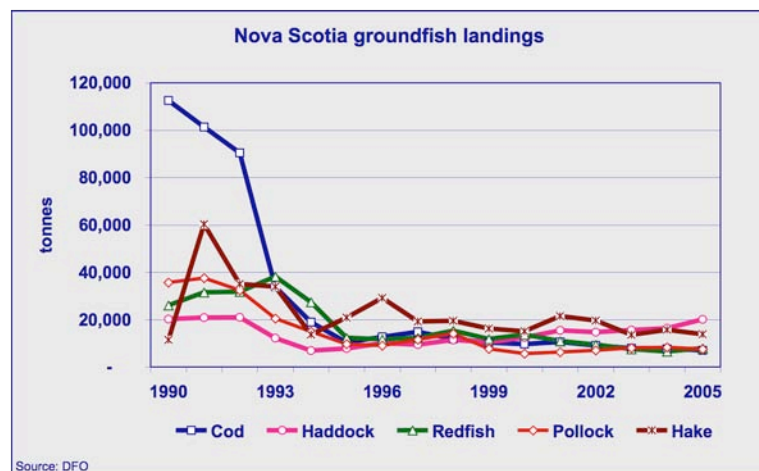
The historical strength of the Nova Scotia fish processing sector is attributable to the size and diversity of the fishery resource lying off the coast. More specifically, until its demise in the early 1990s, the abundant groundfish fishery formed the mainstay of many of the 300-400 plants and thousands of employees producing a range of fresh, frozen and salted products. Pelagic and shellfish species, though important to many plants, have tended to be of less overall significance because they provided substantially lower raw material throughput compared with groundfish. The general trends in local raw material supply since 1990 are depicted in Fig. 1.2.

Fig. 1.2: Groundfish landings dominated the Nova Scotia fishery up to the early 1990s, providing the main driver for the size of the processing sector and the economic strength of many dependent communities. Groundfish landings dropped by 80% between 1991 and 1995, undermining many of the plants dependent on this resource. The pelagic fisheries also declined over the years, with the tonnage landed gradually dropping to 50% of the level in the early 1990s. The rise in shellfish landings offset the impact of these declines to some extent, but with the exception of crab, shellfish does not generate significant onshore processing opportunities.



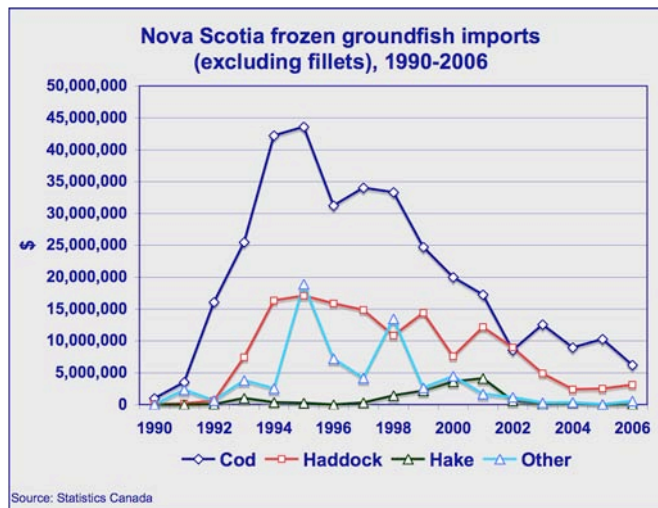
Cod had been the single most important groundfish species, with landings exceeding 100,000 t in the late 1980s and early 1990s. Offshore trawlers fishing the northern cod stocks accounted for a substantial share of the total tonnage, supplying a few integrated plants in the province. Most of the plants relied on the hundreds of inshore vessels operating on the Scotian Shelf. By 2006, only a few trawlers remain, with the greatly diminished groundfish catch taken by the small fleet of draggers and longliners the fishery is able to support. Only haddock landings have recovered to early 1990 levels, while all other species – pollock, hake and redfish – have declined by 50-70% (Fig. 1.3).

Fig. 1.3: All groundfish stocks have declined since the early 1990s and only haddock shows any signs of recovery. The sharp drop in the availability of cod has affected all groundfish processors, but particularly those engaged in the saltfish trade.



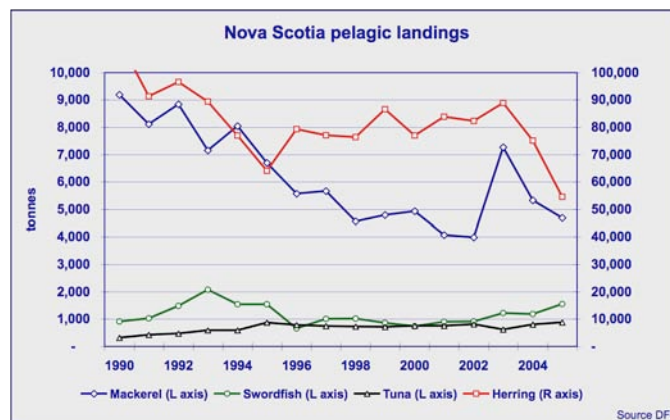
In response to the drop in locally-caught raw material, many processors turned to the international market to secure groundfish supplies. This was a successful strategy for several years as abundant supplies of competitively priced pollock, cod and haddock were available from Russian, Norwegian and Icelandic sources. This began to change in the late 1990s as China extended its position in the global seafood trade. A rapidly increasing number of Chinese processors greatly expanded their demand for groundfish, not only driving up the price, but also flooding the market with good quality frozen product at highly competitive prices. Processors in high cost countries (e.g., Canada and Europe) found it difficult to compete and withdrew from various segments of the market (both the demand for raw material and supply of product). This general transition captures the experience of Nova Scotia processors as well, as reflected in the decline of groundfish imports to Nova Scotia (Fig. 1.4).

Fig. 1.4: Frozen groundfish imports into Nova Scotia increased sharply in the early 1990s as local stocks dropped. This strategy worked for a while, but intense competition from China in both raw material and final product markets undermined the economics of this approach. Few plants in Nova Scotia continue to import frozen groundfish.



The plants dependent on pelagic species also face resource challenges, but not of the same magnitude as those dependent on groundfish. Herring stocks have declined since the early 1990s (though not as sharply cod), with a significant drop occurring since 2003 (Fig. 1.5). This recent decline is a matter of some concern to the handful of plants exclusively dependent on his species. Supplies of other species (mackerel, swordfish and tuna) have changed little since the late 1990s. They support limited onshore activity, with the relatively low tonnages of tuna and swordfish shipped in minimally processed forms.

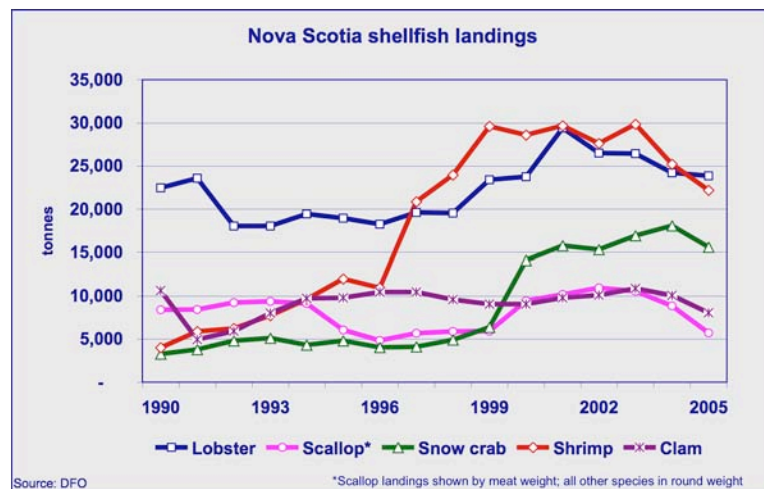
Fig. 1.5: Herring landings showed some stability through the mid-1990s, then declined sharply after 2003. Mackerel has declined to a relatively low level, while tuna and swordfish continue to support modest processing capacity.



With the decline in groundfish, shellfish species currently form the cornerstone for many processing enterprises in Nova Scotia.

- ❑ Lobster stocks continue to produce landings above historic levels, though exported mainly as a live product, this species supports limited processing activity (sorting, grading and packing). Shippers have invested heavily in holding facilities over the past decade in an effort to balance supply and demand.
- ❑ Scallop landings reflect variation in the strength of recruitment, with 100% fluctuations from trough to peak. With most of the processing occurring at sea and with considerable consolidation in the industry over the past decade, scallop generates limited onshore processing activity.
- ❑ Snow crab represents a growth sector, with several plants entering the industry in Cape Breton following the expansion in landings in 2000. Landings began to decline in 2005 and this cyclical trend is expected to continue for the next few years.
- ❑ The growth in shrimp landings after 1996 reflects the growth in northern stocks (fished by Nova Scotia-based factory trawlers) as well as the relocation of one company's port of landing from Newfoundland. A local shrimp fishery on the Scotian Shelf had supported one plant for several years, but it was forced to close because of declining volumes and weakening market prices.
- ❑ The clam fishery is based mainly on two species: the soft-shell clam fishery (tidal) and the industrial Stimson surf clam (offshore), with the bulk of the landings derived from the offshore fishery. The soft-shell clam supports a few processing plants, with processing of the Stimson clam occurring primarily on board the vessels.

Fig. 1.6: Though various shellfish species provide important sources of revenue for Nova Scotia processors, they tend not to generate significant onshore activity. This is because the product is shipped live (lobster), or is processed mainly at sea (scallop, shrimp and clam). Snow crab is the exception, supporting 10-12 plants and hundreds of jobs.

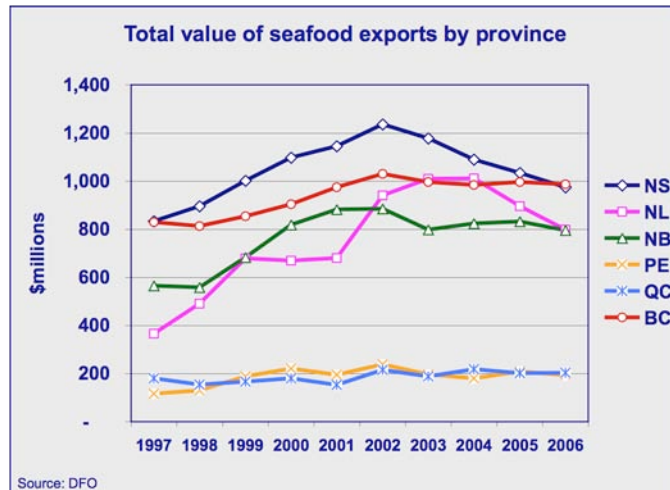


5. Markets and products

Overview

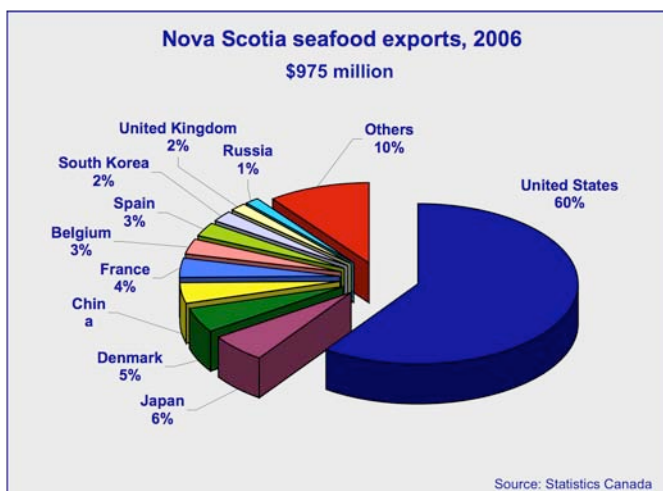
Nova Scotia is Canada's leading seafood producing province, with total value of exports in the \$1.1 billion range each year between 1999 and 2005. Export value slipped below to \$975 million in 2006 due to the combined effects of continued weakening of the U.S. dollar, weakness in crab and shrimp markets, and a drop in the value of groundfish and pelagic production due to poor resource conditions (Fig. 1.7).

Fig. 1.7: Rising shellfish landings, strong markets and a favourable exchange rate pushed the value of Nova Scotia seafood exports to over \$1.2 billion in 2002, up by 50% in just five years. The steady decline to under \$1.0 billion in 2006 is due largely to the weakening U.S. dollar, but also to stable or declining landings of key species such as lobster, scallop and crab.



Nova Scotia producers export to 85 countries worldwide, though just ten countries account for 90% of total exports. The U.S. is Nova Scotia's dominant market, taking 60% of exports, down from about 65% a decade ago. The decline in the relative importance of the U.S. market reflects the shift in exchange rates, as well as the growing importance of the EU, Chinese and Russian markets. The growth in these markets is due to mainly to shrimp, with China also taking crab for processing and re-export to Japan.

Fig. 1.8: The U.S. is the dominant market for Nova Scotia exports, accounting for 60% by value. Japan's share of exports has dropped by half over the past decade, while the EU, China and Russia have increased in absolute and relative importance.



Lobster

Lobster is Nova Scotia’s main seafood export, at \$390 million accounting for 40% of the total. This is down from a peak of just under \$450 million in 2003. The U.S. is the leading market, taking just under 70% of exports (Fig. 1.9). The significance of the U.S. market has declined in relative terms due to the decline of the U.S. dollar. The EU and Japan are the other major markets for live lobster. The proportion of lobster shipped in live form has declined (from over 95% to under 85% between 2000 and 2006), as an increasing number of plants turn to various forms of processing including meat extraction and frozen tail and claws (Fig. 1.10).

Fig. 1.9

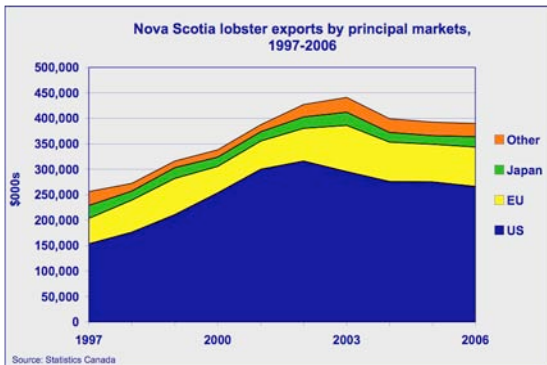
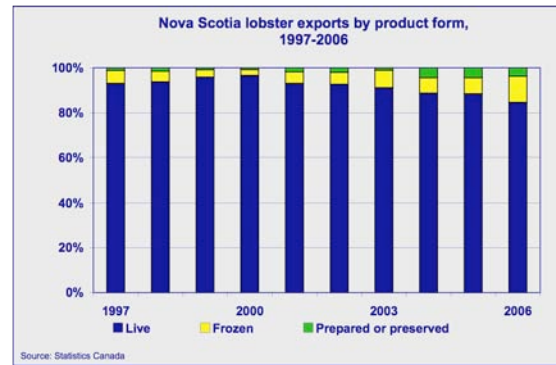


Fig. 1.10



Groundfish

Groundfish, despite the decline in local and imported raw material, continues to generate substantial export revenues. The value of exports declined from about \$320 million in 1998 to \$190 million in 2006, ranking as Nova Scotia’s second most valuable seafood export commodity (20% of the total). The U.S. is the leading market, taking just over 70% of total groundfish exports (Fig. 1.11). With the growth in competition from Chinese frozen product, the trend amongst Nova Scotia processors is to export relatively more to the U.S. in fresh form (Fig. 1.12).

Fig. 1.11

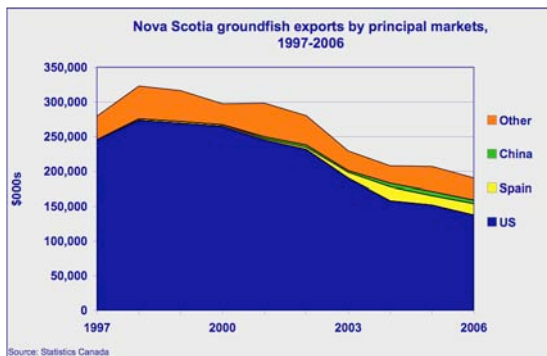
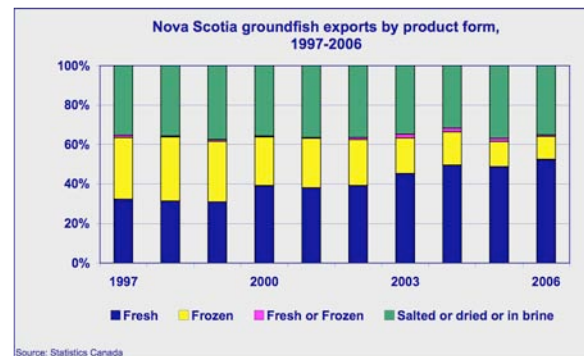


Fig. 1.12



Scallop

Scallops continue as one of Nova Scotia’s major exports, accounting for about 10% of the total. Just under 70% is shipped to the U.S., with the EU the second most important market (Fig. 1.13). At \$95 million in 2006, scallop exports have declined by about 35% from their peak in 2000. The exchange rate shift and the drop in landings in 2005 account for the decline. With consolidations in the industry, a shift to increased freezing at sea, and more of the product destined for the food service industry, the proportion of exports shipped in frozen form has increased from 40 to 70% (Fig. 1.14).

Fig. 1.13

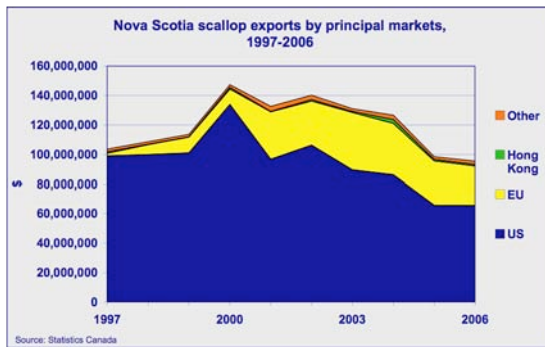
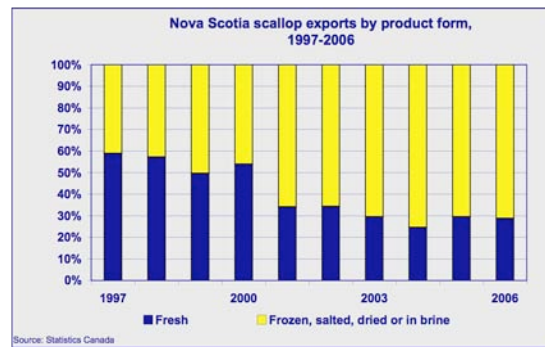


Fig. 1.14



Crab

The value of crab exports from Nova Scotia dropped by 50% in just two years, down from \$160 million in 2004 to about \$80 million in 2006 (Fig. 1.15). A weak U.S. market following a run-up in prices in 2004 accounts primarily for the drop, but declining landings and the weak U.S. dollar also contributed. The U.S. is the dominant market, taking about 70% of the total, with Japan and China the other significant markets. Snow crab is the main species, with virtually 100% exported in frozen section form. Other species (e.g., Jonah and rock crab) make up a relatively minor share of overall crab exports and account for the small proportion of exports in the prepared or preserved category (Fig. 1.16).

Fig. 1.15

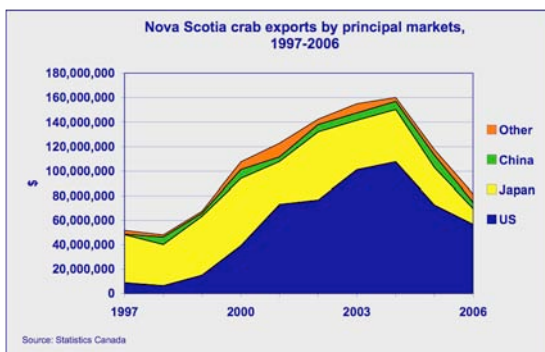
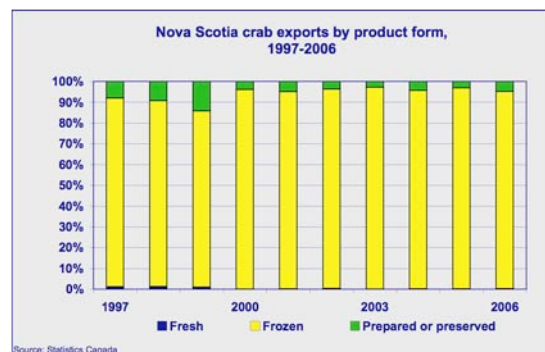


Fig. 1.16



Shrimp

The global shrimp market presents a considerable challenge for all exporting nations because global supply has outstripped demand over the past decade, resulting in steadily declining prices. The generally rising trend in Nova Scotia exports since the late 1990s reflects rising quotas and obscures the declining prices. Export value exceeded \$100 million in 2006, down from a peak of \$120 million in 2002, but well above the \$60 million realized in 1997 (Fig. 1.17). Virtually 100% of shrimp exports from Nova Scotia is currently processed on factory freezer trawlers fishing off Newfoundland and Labrador, and consequently frozen product is the dominant form (Fig. 1.18). Onshore processing of locally caught shrimp occurred as recently as 2002, but limited and fluctuating volumes caused the plant to become non-viable.

Fig. 1.17

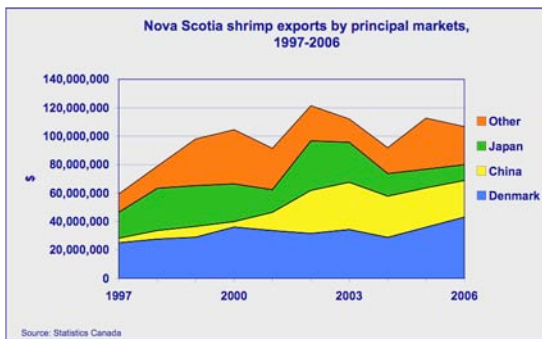
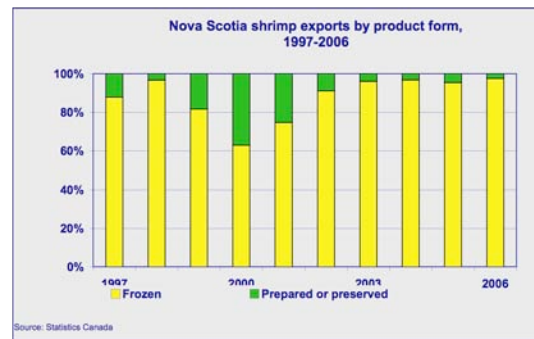


Fig. 1.18



Herring

The value of herring exports fluctuates with landings and market conditions, particularly the roe market, which in the past 2-3 years has weakened considerably. Exports have dropped by 50% since 2003, going from just under \$30 million to just over \$14 million in 2006 (Fig. 1.19). Until 2003, Japan had been the main export market (roe), accounting for two-thirds of total value. The U.S. is currently the leading market, taking about 45% of Nova Scotia’s total herring exports. About half the exports to the U.S. are in marinated or canned form, with roe and smoked herring making up most of the balance. The EU is the main market for frozen fillets. Frozen product makes up about 50% of total exports (Fig. 1.20).

Fig. 1.19

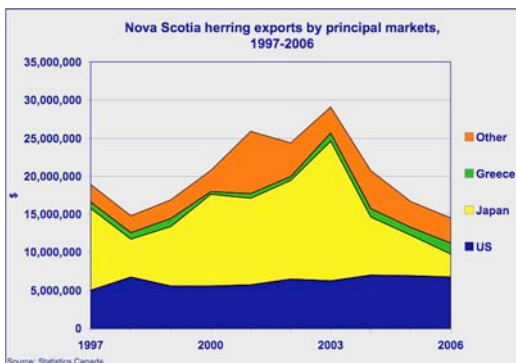
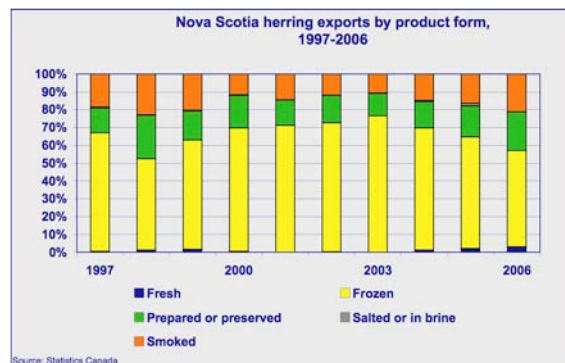


Fig. 1.20



//

STATE OF THE INDUSTRY

1. Industry structure – 2006 benchmark

Number of active plants is declining

Nova Scotia issues licences to over 220 companies engaged in what is generally referred to as fish processing. This is down from over 400 licenced facilities in the early 1990s. To qualify for a licence, an applicant must meet certain minimum facility requirements prescribed by regulation. To operate a plant, the licence-holder must also comply with Fish Inspection regulations of both the Canadian Food Inspection Agency and Nova Scotia Fisheries and Aquaculture. Otherwise, with the exception of groundfish and eel, there are no regulatory obstacles to entering the industry.

Information compiled through questionnaires and interviews with plant owners indicates that 184 of the 223 licenced facilities are active, and 39 are inactive. Most of the plants (168) process raw material derived from capture fisheries, while 16 indicate aquaculture as the main source of raw material. The geographic distribution of plants by county and by source of raw material is provided in Table 1. All counties but Kings and Hants have at least one facility.

Table 1
Plants by county and source of supply

County	Total plants	Capture	Aquaculture	Inactive Plants
	(1)	(2)	(3)	(4)
Annapolis	8	8		
Antigonish	4	3		1
Cape Breton	9	7		2
Colchester	3	3		
Cumberland	4	3	1	
Digby	36	22	1	13
Guysborough	8	4	2	2
Halifax	22	18	2	2
Inverness	6	3	1	2
Lunenburg	11	6	2	3
Pictou	5	4	1	
Queens	6	4	1	1
Richmond	5	4	1	
Shelburne	58	47	1	10
Victoria	5	3	2	
Yarmouth	33	29	1	3
Total	223	168	16	39

Notes

1. Total licenses, whether active or not active.
2. Raw material sourced from capture fisheries.
3. Raw material sourced from aquaculture.
4. Plants not in business.

Most plants are locally owned

Plant ownership in Nova Scotia falls into one of three categories: privately held with exclusive ownership by local interests, privately held in whole or in part by outside interests, and publicly held with substantial local control and management. Nova Scotia does not require details of ownership structure to be filed, so a precise reading on the nature and extent of non-local ownership and control is not available.

- ❑ An estimated 180-190 of Nova Scotia's licenced facilities are owned and operated by local interests. This tends to serve the communities well because the health of the company and the economic health of the community usually go hand in hand. In most cases owners operate a single plant, though in some cases owners operate 2-3 plants generally in different communities and generally specializing in different species.
- ❑ Three licence-holders are publicly held companies: High Liner (with a single plant in Lunenburg); Clearwater (with facilities in Halifax, Lockeport, Arichat, Clarke's Harbour, Shelburne and Glace Bay); and Fishery Products International (with a plant in Riverport).
- ❑ In the range of 20-30 plants are owned in whole or in part by interests outside Nova Scotia (mainly by companies based in Newfoundland, New Brunswick and New England), though ownership structure is not clear. These plants are located in communities from Cheticamp to Yarmouth, with operations in crab, lobster, saltfish and herring.

Not all plants conduct processing activities

Though all licence-holders are referred to as belonging to the processing sector, fewer than half are engaged predominantly in what is conventionally understood as processing (as measured by proportion of sales revenue). The breakdown by county is given in Table 2.

- ❑ 106 licence-holders report they conduct processing as defined in regulation: cleaning, filleting, icing, packing, canning, freezing, smoking, salting, cooking, pickling, drying or preparing fish for market.
- ❑ 41 licence-holders report that their activities are confined to shipping lobster. They buy and hold lobster in dry land or tidal pounds, shipping them to market as demand warrants. They conduct no processing, other than sorting and packing lobster for shipment.
- ❑ 32 licence-holders classify themselves as buyers and sellers only. They simply act as intermediaries for processors or shippers, buying at the wharf and transporting to a plant in Nova Scotia or outside the province. Buyers may be independent or agents of a particular licence-holder. Buyers are most common in the lobster and crab sectors.
- ❑ 2 plants report they are engaged primarily in the wholesale-retail trade. These facilities conduct conventional processing activities, but the bulk of their sales revenue is derived from wholesale-retail trade.
- ❑ 2 plants provided insufficient information to allow categorization.

Table 2
Nova Scotia fish processing, predominant lines of business

County	Predominant lines of business				Non respondents (5)	Inactive Plants (6)	Total plants (7)
	Processor (1)	Shipper (2)	Buyer/ Seller (3)	Wholesale/ Retail (4)			
Annapolis	5	2	1				8
Antigonish		2	1			1	4
Cape Breton	4	1	2			2	9
Colchester	1		2				3
Cumberland	3	1					4
Digby	16	5	2			13	36
Guysborough	5		1			2	8
Halifax	12	3	2	2	1	2	22
Inverness	3		1			2	6
Lunenburg	6	1	1			3	11
Pictou	2	1	2				5
Queens	5					1	6
Richmond	3	1	1				5
Shelburne	22	16	9		1	10	58
Victoria	2	1	2				5
Yarmouth	18	7	5			3	33
Total	107	41	32	2	2	39	223

Notes

1. Processing equals or exceeds 75% of total sales revenue.
2. Shipping lobster equals or exceeds 75% of total sales revenue.
3. Buying and selling (mainly shellfish) equals or exceeds 75% of total sales revenue.
4. Wholesale and retail trade equals or exceeds 75% of total sales revenue.
5. Plants that did not participate in the study.
6. Plants not in business.
7. Sum of columns 1 to 6.

Shellfish is the predominant species

A single species or species group accounts for the predominant share of revenue for most plants in Nova Scotia. Predominant is defined here as generating at least 50% of total sales revenue, though for most plants, single-species dependence exceeds 75%. Table 3 shows plants by county by predominant species group.

This trend towards specialization is a function of the decline of the groundfish fishery, the growth of shellfish resource (mainly lobster and crab), increased competitiveness amongst plants and the need for efficiency in light of narrow margins, and the pressures of meeting market requirements.

- ❑ 119 plants report shellfish as their predominant source of sales revenue. For most plants, lobster is the main or exclusive source of revenue, while several report crab or scallop as the main revenue generator.
- ❑ 42 plants report groundfish as their predominant source of sales revenue. These plants are either shipping fresh and frozen product mainly to the U.S., or are producing saltfish for the U.S., Caribbean and European markets. Many of these plants also rely on lobster to supplement margins.

- ❑ 16 plants specialize in pelagic species (herring, tuna and swordfish). Herring is exported mainly to the EU and U.S. markets (roe to Japan), tuna mainly to Japan, and swordfish to the U.S. A few plants also process herring and mackerel for the local bait trade.
- ❑ 5 licence-holders process salmon/trout in fresh and smoked form.
- ❑ 2 plants provided insufficient information for classification purposes.

Table 3
Plant specialization by predominant species group

County	Predominant species group				Non respondents (5)	Inactive plants (6)	Total plants
	Shellfish (1)	Groundfish (2)	Pelagic (3)	Other (4)			
Annapolis	5	2	1				8
Antigonish	3					1	4
Cape Breton	7					2	9
Colchester	3						3
Cumberland	4						4
Digby	12	8	3			13	36
Guysborough	4		1	1		2	8
Halifax	12	4		3	1	2	22
Inverness	4					2	6
Lunenburg	5	3				3	11
Pictou	5						5
Queens	2	2	1			1	6
Richmond	3	1	1				5
Shelburne	32	11	3	1	1	10	58
Victoria	5						5
Yarmouth	13	11	6			3	33
Total	119	42	16	5	2	39	223

Notes

1. Shellfish (mainly lobster and crab) accounts for 50% or more of sales revenue.
2. Groundfish accounts for 50% or more of sales revenue.
3. Pelagic species account for 50% or more of sales revenue.
4. Other species (salmon) account for 50% or more of sales revenue.
5. Plants not providing information.
6. Plants not in business.

Industry economics supports limited investment in technology

The past 10-15 years have seen limited investment in processing plant and equipment in Nova Scotia. If anything, the trend has been towards disinvestment as plants have gone out of business or adjusted to more challenging resource and market conditions. Any investment in new plant and equipment has occurred mainly in three areas: holding systems for lobster; crab processing facilities; and at-sea processing (factory vessels) in the scallop, clam and shrimp fisheries.

- **Lobster:** investment in holding capacity ranges from simple dry-land seawater tanks and tidal pounds to sophisticated controlled environment, continuous flow systems where lobsters are held in individual compartments. Holding capacity has expanded in response to three factors: increased supply; opportunities to “re-time” the market (hold off supply until market conditions improve); and in recent years, because declining conditions in other sectors of the industry have made investment in lobster marketing a more attractive prospect. Holding capacity, conservatively estimated at about 15 million pounds, has more than doubled since the mid-1990s (Table 4). One plant is experimenting with a raw frozen lobster product, shucked using hydrostatic pressure. Also a few plants have entered the processed lobster market, producing tails and claw/knuckle meat. The bulk of the 20-25,000 t landed annually in Nova Scotia in recent years is shipped live.

Table 4
Nova Scotia lobster holding capacity

Lobster storage	Total Capacity (lbs)	Respondents (#)
Dry land		
Capacity	13,450,000	71
Tidal		
Capacity	1,870,000	19
Total	15,320,000	

- **Scallop:** most of the processing occurs at sea for both offshore and inshore scallop, leaving limited work to be done in land-based facilities (essentially, washing, sorting, freezing and packing). Moreover, consolidation of quota in both the offshore and inshore sectors, coupled with the introduction of factory vessels, has reduced the number of vessels in the fleets and the number of plants with access to raw material.
- **Shrimp:** the resource off Nova Scotia has, in the past, supported onshore processing (two plants operated at various times). A combination of declining and variable stocks and weak markets caused the facilities to close some years ago (a minimum of 8-9,000 t is required to sustain a processing plant; Nova Scotia landings ranged between 3-5,000 t). Local landings are sold to plants in New Brunswick and Newfoundland and Labrador for processing. Three Nova Scotia companies participate in the Northern Shrimp fishery, though all processing takes place at sea on board the factory freezer trawlers.
- **Groundfish:** with the sharp decline in the resource in the early 1990s, the number of plants engaged in groundfish processing dropped, and the volume of throughput at plants continuing in the industry also declined. The shift to mechanized processing that had begun in the 1980s, ceased and much of the equipment that had been in use was sold or simply stored. Today, only 15-20 plants report they still have any processing equipment (filleting, skinning and splitting machines), and only in the herring plants is the filleting equipment in regular use (Table 5). Groundfish plants processing for the fresh and frozen market rely almost exclusively on manual cutting (filleting or simply dressing fish), in part because of low volumes and in part because size variability often puts the fish outside the tolerances of the equipment. Some of the remaining saltfish plants use splitting machines when conditions warrant, but much of the work is done manually.

Table 5
Nova Scotia fish processing capacity

Processing equipment	Units (number)	Capacity (lbs/8-hr shift)
Fillet Machines	60	990,000
Splitting machines	30	650,000
Cutters/Filleters	300	500,000
Splitters	100	380,000

- ❑ **Crab:** stocks, TACs and landings increased sharply in the late 1990s in eastern Nova Scotia. Between 1999 and 2001, six plants were added to the four already in operation, effectively tripling processing capacity. A decline in resources in 2005 and 2006, coupled with difficult market conditions in those years, resulted in some attrition from the industry. Two plants have closed, and another one or two may not continue, depending on the recovery of the resource and markets. The combined capacity of the industry (about 900,000 lbs per shift) is adequate to meet seasonal peak landings, resulting in underutilized capacity much of the season.
- | Process | Throughput (lbs) | Plants (#) |
|-----------------------------------------------|------------------|------------|
| Salting, pickling, marinating capacity | | |
| Total capacity (8-hr shift) | 1,500,000 | 17 |
| Drying | | |
| Total capacity per cycle | 1,600,000 | 18 |
| Continuous cookers | | |
| Total capacity (8-hr shift) | 900,000 | 10 |
| Smoked capacity | | |
| Total capacity per batch | 14,000 | 7 |
| Roe production | | |
| Total capacity per batch (8-hr shift) | 265,000 | 5 |
- ❑ **Pelagic:** Herring is the dominant species by volume, with 10 plants reporting they are engaged in some form of processing. The 3-4 larger plants indicate they process to the fillet stage, and they operate most of the filleting machines indicated in Table 5. Others engage in smaller scale processing including marinating and salting (Table 6), while the remaining plants confine their operations to processing for the roe and bait markets. A few plants process tuna, though this tends to be a manual operation with the fish simply dressed and frozen for export (mainly to Japan).
 - ❑ **Clam:** the inshore resource (soft-shell) sustains 2-3 plants, while the offshore resource (Stimson Surf Clam) is processed at sea. The offshore fishery (on Banquereau Bank) had supported some on shore processing at a plant in Cape Breton, but this work has shifted to a Newfoundland plant because the main focus of the fishery has shifted to Grand Bank, and also because of plant consolidation.

Most processors have freezing and ice-making capacity

Many plants engaged in primary and secondary processing rely on plate, blast and brine freezers in their production process, and on freezers to store either raw material or finished product. The number and capacity of units are provided in Table 7. Note that some companies provided freezer and cooler capacity data in weight and others in volume. There is no simple conversion factor because of varying product densities.

Equipment	Units (number)	Capacity (lbs/hour)
Horizontal plate freezer capacity	139	237,000
Vertical plate freezer capacity	13	10,500
Blast/brine freezer capacity	39	222,500
Tunnel IQF capacity	11	26,000
Freezer/Ice making capacity	Total (lbs)	Total (cu. ft.)
Freezer storage capacity*	45,500,000	3,900,000
Cooler storage capacity*	13,730,000	130,000
Ice production (tonnes/24-hours)	3,000	
Ice storage capacity (tonnes)	3,200	

* Some companies provided data in pounds and some in cubic capacity.

Processing generates mainly seasonal employment

With most plants depending exclusively on raw material supplied by the local fishery, the timing and duration of plant operations follows closely the various fishing seasons. The typical operating pattern over the year shows moderate activity during the fall and winter months, with seasonal peaks in spring and summer. Using employment as the main indicator of the seasonality of processing sector activity, Table 8 provides monthly totals by county.

Among the points of note:

- ❑ In Cape Breton, Guysborough, Richmond and Victoria, shellfish seasons drive employment and the sharp variation in employment from month to month. The doubling of employment in spring and summer is due mainly to the lobster and crab fisheries, with herring contributing in Guysborough during the early fall.
- ❑ Shelburne has the largest number of plants and the highest employment. It shows a seasonal pattern, but the variation is relatively muted. With winter lobster and groundfish fisheries, activity tends to be fairly steady year-round. The moderate summer peak is attributable to increased groundfish production.
- ❑ Yarmouth and Digby also generate substantial processing employment, with a relatively sharp seasonal pattern (the summer peak is almost double that of the fall and winter months). Scallop, herring and groundfish production account for the high summer numbers.
- ❑ Total processing sector employment in Nova Scotia rises from about 3,000 in winter to a peak of about 4,900 in late summer.
- ❑ It is interesting to note that a Nova Scotia plant survey conducted in 1993 (242 registered plants reporting) estimated the total number of jobs lasting 10-12 months at just under 4,200, with another 5,500 lasting 1-9 months. By contrast, today's industry generates fewer than 3,000 year-round jobs. The demise of the year-round groundfish fishery and current predominance of seasonal fisheries explains this change.

About half the plants surveyed operate year-round, though not necessarily in full production. The other plants are seasonal, with operations ranging from fewer than 20 weeks to up to 40 weeks (Table 9). There has been little change in the pattern of seasonality over the past several years.

Table 9
Number of plants by weeks of production

Weeks of production	2006	2005	2004	2003	2002
0-19	16	18	18	17	17
20-29	35	33	31	31	29
30-39	16	16	16	14	13
40-52	83	84	85	85	86
Total respondents	150	151	150	147	145

Table 8
Processing plant employment by county by month

County	Respondents (#)	Months in 2005											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Annapolis	5	33	33	39	39	39	54	54	39	39	39	39	39
Antigonish	3	0	0	0	8	48	51	40	66	68	67	0	0
Cape Breton	6	60	60	60	74	137	187	237	237	185	179	73	60
Colchester	1	0	0	0	20	20	20	20	20	20	20	0	0
Cumberland	4	6	6	6	6	75	76	71	70	73	76	74	68
Digby	20	411	411	411	573	672	647	708	723	676	547	431	412
Guysborough	6	137	137	137	387	507	507	507	500	584	385	138	138
Halifax	17	526	526	545	587	603	597	589	577	587	583	583	573
Inverness	4	0	0	0	8	208	208	208	127	52	52	52	52
Lunenburg	6	392	392	383	383	383	383	383	383	383	383	383	383
Pictou	3	66	66	4	10	78	66	58	71	71	69	69	69
Queens	4	69	69	104	104	107	104	104	104	104	111	104	104
Richmond	4	124	124	124	201	201	201	201	201	201	136	124	124
Shelburne	38	677	680	681	692	768	863	876	887	847	750	729	751
Victoria	5	4	4	4	8	97	101	101	101	12	12	8	4
Yarmouth	26	400	419	428	428	455	685	711	788	781	681	415	401
Total	152	2,905	2,927	2,926	3,528	4,398	4,750	4,868	4,894	4,683	4,090	3,222	3,178

Two-thirds of plants reporting indicate they pay production employees in the \$8.00-12.00/hour range, with the wage rates reflecting skill levels, competition for labour and ability to pay. Wage levels for the 100 or so plants reporting are shown in Table 10. Each row shows how many plants pay their administrative and production workers a wage in the range indicated for that row. For example, 34 plants report they pay production workers in the \$8.00-10.00 range.

Table 10
Frequency distribution of wages

Wage range (\$/hr)	Number of plants reporting in each wage range for:	
	Administration workers	Production workers
8.00-10.00	9	34
10.00-12.00	10	34
12.00-14.00	7	22
14.00 and up	31	8

2. Competitive environment

Plants rely mainly on independent vessels for raw material

The Nova Scotia fishing industry may be divided into two main activities: fishing and processing. For 70 of the 102 plants reporting, fishing and processing are conducted as independent activities, with plants competing for raw material from formally independent fishing enterprises. Some of these transactions may be subject to arrangements between harvesters and processors, ranging from informal understanding linked to services provided by the processor to more formal trust agreements.

For the other 32 processors, processing and harvesting are formally integrated into a single enterprise, though many plants also secure raw material from other sources including independent vessels. The offshore plants own and operate vessels as a matter of policy, while the inshore plants represent exceptions to the fleet separation policy.

For the 70 independent plants, the 5,000 or so inshore vessels fishing the waters off Nova Scotia account for the bulk of raw material they process. Some of the larger plants augment local supplies by importing raw material from other plants or provinces, and some also by obtaining fish (mainly groundfish) from international sources. The latter practice has declined in recent years as groundfish prices have escalated and competitive forces have caused processing to shift to China and other Far East nations. This combination of factors has hurt groundfish processors producing for the fresh and frozen market, as well as those producing saltfish.

- ❑ Independent vessels form the single largest source of raw material for plants in each species group category (Table 11). All 70 plants reporting on their source of raw material indicate at least some dependence on local independent vessels (in many cases, the dependence is 100%).
- ❑ Sixty of the 70 plants reporting indicate they source at least some of their raw material from other plants and independent buyers in Nova Scotia or elsewhere in Atlantic Canada. Over half these are groundfish plants and in most cases, these sources make a relatively small contribution to total throughput.
- ❑ Only 12 of the 70 plants reporting indicate any dependence on raw material imported from outside Canada. All but four of these are saltfish plants, with the contribution to total throughput ranging from 20 to 50%. Increasingly, saltfish plants are importing finished or semi-finished product.

The 32 integrated plants cover the range of species, harvesting and processing scallop, lobster, clam, shrimp, groundfish and herring (Table 11). These include four “offshore” companies operating some 30-40 vessels (fishing mainly scallop, but also groundfish, clam, herring, shrimp and lobster), as well as 28 plants operating one or more inshore boats (draggers and fixed gear <65’) or vessels in the 65-100’ range. Though plants are not permitted to hold inshore fishing licences under Canada’s commercial fisheries licencing policy, the handful of plants holding these licences prior to the introduction fleet separation in 1978 were permitted to keep them.

- All four offshore companies rely on their own vessels for 90-100% of their plant throughput. One company relied on other plants or independent vessels for a small percentage of one species. None reported processing raw material bought outside Nova Scotia.
- The 28 integrated inshore plants depend on their own vessel(s) for as little as 5% of throughput and as much as 100%, with the range depending on the number of vessels they operate and the species for which they hold licences. Other sources of raw material are independent vessels and other plants. None reported processing raw material imported to Nova Scotia.

Table 11
Sources of raw material for independent and integrated plants

	Independent plants (1)	Integrated plants (2)
Shellfish		
Own vessels	0	21
Independent fishermen	44	13
Other plants	9	2
Other buyers	7	4
Imported : Atlantic Canada	4	0
Imported: Outside Canada	3	0
Groundfish		
Own vessels	0	16
Independent fishermen	31	11
Other plants	15	3
Other buyers	3	2
Imported : Atlantic Canada	7	0
Imported: Outside Canada	9	2
Pelagic		
Own vessels	0	7
Independent fishermen	15	5
Other plants	4	3
Other buyers	3	3
Imported : Atlantic Canada	5	1
Imported: Outside Canada	2	0
Total respondents (3)	70	32

Notes

1. Plants relying mainly on independent vessels for raw material.
2. Plants relying mainly on their own vessels for raw material.
3. Many plants rely on multiple sources so the columns do not add

Competition for raw material

The fishing industry is structured to promote competition for raw material. Ensuring that harvesters obtain competitively determined prices for their landings provided the original and continuing rationale for fleet separation. The policy achieves this objective. One of the enduring characteristics of the inshore sector is the strong competition amongst processing plants for raw material. While this is good for harvesters, the lack of a secure supply of fish has resulted in some unintended side effects:

- ❑ Plants may drive up prices to financially unreasonable levels, leaving them with little or no margin to cover fixed costs. The same prices tend to be paid to all vessels, regardless of raw material quality.
- ❑ Plants are reluctant to not buy all that is available to them by “their” vessels, so they adjust capacity to meet seasonal peaks. When done on an industry-wide basis, this only intensifies the competition for raw material creating volume-driven (not market-driven) processors. Capital utilization is relatively low and returns to capital weak.
- ❑ Plants adjust to the competitive environment by trying methods other than price to develop a secure supply raw material. They provide various services (unloading, ice, bait, financing, completing EI and tax forms) in order to secure long-term supply commitments. This does not relieve the plant from paying the prevailing shore price, but it does serve to limit the dependence on price as the only factor influencing supply.
- ❑ Plants may try to do an end-run around the regulations by acquiring quota (in fisheries subject to ITQs) and contracting with vessels to catch it. Much of the scallop and groundfish quota in southwest Nova Scotia is believed to be in the hands of plants, with plants also holding quantities of crab quota in the fishery off northeastern Nova Scotia. Also, some lobster licences throughout the province are fished subject to trust agreements.

3. State of the industry

Infrastructure

With the exception of two areas – lobster holding and crab processing – the processing sector has seen limited investment in new plant and equipment in the past 5-10 years. Most plants report they are spending on maintenance and repair only. Limited fishery resources and the economic climate do not support investment in new plant and equipment. Also, in light of excess capacity in many segments of the sector, the federal government no longer provides financial support to processors.

- ❑ Most plants are at least 25 years old, with many operating from buildings exceeding 50 years in age. Few plants are purpose-built for their current use. While plants engaged in the export trade meet CFIA standards, many suffer from poor layout and high operating costs because their current use has been adapted from other uses in the past.

- ❑ Fish processing tends to be labour intensive at all but a handful of the highest volume plants (mainly herring) where filleting equipment can be justified. Groundfish plants supplying the U.S. market need the flexibility to respond to rapid price changes for different product forms.
- ❑ A few plants report they are beginning to face encroachment from residential development, resulting in complaints about noise, traffic and odour. But generally, plants are cited away from residential areas and challenges are minimal.
- ❑ Two associations represent the industry: the Seafood Producers Association of Nova Scotia (SPANS) and the Nova Scotia Fish Packers Association. The former represents the larger integrated companies. The latter represents many of the smaller independent companies, and has a geographic focus centered on southwest Nova Scotia. The majority of processing companies in the province belong to neither organization.

Labour force

For many years the challenge facing the fishing industry was to find jobs for the many unemployed individuals in coastal communities. The current challenge – and one that is intensifying as communities age and lose population – is to find enough workers to fill the positions.

- ❑ Demography and out-migration are depleting the ranks of potential employees of the fishing industry. Virtually every processor contacted as part of this study refers to the increasing difficulty in recruiting and retaining workers. Workers with key skills or the potential to develop them (e.g., filleting) are increasingly difficult to find.
- ❑ The challenge facing plants is not due simply to an aging and declining population base, but also to conditions in the plants themselves. The work is unappealing for many, and the weeks of available work are often not enough to qualify for employment insurance. Some plants rely on other plants going out of business as a source of workers, but recognize this cannot go on indefinitely. Plants in particularly isolated areas are already importing workers from outside the province to fill seasonal positions.
- ❑ Several plants report difficulty in finding people to work while they are drawing EI. EI is meant for those actively seeking work but unable to find it. The plants feel various EI offices around the province do not apply the rules as they are meant to be applied.
- ❑ The low wages paid by the industry also form part of the challenge. Although they may be competitive by the standards of most communities, the wage levels coupled with working conditions are not sufficiently attractive to induce enough younger people to enter the industry.

Regulation

The processing sector operates subject to a wide range of regulations including measures covering food health and safety, the physical environment, export specifications, and access to raw material. Each of these has a bearing on industry competitiveness.

- ❑ With the exception of groundfish and eel (where there is a moratorium on new licences), the requirement to hold a provincial licence is a formality from the perspective of access to the sector. Obtaining a licence does not constrain competition within the industry. This benefits independent harvesters because it ensures competition for raw material. Recent changes to the regulations covering lobster buyers have created a modest barrier to entry, though many plants do not regard the new rules as particularly effective given the scope licence-holders have to nominate designated buyers. They feel buyers with little or no investment continue to be able to bid up the price of lobster making it difficult for higher overhead operators to earn the margins they need to sustain their investments in holding capacity.
- ❑ One of the implications of a lack of regulatory control over the number of licences and the capacity of processing plants is a tendency towards overcapacity and intense competition for raw material. Opinion is divided on whether there should be restrictions on the issuance of new licences in sectors characterized by low capacity utilization. Many licence-holders would support restrictions in order to enhance margins, while many are opposed believing that openness is essential to promote opportunity and innovation. Those in favour of open licencing stress the need for minimum standards and a level playing field for all participants.
- ❑ Though there are some complaints about lack of consistency in the way CFIA rules are applied with respect to Quality Management Program standards, there is general agreement that the QMP approach is necessary and that the system of issuing export certificates works effectively.
- ❑ The industry has accepted the rules regarding food traceability and country of origin labeling and made the necessary adjustments.
- ❑ More stringent inspections of shipments of fish and shellfish by U.S. border officials are creating difficulties and delays in reaching markets in a timely fashion. Industry leaders in Nova Scotia note the real problem can be traced to shippers who fail to apply sufficient rigour in checking to ensure their shipments meet minimum size requirements. Processors also point to the need for increased DFO resources on the water and the wharf to ensure legal limits are respected.
- ❑ ITQs in several key fisheries (e.g., groundfish, herring, scallop and crab) have helped rationalize fishing fleets. Increasingly, ITQs have been bought or controlled by processing companies. On the one hand, this helps to strengthen the financial position of the plants because they enjoy supply security, but on the other hand, other processors are hurt because it results in less raw material available on the open market. Added to this is the concern expressed by some plants that fish is being left in the water by some quota-holders. Generally, quota is left uncaught because it is uneconomic to fish it.

Raw material and production

Several factors characterize the supply conditions for raw material:

- ❑ The sharp drop in groundfish in the early 1990s, resulting in the closure or shift in focus of many plants in the province. Operations at plants continuing to process for the fresh or frozen market tend to be seasonal or sporadic, as stocks of key species (haddock, hake, redfish, cod and pollock) support relatively small TACs. Most plants are in southwest Nova Scotia, where allocations are available. About 10 plants, mostly saltfish producers, are able to obtain some of this fish (mainly pollock and hake) when prices are favourable, but tend to rely mainly on imported raw material.
- ❑ The growing abundance of shellfish species, particularly lobster and crab, provides the basis for many enterprises. Lobster represents a key species for many plants, replacing or augmenting other lines of business, but also providing the basis for several businesses in its own right. With the more pervasive use of holding systems, many companies that would have been purely seasonal operations now operate year-round. Crab had supported as many as 10-12 plants at its peak, but this number is now down to 7-8 due to reduced abundance and difficult market conditions. The fishery is highly seasonal, resulting in intensive plant activity for just 8-10 weeks.
- ❑ Competition for raw material is more intense than it used to be for several reasons. For some species, it is because there is less of it generally available (e.g., crab, inshore scallop, groundfish). For other species, notably lobster, there are more plants chasing it, as many plants see lobster as one of the last opportunities to generate revenue. For some of these same species there are fewer vessels engaged in the fisheries. Again, this is the case for groundfish, scallop and crab. The effects of ITQs, where control over the resource is being concentrated in the hands of fewer and fewer enterprises (both vessels and plants), may also be seen as a contributing factor though it simply accelerates a process of rationalization that would have occurred anyway.
- ❑ Dependence on imported raw material has declined steadily over the past decade. Fewer than 10 plants consistently bring in quantities of frozen groundfish to meet their production needs. High Liner is the major importer, using fillets and portions for their breaded and battered product lines. A few saltfish producers are the other main importers, bringing in frozen dressed, green (wet salted) and finished product. Several other plants had imported frozen groundfish in the past, but the combination of rising raw material costs and more intense competition from low cost producers caused them to withdraw from the business. At the peak in the early 1990s, Nova Scotia plants imported frozen groundfish valued in the range of \$100 million. By 2006, imports had dwindled to under \$10 million.

Markets

Two major trends have dominated seafood markets over the past decade: the internationalization of trade and the resulting shift in production to low cost nations in the Far East, and the growing significance of aquaculture and its effects on the economics of capture fisheries.

- ❑ The impact of low cost producers is being felt throughout international seafood markets. Major fish processing companies in North America and Europe face an increasing challenge in competing for raw material as low cost producers have entered the market and bid up prices with the knowledge that raw material costs will be more than offset by substantially lower wage and production costs. These same processing companies then face the equally difficult challenge of competing with these low cost products in their own traditional North American and European markets. Most have found the challenge impossible to meet so are responding by shifting production to these same low cost producing nations. In Atlantic Canada, we have seen examples of this with groundfish and crab. To understand the overall magnitude of the trend, we only need to look in the frozen fish section in any supermarket to note that virtually every package, no matter which brand, is labeled product of China, Viet Nam or Thailand.
- ❑ Aquaculture now accounts for about 40% of global seafood consumption. This affects the Nova Scotia fishing industry in a direct way through the impact of cultured production on supply and price. This impact may occur in a direct species-specific way, for example through the impact of cultured shrimp on northern shrimp prices, or in a more indirect way through overall supply of cultured finfish species (e.g., tilapia, basa or salmon) on the price of groundfish. The point is that aquaculture will continue to develop and become more efficient and, with the technology to produce uniform sizes more or less year-round, will gain further market advantages over the capture fisheries.

Financial performance

Most plants responding to the survey indicate that their financial position has deteriorated over the past 5-10 years, making access to capital more challenging and causing many companies to withdraw from the industry. Though the value of exports is substantially higher in recent years than in the 1980s and 1990s (in the \$1.0 billion range), the trend masks some fundamental shifts in the fishing economy.

- ❑ Costs of production have risen, particularly labour, fuel and maintenance. This is pervasive, affecting all processing companies and also the vessels that supply them.
- ❑ Plants compete more intensely for raw material, driving up the cost and resulting in lower contribution margins. This is particularly the case with shellfish species, notably lobster and crab.
- ❑ Competition in product markets has intensified. This is not only because of the impact of low cost producing nations and greater availability of substitutes, but also because of the increasing concentration of buyers and distributors and the influence this has on prices.

- Nova Scotia seafood companies concentrating on the U.S. market have lost about 40% of revenues since 2002, just through the deterioration of the U.S. dollar. This has been offset to some extent by price increases for key species, notably lobster and crab. Lobster prices stabilized and then declined in 2006 in U.S. dollar terms, while crab prices plummeted in 2005 and continued to decline in 2006. Some U.S. dollar price recovery is expected in 2007.

III

COMPETITIVENESS ASSESSMENT

1. Strength, weakness, opportunity, threat (SWOT)

Resource conditions/raw material

Shellfish

Resource abundance and intrinsic raw material quality represent clear strengths for the shellfish species. Each species is subject to natural variation, but careful management and favourable environmental conditions have resulted in abundance levels at the high end of the historical ranges for the past several years.

The main areas of potential weakness stem from uncertainty arising from limited understanding of species' population dynamics. With lobster, exploitation rates are believed to be high, but in the absence of good indicators of abundance, scientists have difficulty generating reliable estimates. High exploitation rates mean just one or two year classes support the fishery resulting in the risk that one or two years of poor recruitment could greatly reduce stock abundance. With crab, though stock distribution is expanding, abundance tends to be cyclical, posing various operational challenges for harvesters and processors. Variable recruitment and wide swings in abundance represent a source of weakness in the scallop fishery.

Opportunity is limited for all species. The key species – lobster, crab, scallop and shrimp – appear to be fully exploited leaving no room for expansion of the harvesting and processing sectors. There would appear to be scope for expansion in clam from a resource abundance perspective, but markets for this species could not absorb more supply without causing a drop in prices.

The major threats arise from possible changes in the biophysical environment and the potential effects on abundance and quality. Lobster quality in the major fishery in southwest Nova Scotia was adversely affected apparently as a result of a late moult (a high proportion of the catch was not fully meated when the season began). Whether water temperature is having an effect on life cycle is not clear, but if so, a permanent change could affect the timing of the season with potential market and price implications. With the other species, cyclical abundance and unpredictable variation in abundance represent the main threats.

Groundfish

Other than intrinsic quality, groundfish species show few strengths. Haddock shows some signs of recovery from 1990s levels, but the magnitude of the recovery has not been as large as had been predicted. Other stocks appear to be stable, though at low levels of abundance.

Slow recovery represents the major weakness for all species, though with haddock and pollock, small fish size is also a concern. The haddock fishery is also constrained by restrictions arising from cod-by-catch limits.

Groundfish resource conditions provide few sources of opportunity for the harvesting and processing sectors. Only haddock TACs have climbed in recent years, providing market opportunities in the U.S. Extending the season with a view to achieving a more even flow of product to the U.S. market could result in less price fluctuation and overall higher prices.

Continued poor resource conditions represent the major threat to the groundfish sector in Nova Scotia. Unless local resource conditions improve, the processing sector faces a considerable challenge securing raw material to continue operations.

Pelagic

Resource conditions of the various pelagic species show limited strength, other than the intrinsic quality of the fish. In most cases, allowable catches have been set in the past 2-3 years at levels below their long-term averages.

Low biomass levels represent the major weaknesses for herring, tuna and swordfish. For herring, the biomass level is at the lowest level ever recorded. Tuna and swordfish are highly migratory species, with Canada allocated a share of what appears to be a heavily fished and declining resource.

In all cases the main opportunity lies in managing for sustainability. This means setting and respecting conservation limits. This approach is possible for herring and mackerel, coastal species managed within Canada's zone. It is problematic for the highly migratory species, tuna and swordfish, where pressures to set unsustainable allocations are high.

The major threat for herring would be a failure of the resource to recover to the levels of the early 1990s. For tuna and swordfish, the major threats continue to be unsustainable allowable catches and overfishing outside Canada's EEZ.

Business environment: regulation and management

Shellfish

Entry into shellfish processing is relatively easy – a strength from the standpoint of promoting opportunity and efficiency (in theory, the inefficient are forced out of the industry). Other strengths include the openness of trade among the Maritime Provinces, giving processors wider access to raw material. Integrated fishing and processing in some sectors (offshore/inshore scallop and offshore clam) provides another element of strength by facilitating operations planning and marketing. Processors also benefit from the CFIA plant certification process and the access this provides to global markets (this applies to all species groups).

Ease of entry also represents a weakness since the added capacity contributes to intense competition for raw material, resulting in low margins and instability. This is particularly problematic for those with substantial investments in plant and equipment who have to compete for raw material with low overhead buyers. The short season characteristic of the crab fishery also contributes to weakness when plants are unable to keep up with supply. Not only can this create quality issues, but it limits opportunity to market product effectively because processors are squeezed by high cash requirements to pay for raw material. Other weakness includes relatively high dependence on single market (dependence on the U.S. market exceeds 70% for most shellfish species).

The opportunities for improving the business environment for shellfish processing lie in introducing measures to strengthen industry structure. This could include limiting entry to reduce capacity and the destructive competition it engenders; allowing greater integration of the harvesting and processing sectors to provide greater raw material supply security; and engaging in collaborative marketing to strengthen the position of smaller firms when dealing with large U.S. and Japanese distributors. Also, expanding aquaculture production would provide a valuable source of supply for processing companies

The regulatory threats to shellfish processors arise from both internal and external sources. An on-going internal threat lies in the lack of control over raw material and need for processors to adjust their operations to the regulatory environment covering primary fisheries. This means market requirements are subordinated to supply conditions and not the other way round as is the case in many other industries. On the external side, complying with increasingly stringent quality control and traceability requirements imposes additional costs on processors, but is essential in order to sell on export markets. Processors also face the likelihood of more stringent environmental controls with respect to effluent discharge.

Groundfish

A moratorium on issuing new groundfish processing licences was imposed in 1994 after the collapse of groundfish stocks. This should act to strengthen the industry, though considerable excess capacity continues to exist. Much of the raw material flowing through plants is tied through plants' controlling ITQ or through trust agreements. This integration serves to strengthen the operating position of these plants. Though DFO intends to tighten the restrictions on trust agreements, the <65' ITQ groundfish fleet is exempted from this policy change because of the extent of vessel-plant integration.

The major source of weakness in the groundfish processing sector centres on inadequate local supplies of raw material, coupled with the high cost of imports. The sector also suffers from poor financial performance in recent years, resulting in limited access to capital and a weak investment climate.

Opportunities are limited in the groundfish processing sector due to raw material limitations (though these could be alleviated in the long term through expanded aquaculture production). Also, increasing competition from low-cost producing nations in the Far East is contributing to lower margins.. Nonetheless, the business environment could be enhanced through measures to promote market and product development and generally improve quality, particularly in the important fresh market in the U.S. In the long-term, the most effective opportunity to strengthen the business environment is to ensure the resource is managed for recovery and sustainability.

The greatest threat to this sector lies in a failure of the resource to recover. The business environment is also threatened by the strong Canadian dollar and the loss of market to low-cost producers. The combination of these factors constrains plant viability and serves to limit access to conventional financing.

Pelagic

One of the strengths of the business environment is the close integration of the harvesting and processing sectors in the herring (food) sector. This facilitates plant operations and market development. Tuna and swordfish processors enjoy good market access with highly valued species.

A resource decline in recent years represents the major weakness in the herring sector. Also, herring processing and marketing tend to be fairly specialized activities, with the capital requirements and market expertise representing significant barriers to entry. Limited and highly variable raw material supply represents the major weakness with tuna and swordfish. High dependence on one or two markets also represents a significant source of concern. Mackerel catches have remained fairly stable in recent years, with a sharp downturn in 2006.

The pelagic species offer limited opportunity for growth, at least in the near term due to resource constraints. There is some opportunity to enhance value by generic promotion of the health benefits of fish, and also through efforts at market diversification.

The main threats lie in the possibility that the resources may not recover to historic levels, though at worst, continued overfishing of tuna and swordfish in international waters could threaten the viability of the fisheries and dependent processors in Nova Scotia.

Markets/marketing

Shellfish

Nova Scotia represents a major supply source for three species – lobster, clam and scallop – providing the industry with considerable strength in marketing. High intrinsic quality, adjacency to major markets and the ability to exert some control over supply to markets contribute to the sector's strengths.

Shellfish processors face a major weakness in the form of excessive dependence on single markets: the U.S. for lobster, scallop and crab, the EU for shrimp, and Japan for clam. For example, this resulted in substantial exchange rate losses between 2002 and 2006 as the U.S. dollar declined in value. Other weaknesses include high distribution costs for lobster, increasing size and market power of crab distributors in the U.S. and Japan, and global oversupply of shrimp resulting in steadily decreasing prices.

Opportunities exist for all species including diversifying products and markets, and taking a more collaborative approach to marketing in order to counteract the increasing power of distributors. The increased focus by consumers on the origin and safety of seafood is an opportunity for Nova Scotia processors who are seen as producers of high quality, safe seafood products.

A potential threat across all species lies in the growing concentration and market power of buyers in the U.S., Japan and the EU and the effect this has on the negotiating position of relatively small Canadian shippers. Other threats tend to be species-specific and include growing concerns about animal rights activism and the marketing of lobster; narrow processor margins and exchange rate risks (crab and shrimp); the availability of substitutes and the effect on demand and prices (crab and lobster); and the fragmented marketing and occasional distress selling undermining product and market development (all species).

Groundfish

The strengths arise from the intrinsic quality of the raw material and the proximity to the U.S. market. These factors provide a solid basis for meeting the strong demand for fresh fish in the northeast.

The major weaknesses centre on the inability to supply the fresh market on a steady basis, year-round. Landings are seasonal, resulting in supply and price swings. Also, the declining size of the haddock in recent years means that entry to the U.S. market is blocked in cases where the product does not meet minimum size requirements. Limited supply and high prices for raw material have undermined the saltfish sector, which faces competition from low cost Chinese production.

There is opportunity to expand the fresh market in the U.S. This would require not only higher landings of key species (cod and haddock), but also steady year-round supply. Entry into the U.K. and the larger EU market also represents an opportunity, but again, only if supplies reach certain minimum levels and are available on a year-round basis. The EU market does not have the minimum size requirements that exist in the U.S. market.

The greatest threat lies in loss of market due to competition from other whitefish producing nations (e.g., Iceland and Norway) and competition from substitute species. Even twice frozen product from China represents a threat because it reduces overall whitefish prices. The threat posed by China for saltfish producers is also real, with several Nova Scotia companies going out of business in recent years because of an inability to compete.

Pelagic

The strengths arise from the intrinsic quality of the raw material (all species), and in the case of swordfish, proximity to the U.S. market. Declining global supplies of sashimi grade tuna has strengthened prices and provided attractive opportunities for tuna harvesters and processors in Nova Scotia.

Weakness stems from declining catch levels due to reduced abundance, and in the case of herring, also due to a weak Japanese roe market. The latter is attributable in part to oversupply, and also to uncoordinated selling by Canadian producers.

Opportunity tends to be limited due to supply constraints, though in the case of herring roe, the opportunity for higher prices lies in taking a more coordinated approach to dealing with Japanese importers.

The greatest threat to producers arises from loss of market share due to local supply constraints. There is also the possibility of consumer boycotts in cases where species are believed to be subject to unsustainable fishing pressure (swordfish and tuna).

Technology and innovation

Shellfish

Investment in facilities and equipment adds considerably to the strength of the shellfish sector. Lobster shippers have invested heavily in dry-land holding capacity, allowing the industry to achieve a better balance in the timing of supply and demand. Several new crab processing plants have been built since 2000 to take advantage of rising allocations. The offshore scallop, shrimp and clam sectors are at the forefront of technology with substantial investments in at sea processing capacity.

Overcapacity in some sectors, notably crab, represents the main weakness. Capacity is built in response to the need to meet sharp seasonal peaks, but is underutilized or unutilized much of the year.

With investment in processing technology there are opportunities to diversify products and markets, and also to enhance efficiency and reduce costs. Further investment may be required in order to offset future labour shortages and also to improve competitiveness.

The major potential threat arises from the possibility that a decline in resources will strand the investments since alternative uses for specialized equipment tend to be limited. Competition from low cost producers also represents a threat to investment in technology (by driving prices and returns down), but without such investment it is almost a foregone conclusion that local processors will not be competitive.

Groundfish

The groundfish sector is characterized by limited use of automation. Very few plants own and operate processing equipment, other than freezing units of various kinds. This is because equipment generally requires a considerable volume of throughput of a fairly uniform size in order to be economic. Neither condition has applied to the groundfish fisheries off Nova Scotia in the past 10-15 years.

While processing technology itself has few weaknesses, its strength arises from use in suitable circumstances, namely when processing high volumes of fish of a relatively uniform size. The weakness of the Nova Scotia situation lies in low and seasonal volumes, and uncertain markets for filleted product. Most plants rely on hand cutters because this provides the flexibility needed to meet shifting market conditions.

Resource and market conditions tend to undermine the business case for investment in processing technology. Few opportunities exist that justify such investments, though this may change as labour availability declines and costs rise.

The major threat to groundfish processing comes from low cost producers of frozen fillets and portions. The threat is manageable as long as Nova Scotia processors focus on the fresh market. A shift in market requirements to frozen product would leave local processors facing a more challenging competitive environment.

Pelagic

Herring processing is highly automated, representing a major source of competitive strength in this sector. Automation has limited applicability for tuna and swordfish given the markets and products.

Seasonal supply and declining throughput in recent years represent the main weaknesses. But despite the risks, any interest in supplying EU food markets makes the investment essential.

Opportunities for further investment in plant and equipment tend to be supply limited, though with the large pelagics, market requirements dictate a product form requiring limited local processing.

The main threat arises from the risk of a downturn in herring stocks, resulting in poor or negative returns on investment.

Labour force

The major strength – an adequate supply of trained labour most of the time – is common to all species. This strength is to some extent living on borrowed time, given the out-migration from coastal communities and the age structure of the remaining population.

Weaknesses are beginning to emerge in the form of difficulty finding enough workers during peak seasonal periods. Also, because of the seasonality of the employment in most cases, work in processing plants is becoming less attractive. Some plants also point to the EI program as a source of difficulty in finding workers at certain times of year. They indicate that some workers drawing EI refuse to accept employment, even though this is a stipulation of the program.

Resource conditions make it unlikely the industry will generate opportunities for increased employment for the foreseeable future. Fishing patterns and seasons also make it unlikely the work year will become less seasonal for most employees.

The most serious threat is that the industry will find itself facing a labour shortage in the near future as a result of out-migration and an aging workforce. The problem is becoming particularly acute for positions requiring skills including filleting and equipment operation and maintenance. Many companies report their financial position is such that they cannot afford the higher wages needed to attract new or more skilled workers.

RESOURCE CONDITIONS/RAW MATERIAL				
	Strength	Weakness	Opportunity	Threat
Shellfish				
Lobster	<ul style="list-style-type: none"> ▪ Abundant/good quality ▪ Wide distribution 	<ul style="list-style-type: none"> ▪ Uncertain/high exploitation rate ▪ High cost/limited margin 	<ul style="list-style-type: none"> ▪ Limited growth potential ▪ Fully exploited 	<ul style="list-style-type: none"> ▪ Resource decline/collapse ▪ Quality/low meat content
Crab	<ul style="list-style-type: none"> ▪ Increasing range ▪ Favourable conditions 	<ul style="list-style-type: none"> ▪ Sharply peaked landings ▪ High cost/limited margin 	<ul style="list-style-type: none"> ▪ Limited growth potential ▪ Fully exploited 	<ul style="list-style-type: none"> ▪ Cyclical supply ▪ Resource decline
Scallop (offshore)	<ul style="list-style-type: none"> ▪ Productive grounds ▪ Good year-class range 	<ul style="list-style-type: none"> ▪ Variable recruitment ▪ Wide swings in abundance 	<ul style="list-style-type: none"> ▪ Limited growth potential ▪ Fully exploited 	<ul style="list-style-type: none"> ▪ Highly variable supply ▪ Opposition to dragging
Clam (offshore)	<ul style="list-style-type: none"> ▪ Wide distribution 	<ul style="list-style-type: none"> ▪ Slow recruitment/uncertainty about long-term abundance 	<ul style="list-style-type: none"> ▪ Industry is market-limited 	<ul style="list-style-type: none"> ▪ Slow stock recovery
Shrimp (offshore)	<ul style="list-style-type: none"> ▪ Conservative management 	<ul style="list-style-type: none"> ▪ Variable abundance/low catch ▪ Limits of range 	<ul style="list-style-type: none"> ▪ Market/resource-limited 	<ul style="list-style-type: none"> ▪ Highly variable abundance
Groundfish				
Haddock	<ul style="list-style-type: none"> ▪ Strong stock recovery ▪ Good quality 	<ul style="list-style-type: none"> ▪ Small average fish size ▪ Supply limited by cod by-catch ▪ Exporting unprocessed fish 	<ul style="list-style-type: none"> ▪ Higher TACs ▪ Extended season ▪ Limited by market conditions 	<ul style="list-style-type: none"> ▪ Small size limits market ▪ By-catch limits potential
Cod	<ul style="list-style-type: none"> ▪ Intrinsic quality 	<ul style="list-style-type: none"> ▪ Limited stock recovery ▪ Mainly by-catch fishery ▪ Exporting unprocessed fish 	<ul style="list-style-type: none"> ▪ Depends on stock recovery ▪ Limited by market conditions 	<ul style="list-style-type: none"> ▪ No recovery ▪ Priced out of buying market
Hake	<ul style="list-style-type: none"> ▪ Signs of stock stability 	<ul style="list-style-type: none"> ▪ Conflicting stock indicators 	<ul style="list-style-type: none"> ▪ Limited by stock status ▪ Limited by market conditions 	<ul style="list-style-type: none"> ▪ Non-recovery/by-catch
Halibut	<ul style="list-style-type: none"> ▪ Stock stable/low abundance 	<ul style="list-style-type: none"> ▪ Limited scientific data 	<ul style="list-style-type: none"> ▪ Limited growth ▪ Fully exploited 	<ul style="list-style-type: none"> ▪ Inconsistent scientific data
Pollock	<ul style="list-style-type: none"> ▪ Signs of rebuilding 	<ul style="list-style-type: none"> ▪ Small-size/slow recovery 	<ul style="list-style-type: none"> ▪ Limited growth/fully exploited ▪ International purchases 	<ul style="list-style-type: none"> ▪ Non-recovery ▪ Priced out of buying market
Pelagic				
Herring	<ul style="list-style-type: none"> ▪ Wide distribution 	<ul style="list-style-type: none"> ▪ Biomass at lowest recorded level 	<ul style="list-style-type: none"> ▪ Manage for sustainability 	<ul style="list-style-type: none"> ▪ Non-recovery
Tuna	<ul style="list-style-type: none"> ▪ High quality 	<ul style="list-style-type: none"> ▪ Biomass at low level/migratory ▪ Limited scope for management 	<ul style="list-style-type: none"> ▪ Manage for sustainability 	<ul style="list-style-type: none"> ▪ Overfishing outside EEZ
Swordfish	<ul style="list-style-type: none"> ▪ High quality 	<ul style="list-style-type: none"> ▪ Biomass at low level/migratory ▪ Limited scope for management 	<ul style="list-style-type: none"> ▪ Manage for sustainability 	<ul style="list-style-type: none"> ▪ Overfishing outside EEZ
Mackerel	<ul style="list-style-type: none"> ▪ Wide distribution 	<ul style="list-style-type: none"> ▪ Poor harvest economics 	<ul style="list-style-type: none"> ▪ Market limited/underutilized 	<ul style="list-style-type: none"> ▪ Low catch rates

BUSINESS ENVIRONMENT				
	Strength	Weakness	Opportunity	Threat
Shellfish				
Lobster Crab	<ul style="list-style-type: none"> ▪ Ease of entry/exit ▪ Inter-provincial trade ▪ Generally, stable demand ▪ Good market access 	<ul style="list-style-type: none"> ▪ Insecure raw material supply ▪ Intense competition/low margin ▪ Fragmented marketing ▪ Buyer concentration ▪ High dependence on U.S. market 	<ul style="list-style-type: none"> ▪ Market/product development ▪ Licence criteria ▪ Improve quality ▪ Collaborative marketing ▪ Provincial/regional branding 	<ul style="list-style-type: none"> ▪ Low overhead buyers ▪ Price control by distributors ▪ Rising exchange rate ▪ Inflexible seasons ▪ Lack of quality control
Scallop (offshore) Clam (offshore)	<ul style="list-style-type: none"> ▪ Integrated fishing/processing ▪ Strong role in fish mgt. ▪ Generally, stable demand ▪ Good market access 	<ul style="list-style-type: none"> ▪ High barriers to entry (capital & market knowledge) ▪ Dependence on one market 	<ul style="list-style-type: none"> ▪ Collaborative marketing to control supply/support price ▪ Potential for aquaculture production 	<ul style="list-style-type: none"> ▪ Substitute species/products ▪ U.S. scallop supply ▪ Adverse market conditions in Japan (demand/currency)
Shrimp (offshore)	<ul style="list-style-type: none"> ▪ Integrated fishing/processing 	<ul style="list-style-type: none"> ▪ Unpredictable resource mgt. ▪ Decade of declining prices 	<ul style="list-style-type: none"> ▪ Consistent resource mgt. ▪ Improved market access (tariff) ▪ Demonstrate sustainable mgt 	<ul style="list-style-type: none"> ▪ Non-viable industry due to quota/market conditions ▪ Weak market/no certification
Groundfish				
Haddock Cod Hake Halibut Pollock	<ul style="list-style-type: none"> ▪ Closed entry/open exit ▪ Good market access ▪ Access to int'l raw material ▪ Know marketing channels ▪ Skilled labour force 	<ul style="list-style-type: none"> ▪ Inadequate local raw material ▪ High cost imported raw material ▪ Adverse exchange rate shifts ▪ Declining market share ▪ Fragmented marketing ▪ Market subject to wide swings ▪ Poor financial performance ▪ Difficult access to capital ▪ Poor investment climate 	<ul style="list-style-type: none"> ▪ Market/product development ▪ Promote health benefits ▪ Joint raw material purchasing ▪ Collaborative marketing ▪ Improve quality ▪ Demonstrate sustainable mgt ▪ Allow attrition from industry ▪ Potential for aquaculture production 	<ul style="list-style-type: none"> ▪ No groundfish recovery ▪ Imported raw material uneconomic ▪ Rising exchange rate ▪ Low cost producers (Far East) ▪ Declining market share ▪ No access to capital from conventional sources ▪ Business failures
Pelagic				
Herring	<ul style="list-style-type: none"> ▪ Integrated fishing/processing ▪ Open entry/exit ▪ Good market access ▪ Know marketing channels ▪ Skilled labour force 	<ul style="list-style-type: none"> ▪ Decline in local raw material ▪ High barriers to entry (capital & market knowledge) 	<ul style="list-style-type: none"> ▪ Market/product development ▪ Promote health benefits ▪ Demonstrate sustainable mgt ▪ Allow attrition from industry 	<ul style="list-style-type: none"> ▪ Resource recovery elsewhere ▪ Adverse exchange rates (EU) ▪ Low cost producers (Far East)
Tuna Swordfish	<ul style="list-style-type: none"> ▪ Open entry/exit ▪ Good market access 	<ul style="list-style-type: none"> ▪ Limited/variable raw material ▪ Market dependence 	<ul style="list-style-type: none"> ▪ Demonstrate sustainable mgt 	<ul style="list-style-type: none"> ▪ Resource decline ▪ Adverse market conditions

MARKETS/MARKETING				
	Strength	Weakness	Opportunity	Threat
Shellfish				
Lobster	<ul style="list-style-type: none"> ▪ Dominant supply source ▪ Adjacent to major market 	<ul style="list-style-type: none"> ▪ High distribution cost ▪ Market dependence 	<ul style="list-style-type: none"> ▪ Expand to new markets ▪ Develop new product forms 	<ul style="list-style-type: none"> ▪ Animal rights ▪ Narrow margins/risk
Crab	<ul style="list-style-type: none"> ▪ High quality product ▪ Adjacent to major market 	<ul style="list-style-type: none"> ▪ Buyer concentration ▪ Commodity/market dependence 	<ul style="list-style-type: none"> ▪ Marketing collaboration ▪ Diversify market/product 	<ul style="list-style-type: none"> ▪ Substitute species/products ▪ Distress selling
Scallop (offshore)	<ul style="list-style-type: none"> ▪ High quality product ▪ Supply control 	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ Diversify market/product 	<ul style="list-style-type: none"> ▪ Substitute species/products ▪ U.S. scallop supply
Clam (offshore)	<ul style="list-style-type: none"> ▪ Dominant supply source 	<ul style="list-style-type: none"> ▪ Market dependence 	<ul style="list-style-type: none"> ▪ Diversify market/product 	<ul style="list-style-type: none"> ▪ Substitute species/products
Shrimp (offshore)	<ul style="list-style-type: none"> ▪ High quality product 	<ul style="list-style-type: none"> ▪ Global oversupply 	<ul style="list-style-type: none"> ▪ Diversify market/product 	<ul style="list-style-type: none"> ▪ Substitute species/products
Groundfish				
Haddock	<ul style="list-style-type: none"> ▪ High quality product ▪ Adjacent to major market 	<ul style="list-style-type: none"> ▪ Small size ▪ Seasonal supply/price swings 	<ul style="list-style-type: none"> ▪ Diversify market/product 	<ul style="list-style-type: none"> ▪ Substitute whitefish species
Cod	<ul style="list-style-type: none"> ▪ High quality product ▪ Adjacent to major market 	<ul style="list-style-type: none"> ▪ Limited/seasonal supply 	<ul style="list-style-type: none"> ▪ Strong whitefish demand 	<ul style="list-style-type: none"> ▪ Substitute species ▪ Loss of market
Hake	<ul style="list-style-type: none"> ▪ High quality product ▪ Strong European market 	<ul style="list-style-type: none"> ▪ Limited local demand 	<ul style="list-style-type: none"> ▪ Product variety ▪ Scope for market growth 	<ul style="list-style-type: none"> ▪ Substitute whitefish species
Halibut	<ul style="list-style-type: none"> ▪ Premium species ▪ Adjacent to major market 	<ul style="list-style-type: none"> ▪ Limited supply ▪ Price sensitive to supply 	<ul style="list-style-type: none"> ▪ Scope for market growth 	<ul style="list-style-type: none"> ▪ Substitute whitefish species ▪ Price swings
Pollock	<ul style="list-style-type: none"> ▪ Local saltfish production 	<ul style="list-style-type: none"> ▪ Limited supply/low prices 	<ul style="list-style-type: none"> ▪ Strong whitefish demand 	<ul style="list-style-type: none"> ▪ Substitute whitefish species
Pelagic				
Herring	<ul style="list-style-type: none"> ▪ High quality product ▪ Strong European market 	<ul style="list-style-type: none"> ▪ Reduced/variable supply ▪ Poor roe market 	<ul style="list-style-type: none"> ▪ Limited by supply 	<ul style="list-style-type: none"> ▪ Competing supply ▪ Loss of market
Tuna	<ul style="list-style-type: none"> ▪ High quality product ▪ Strong Japanese market 	<ul style="list-style-type: none"> ▪ Variable abundance 	<ul style="list-style-type: none"> ▪ Limited by supply 	<ul style="list-style-type: none"> ▪ Competing supply ▪ Loss of market
Swordfish	<ul style="list-style-type: none"> ▪ Premium species ▪ Adjacent to major market 	<ul style="list-style-type: none"> ▪ Variable supply/price swings 	<ul style="list-style-type: none"> ▪ Market diversification 	<ul style="list-style-type: none"> ▪ Boycott/sustainability
Mackerel	<ul style="list-style-type: none"> ▪ Local bait market 	<ul style="list-style-type: none"> ▪ Limited supply/low price 	<ul style="list-style-type: none"> ▪ Limited by supply 	

TECHNOLOGY AND INNOVATION				
	Strength	Weakness	Opportunity	Threat
Shellfish				
Lobster	<ul style="list-style-type: none"> ▪ Holding facility design (land) ▪ Adequate holding capacity 	<ul style="list-style-type: none"> ▪ Limited distribution capacity ▪ Maintaining quality 	<ul style="list-style-type: none"> ▪ Expand distribution capacity ▪ New processing methods 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Market acceptance
Crab	<ul style="list-style-type: none"> ▪ Modern plant/facilities ▪ Adjacent to resource 	<ul style="list-style-type: none"> ▪ Primary processing only ▪ Excess capacity/ highly seasonal 	<ul style="list-style-type: none"> ▪ Product diversification ▪ Adopt secondary processing 	<ul style="list-style-type: none"> ▪ Low cost competition ▪ Sunk costs/risk
Scallop (offshore)	<ul style="list-style-type: none"> ▪ Investment/at sea processing ▪ Modern shore-based facilities 	<ul style="list-style-type: none"> ▪ Underutilized capacity ▪ High capital cost 	<ul style="list-style-type: none"> ▪ Higher valued product ▪ Ability to expand market 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Clam (offshore)	<ul style="list-style-type: none"> ▪ Investment/at sea processing 	<ul style="list-style-type: none"> ▪ Underutilized capacity ▪ High capital cost 	<ul style="list-style-type: none"> ▪ Reduce costs ▪ Improve quality 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Shrimp (offshore)	<ul style="list-style-type: none"> ▪ At sea processing (offshore) 	<ul style="list-style-type: none"> ▪ High capital cost 	<ul style="list-style-type: none"> ▪ Limited on-shore potential due to variable/limited supply 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Groundfish				
Haddock	<ul style="list-style-type: none"> ▪ Potential yield/efficiency ▪ No machines in use 	<ul style="list-style-type: none"> ▪ High capital cost/seasonal supply ▪ Fish size/need for flexibility 	<ul style="list-style-type: none"> ▪ Limited/uncertainty/small fish ▪ Rely on hand cutters (fresh) 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Cod	<ul style="list-style-type: none"> ▪ Potential yield/efficiency ▪ Few machines in use (salt) 	<ul style="list-style-type: none"> ▪ High capital cost ▪ Need for flexibility 	<ul style="list-style-type: none"> ▪ Limited (supply/market) ▪ Rely on hand cutters (fresh) 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Hake	<ul style="list-style-type: none"> ▪ Potential yield/efficiency ▪ Few machines in use (salt) 	<ul style="list-style-type: none"> ▪ High capital cost ▪ Variability in supply 	<ul style="list-style-type: none"> ▪ Limited (supply/market) ▪ Rely on hand cutters (dressed) 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Halibut	<ul style="list-style-type: none"> ▪ No machines in use 	<ul style="list-style-type: none"> ▪ Limited/variable supply ▪ Need for flexibility 	<ul style="list-style-type: none"> ▪ Limited (supply/market) ▪ Rely on hand cutters 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Pollock	<ul style="list-style-type: none"> ▪ Potential yield/efficiency ▪ Few machines in use (salt) 	<ul style="list-style-type: none"> ▪ Limited/variable supply ▪ Need for flexibility 	<ul style="list-style-type: none"> ▪ Limited (supply/market) ▪ Rely on hand cutters/splitters 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Pelagic				
Herring	<ul style="list-style-type: none"> ▪ Potential yield/efficiency ▪ Highly automated (fillet) 	<ul style="list-style-type: none"> ▪ High capital cost ▪ Variability in supply 	<ul style="list-style-type: none"> ▪ Expansion supply-limited 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Tuna	<ul style="list-style-type: none"> ▪ Limited applicability 	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ Limited by market 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Swordfish	<ul style="list-style-type: none"> ▪ Limited applicability 	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ Limited by market 	<ul style="list-style-type: none"> ▪ High cost/risk ▪ Low cost competition
Mackerel	<ul style="list-style-type: none"> ▪ Limited applicability 	<ul style="list-style-type: none"> ▪ High capital cost 	<ul style="list-style-type: none"> ▪ Limited/low market value ▪ Limited by supply 	<ul style="list-style-type: none"> ▪ High cost/risk

LABOUR FORCE				
	Strength	Weakness	Opportunity	Threat
Shellfish				
Lobster	▪ Adequate supply most of the time	▪ Seasonal requirements ▪ Competition from fishery	▪ Limited due to seasonality and product form (live)	▪ Scarcity/wage pressure
Crab	▪ Adequate supply most of the time	▪ Highly seasonal/unappealing ▪ Supply shortages if two shifts	▪ Limited due to seasonality	▪ Scarcity/wage pressure ▪ Aging labour force
Scallop (offshore)	▪ Limited requirements on land	▪ Potential supply constraints for offshore vessels	▪ Limited on shore due to at sea processing	▪ Scarcity/wage pressure ▪ Aging labour force
Clam (offshore)	▪ Limited requirements on land	▪ Potential supply constraints for offshore vessels	▪ Limited on shore due to at sea processing	▪ Scarcity/wage pressure ▪ Aging labour force
Shrimp (offshore)	▪ Limited requirements on land	▪ Potential supply constraints for offshore vessels	▪ Limited on shore due to at sea processing	▪ Scarcity/wage pressure ▪ Aging labour force
Groundfish				
Haddock	▪ Adequate supply most of the time	▪ Seasonal requirements ▪ Limited supply skilled cutters	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force
Cod	▪ Adequate supply most of the time	▪ Seasonal requirements ▪ Limited supply skilled cutters	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force
Hake	▪ Adequate supply most of the time	▪ Seasonal requirements ▪ Limited supply skilled cutters	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force
Halibut	▪ Adequate supply most of the time	▪ Seasonal requirements ▪ Limited supply skilled cutters	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force
Pollock	▪ Adequate supply most of the time	▪ Seasonal requirements ▪ Limited supply skilled cutters	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force
Pelagic				
Herring	▪ Adequate supply most of the time	▪ Seasonal requirements ▪ Limited supply skilled operators	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force
Tuna	▪ Adequate supply	▪ Seasonal requirements ▪ Limited supply skilled cutters	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force
Swordfish	▪ Adequate supply	▪ Seasonal requirements ▪ Limited supply skilled cutters	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force
Mackerel	▪ Adequate supply most of the time	▪ Seasonal requirements	▪ Weak due to type/seasonality of work	▪ Scarcity/wage pressure ▪ Aging labour force

2. Competitive assessment: a summing up

Overview

Nova Scotia processors face numerous challenges in maintaining their competitiveness in global markets, and in this regard they are not unlike their counterparts in the other Atlantic Provinces. The challenges they face divide into two broad categories.

- There are things over which the governments of Canada and the provinces, fishing industry regulators and the industry itself have no control. These include global demand and supply for specific products (and their substitutes), market structure and competitive conditions (number and size of distributors and buyers), consumer trends in major markets, prices and price movements, and macro-economic conditions in key markets (and how these affect demand and exchange rates).
- There are things over which Canada and the provinces, fishing industry regulators and the industry *do have* either control or influence. The key areas of control are the regulatory framework governing fisheries (the terms and conditions governing access to fisheries including fishing seasons), and the regulatory framework governing fish processing (including the terms and conditions governing access to fish processing including number and capacity of processors). The main areas of influence include labour markets and training, support for product and market development, and financial assistance to support investment in technology to promote competitiveness.

Nova Scotia processors have seen their competitive position eroded over the past 10-15 years. This is due in part to the factors over which local companies have essentially no control – declining resources, competition from low-cost producers, rising raw material costs, increasing concentration of buying power in major markets, and adverse exchange rate movements.

Some of the conditions facing processors in Nova Scotia act to strengthen their competitive position in global markets, while others contribute to the challenges they face.

Access to raw material

For much of its history, the seafood processing industry in Atlantic Canada grew and developed on the strength of raw material derived from coastal waters. This changed in the early 1990s as groundfish stocks collapsed and plants dependent on these species were forced to look to international sources for raw material. Emerging fisheries in the Bering and Barents Seas and greater internationalization of supply facilitated the transition to an import-dependent groundfish processing sector in Nova Scotia, and many plants continued to operate on the strength of their access to these sources.

Within a decade, the economics of processing imported groundfish had deteriorated considerably. Processors margins were being squeezed from two directions: rising raw material prices (as the Chinese entered the market and bid up prices), and declining product prices (as low cost producers, often the same Chinese raw material buyers, flooded the market with highly price competitive frozen product). Fewer and fewer Nova Scotia processors were able to continue to participate in this sector and both imports and exports gradually dropped off. The Chinese and other low-cost Far East producers have consolidated their market position, leaving Nova Scotia processors to compete in the fresh market on the basis of limited local raw material.

Much of what Nova Scotia companies produce from local raw material is exported in unprocessed or semi-processed form. This includes groundfish, lobster, scallop and shrimp.

- About half the groundfish is shipped in fresh form (either dressed or filleted), with over 70% by value destined for the U.S. market. Against an overall decline in groundfish exports from \$325 to under \$200 million since 1997, the share exported in fresh form has risen from 30 to 50%, with a corresponding decrease in frozen from 30 to 10%. Canadian producers generally have lost market share in the frozen category to low cost Chinese production. Saltfish accounts for the balance of Nova Scotia groundfish exports, holding steady in relative terms at 40% of the total. But the declining number of Nova Scotia saltfish producers also face stiff competition from China, with exports down by half in the past few years.
- Lobster is shipped live, though the proportion has dropped from virtually 100% in the late 1990s to just over 80% as some processors enter the processed market. Products include frozen tails and claws, and also raw (shucked) frozen, both aimed at the high-end restaurant market.
- Scallop is shipped in fresh or frozen form with minimal processing other than shucking, cleaning and grading. Shucking had generally occurred at sea, resulting in limited on-shore activity. Even this limited activity is disappearing as companies turn to at-sea processing and freezing to improve quality and reduce costs. Exports of fresh product have dropped from about 60 to 30% since 1997 in response to technological change and market demand.
- Shrimp is processed at sea on factory vessels operating in distant waters off Labrador and Baffin Island (because of limited coastal landings there are no longer any on-shore shrimp processing plants in Nova Scotia).

Nova Scotia exports most of its seafood production in unprocessed form because this is how profits can be generated. Producing value added product may increase final product price, but it does not necessarily result in the highest net margin because adding value also means adding cost.

In an industry coming under increasing pressure from low cost producers, or facing significant tariffs, producing in a form other than that which generates the highest profits would invite failure. For example, groundfish processors face the daily decision to ship either fresh dressed or fillet, depending on which generates the highest net margin, usually determined by which form is in shortest supply in the U.S. market. Similar factors drive decisions for lobster and scallop. With shrimp, the dominant market (the EU) imposes a stiff tariff on fully processed product, so producers ship substantial quantities in semi-processed form for further processing within the EU.

Business environment

The business environment – covering such factors as regulation, raw material prices, investment climate, access to capital and exchange rates – has been difficult for Nova Scotia processors since the collapse of groundfish stocks in the early 1990s.

- ❑ Regulation provides standards to be met by all plants wishing to enter and continue in the fish processing business. These are intended primarily to protect consumers, not to act as barriers to entering the industry. The openness of the industry (with the exception of groundfish) creates a positive environment for those looking for opportunity. But this openness also has the potential to act as a two-edged sword. Too many participants with more capacity than needed to process available quantities of raw material sets up a competitive environment often leading processors to bid up shore prices to unprofitable levels. Such competition is the norm because federal vessel licencing policy effectively prohibits the integration of harvesting and processing activities for inshore vessels. Many plants have circumvented the regulations in an effort to achieve some security of raw material supply. For many years, DFO turned a blind eye to one of the main avenues around the regulations – the use of controlling trust agreements. Recent announcements by DFO indicate that the Department intends to close off this approach and enforce the regulations strictly.
- ❑ The regulatory framework (both provincial and federal) provides the basis for a processing sector composed of many relatively small companies. This is a good thing from the perspective of regional and community development since it distributes opportunity throughout the province. But a structure composed of many relatively small companies also implies industry fragmentation when considered in the context of markets dominated by fewer and fewer large distributors and buyers. In itself, this puts Nova Scotia companies at a competitive disadvantage when it comes to pricing. The challenge is compounded by high raw material costs, leaving most processors with thin margins in recent years.
- ❑ Strategic alliances, joint ventures and partnerships represent some of the possible mechanisms for addressing the implications of a fragmented industry, but few firms in Nova Scotia take advantage of such arrangements preferring to operate independently. Among the apparently successful examples are joint marketing arrangements in the offshore scallop sector (through cooperative arrangements, processors are able to adjust supply to demand, thereby avoiding price fluctuations); joint ventures between some Nova Scotia shrimp companies and EU firms to re-process and market shrimp; and joint ventures or partnerships between some Nova Scotia companies and U.S. distributors to market lobster. In most (but not all) cases, the arrangements involve integrated companies with the management and financial resources to pursue long-term opportunities (including forward supply contracts and program selling). Smaller companies (the majority) tend to be consumed with the day-to-day challenges of running the business – securing raw material and finding buyers or distributors on a spot basis.
- ❑ Adverse exchange rate movements have contributed to the declining margins over the past five years. Since 2002, the value of the U.S. dollar has declined by over 30% in terms of Canadian currency. In other words, even without any change in U.S. dollar prices for seafood exports from Canada, the value of Nova Scotia exports has declined by 30%. This has wiped out some \$300 million in revenue for the Nova Scotia fishing industry, greatly contributing to the deteriorating business climate.
- ❑ A positive factor, and one of the great strengths of the Nova Scotia processing industry is its access to excellent quality raw material from coastal waters. But for most species, the terms of access tend to favour harvesters for the simple reason that demand for landings exceeds supply – too much processing capacity chasing too few fish. Intense competition is good for independent harvesters because they receive top dollar for their catches. A

certain level of competition also benefits the processing industry because it forces companies to become more efficient or, if they lack the resources, exit the industry. The industry has seen some attrition in the past few years as companies have become overextended, generally because they paid too much for raw material as exchange rates turned against exporters.

These factors, coupled with increasing competition from low-cost producers, have created a poor investment climate for Nova Scotia processors. Most companies report limited investment in plant and equipment in the past several years (other than for dry-land lobster holding facilities), not only because internal resources have declined, but also because conventional lenders have become increasingly cautious given the uncertainty and risks facing the industry. Only the integrated companies report any significant levels of investment, in labour-saving equipment onshore and in new vessels including factory vessels.

Markets and marketing

Nova Scotia sits beside the U.S., the world's largest seafood market. Not surprisingly then, this market accounts for 65-70% of the province's seafood exports (by value), a figure that has declined only slightly over the years, due in part to shifts in the exchange rate, and also to changes in the mix of Nova Scotia exports (a rise in the relative importance of shrimp, only a small proportion of which finds its way to the U.S.).

Though the dependence on the U.S. market has always been high, it actually increased during the mid- to late-1990s as exchange rates turned in exporters' favour. In early 2002, the Canadian dollar hit a peak of U.S.\$1.00 = CAN\$1.60, resulting in high margins for most Nova Scotia processors. Many industry participants acknowledge that they became lazy during these years when it took very little effort to turn a good profit. Few processors felt the need to engage in any market or product development.

With the Canadian dollar strengthening over the past five years, the seafood business has become much more challenging. Processors face the choice of seeking new markets and developing new products where returns are higher, or doing business as usual and, at best, finding their margins decline, and at worst, being forced out by lower cost producers.

Many processors have not made the product and market adjustments, either because they lack the resources (financial and managerial), or because they lack the security of raw material supply that would provide the basis for developing new products or markets. Moreover, while some of the potential adjustments may make economic sense, not all do. In other words, *adding value only makes sense if the additional processing adds more to price than it does to cost*. And even where this is the case, the current investment climate is poor and access to the capital needed to make the adjustments may simply not be available from conventional lenders.

- Few of Nova Scotia's plants conduct processing beyond the primary stage for the simple reason that this is the most profitable product form, or because it is the most profitable form processors are aware of.
 - Lobster, accounting for 40% of total exports, has generally been exported live after minimal processing (essentially grading and packing). This is changing as a few processors are entering niche markets for tails and raw (shucked) product.
 - Scallops are shipped fresh or frozen, but because of their value, tend to end up in the high-end restaurant niche.

- Other species, including groundfish and pelagics, undergo some primary processing and are shipped in fresh (iced) or frozen form where they trade mainly as commodities.
 - Crab and shrimp are cooked and frozen, but shipped in shell, either entering the commodity trade directly or going for further processing in other countries (crab to China for meat extraction and shrimp to Denmark to be shelled).
- Value added processing generally refers to some combination of product and packaging that reduces labour for the end-user through easier handling and more convenient preparation. The premise in meeting this demand is that end-users are willing to pay more for the product attributes than the cost of producing them. Experience shows this is often not the case, particularly in high wage areas. For Nova Scotia processors, focusing on quality and freshness, rather than secondary or tertiary processing, may be the most effective (and remunerative) way of adding value.
- Value added production (beyond the primary stage) in Nova Scotia is confined essentially to two species: groundfish and herring. Haddock, pollock and cod fillets and portions are used by Highliner to produce a range of cooked and frozen items, including entrées. The raw material in fillet and portion form is imported mainly from China, with the final stage of processing conducted in its Lunenburg plant. A widely recognized and well-respected brand is vital to the success of this business, but controlling costs in the highly competitive protein market is also a critical success factor. Also, a few plants produce saltfish using mainly local but also imported groundfish. Several plants produce marinated and smoked herring products, though these products represent a small part of the overall total.
- Consumers want foods that are healthy and safe, and offer convenient preparation. This trend is driven by demographic factors, including an aging population wishing to make healthier food choices. There is greater public education about the health benefits of seafood. Consumers face increasing demands on their time and are looking for more convenient sources of nutritious foods, leading them to frozen fish entrées and ready to serve products. And finally, rising incomes and improved technology are extending the seafood market by making it possible to ship products over greater distances while preserving quality and freshness.
- Foreign processing (i.e. low cost producers) has the potential to affect the seafood processing industry in Nova Scotia both negatively (as low cost competitors) and positively (as low cost suppliers):
- Taking market share by offering directly competing products at prices that local processors have difficulty meeting (e.g., saltfish, frozen fillets). Supplying low cost frozen product (e.g., fillets and portions) also puts downward pressure on fresh fish.
 - Providing contract services to local companies to process and custom pack raw material landed in Nova Scotia where this raw material would in earlier times have been processed in local plants.
 - Supplying Nova Scotia processors with intermediate and finished product in branded and unbranded packs (this applies in cases where the Nova Scotia plants have well established brands and/or distribution channels, e.g., Highliner and various saltfish processors).

- Providing low cost processing to customers of Nova Scotia companies. These customers buy processed product from Nova Scotia processors, ship to low cost foreign processors, and conduct further processing and re-export finished product to final markets (e.g., Japanese trading companies ship frozen crab sections to China for meat extraction and then re-export to Japan).
- Emerging trends in marketing fish (and meat) could have an adverse impact on Nova Scotia processors (in fact, all processors in Atlantic Canada) who produce for the fresh market. With consolidation in the retail food industry, competitive pressures are causing traditional supermarkets (e.g., Loblaws and Sobeys) to re-think their approach to marketing fish and meat in order to compete with the discount chains such as Costco and Wall-Mart. One of the implications is the possible elimination by supermarkets of costly staffed service counters for fresh fish and meat. If the trend takes hold, all fish and meat would be required to be supplied in packaged frozen form. This would create considerable difficulties for local processors, because meeting this demand would require a consistent year-round flow of product, something most processors are unable to achieve because of resource constraints and a lack of secure supplies of raw material. Moreover, a shift into frozen value-added packs would put local producers in head-on competition with low cost producers who already dominate the frozen segment of the market.

Technology

Nova Scotia processors employ some of the most advanced technology available for the key species: lobster (dry land holding facilities for live product and hydrostatic pressure equipment to produce raw frozen product); scallop and shrimp (at sea processing and freezing); herring (highly automated processing and freezing equipment); and crab (cooking and brine freezing).

Groundfish processors make limited use of automated facilities, relying instead on manual product flow including hand cutting (filleting and splitting). The limited volumes, seasonal supply, varying species and sizes, and shifting market requirements (fillet vs. whole dressed) combine to make investments in machinery difficult to justify. As long as there continues to be a demand for fresh fish and processors produce for this market, they should be able to compete, subject of course to the continued availability of skilled labour (cutters).

Labour

Some processors are beginning to face difficulties finding enough skilled workers to meet their requirements. The problem will become worse in the coming years as the workforce ages and rural communities experience high levels of out-migration of younger individuals. Also, working conditions at most plants tend not to be attractive to younger workers; the work itself is tedious and not held in high regard, and most of the jobs are seasonal and generally pay low wages.

Plants also claim that, for some individuals, the terms of access to EI acts as a disincentive to work, making it more difficult to find workers at certain times of the year. Seen in another light, EI also provides an effective subsidy to the processing sector, supplementing incomes that would not be high enough to sustain a workforce year-round if it relied on plant wages alone. In other words, the processing sector benefits from the EI program insofar as it assists in making it possible financially for people to continue to live and work in their communities.

The labour crunch for the processing sector is expected to emerge over the next decade. The usual response for an industry facing this kind of challenge would be to try to attract workers by improving working conditions, including paying higher wages. But not only does this not appear to be an option in light of the competitive environment, but some plants are trying to roll back wages in order to maintain competitiveness. Another strategy is to import workers to fill seasonal jobs. Whether this is a viable option for the industry as a whole remains to be seen, but failing to address the labour supply issue would guarantee the export of jobs.

Transportation

With an estimated 95% of seafood production exported from the province, reliable and efficient transportation modes (air, road and sea) are vital to the success of the industry. More specifically, with about 70% of the value of exports destined to the U.S., most of it in live or fresh form, the industry relies critically on efficient transportation infrastructure to key U.S. markets.

Nova Scotia benefits from its proximity to its largest market. A good road network between Nova Scotia and the U.S. northeast allows truck delivery to Boston and New York in 12-18 hours. The ferry between Digby and Saint John represents an important link in this network for plants in southwest Nova Scotia. This service, if terminated (as threatened), would add as much as 6-7 hours to the trip for many plants. This not only adds to cost, but it increases the risk of loss of product quality and higher mortality. Also, it could mean loss of market if processors cannot meet market deadlines with just-in-time deliveries of fresh fish.

Processors also rely on airfreight from Halifax to European destinations, carrying mainly lobster. But Atlantic Canada has minimal air cargo lift capacity for live and fresh seafood to the EU. With the convenience of daily service available to Canadian seafood producers, over 85% of exports are trucked to Boston, New York, Montreal and Toronto for air shipment into the European market. For the most part the product ownership remains in the hands of the Canadian companies who simply use these airports to fit their harvesting and processing schedules

Tariff and non-tariff barriers

Tariff barriers tend not to be an issue for most of Nova Scotia's exports since most are destined for the U.S. market. Modest tariffs are applied to processed seafood exports to Japan and China. The EU applies the highest tariffs on processed products, which explains in part why such a small proportion of Nova Scotia's processed exports are destined for that market. Shrimp is an exception, attracting a 20% tariff (after the quota at a preferential rate is met). Nova Scotia shrimp companies are developing other markets, but the EU continues to be the most important for cold-water shrimp.

Non-tariff barriers present some issues for Nova Scotia processors shipping to the U.S. These include technical import regulations concerning fish size, traceability requirements and country of origin labeling. Meeting the requirements adds to cost, but failure to do so would render processors ineligible from participating in export markets.

- ❑ Shipments of Nova Scotia lobster and fish to the U.S. must meet specified minimum size limits and shippers are well aware of these. Stepped up inspections at the U.S. border in recent months have revealed numerous shipments containing undersized lobster, causing long delays for shippers. This has caused shippers to take more care in size-grading for the U.S. market.

- ❑ For a variety of reasons having to do with food safety and security, traceability has emerged as a major element of international trade, with Canada's main seafood trading partners (the U.S., Japan and EU) at the forefront in defining the requirements. Traceability forms an integral part of the QMP each plant is required to implement in order to meet CFIA certification criteria.
- ❑ All exports to the U.S. must bear a label indicating country of origin and whether the product is farmed or wild. Meeting the labeling guidelines is straightforward for products produced exclusively in one country (e.g., lobsters or fillets from Nova Scotia), but becomes more problematic for processed items using inputs from more than one country. The label is required to list all the raw materials and each country of origin, thereby creating potentially significant traceability and record-keeping demands.
- ❑ Also adding to costs are the registration and notice requirements under the U.S. Bioterrorism Act. All plants exporting to the U.S. have to be registered with the U.S. Food and Drug Administration. Importers have to give prior notice to the USFDA of all shipments at least two hours before arrival by road. While this may seem like a headache for Nova Scotia processors, due to our proximity, it could be an opportunity to displace competing supplies.

IV

FINDINGS & RECOMMENDATIONS

1. Major findings

Industry faces significant challenges...

Anyone looking at the aggregate export data would think the Nova Scotia seafood industry was doing reasonably well. But the data provide a misleading picture. True, the total value of exports increased during the 1990s, reaching a peak of \$1.2 billion in 2002. But since then, exports have declined steadily, dropping to \$975 million in 2006.

Though much of this is attributable to the shift in the Canada-U.S. exchange rate, the data obscure more fundamental changes contributing to a decline in the scope and strength of the industry. This carries significant implications for the many coastal communities historically dependent on the employment generated by fish processing.

- **The number of firms is declining.** As a result of the marked change in species mix, market requirements and the shift to at-sea processing, only about 105 of the 223 establishments licenced under provincial regulation currently engage in any significant level of fish processing in Nova Scotia (where processing refers to some physical transformation of the raw material). Another 40 plants engage mainly in lobster shipping, while 30 or so simply buy and sell (mainly lobster and crab). About 40 licence-holders are inactive.
- **Throughput is declining.** This is most evident with groundfish, due to the lack of recovery of local stocks as well as the decline in imported raw material due to rising costs. Global competition is also driving processors to focus on the fresh market, resulting in less value adding activity in plants. The species mix and changing technology also contribute to less on-shore processing. Lobster, scallop, surf clam and shrimp – the dominant species by value in Nova Scotia – require limited on-shore processing either because of market requirements (lobster) or because most of the processing is carried out at sea (scallop, clam and shrimp).
- **Margins are narrowing.** Processor margins are squeezed on both the cost and revenue sides of the market. Higher costs are attributable to raw material inputs due to strong competition, and to rising production costs particularly fuel, utilities, insurance and meeting and maintaining quality assurance programs. Revenues have declined mainly because of the decline in the value of the U.S. dollar, but also because of increased competitive pressures from low cost producers and greater market strength of buyers and distributors. Obtaining a quantitative measure of the impact on margins of these factors is not possible because all but two of the province's processors are privately held companies who do not release financial information.

- ❑ **Labour force is disappearing.** Many processors report it is increasingly difficult to recruit and retain a labour force with the skills and interest needed to operate a fish plant. The workforce is aging, and younger people have little or no interest in this type of employment, particularly with its seasonal structure and relatively low wages. Out migration levels from coastal communities is high as better-educated young people seek opportunity elsewhere. EI, while providing an income supplement in the off-season that has traditionally kept the workforce at home, contributes to the labour shortage at certain times of year because some workers prefer to continue to draw EI rather than accept short-term employment when it is offered.

With some sectors seizing opportunities...

In response to a resource shift away from groundfish to shellfish, many processing companies had to adjust to new species, products, technology and markets. Only a handful continues to specialize in groundfish, relying mainly on limited local resources. This sector continues to decline as competition drives up raw material costs and drives down product prices. Most plants now report shellfish as the dominant species group, with lobster the main species. Companies engaged in scallop, shrimp and surf clam production have become increasingly capital intensive, with greater focus on at-sea processing. An expansion in the snow crab resource has provided the basis for investment in production facilities in eastern Nova Scotia.

- ❑ **Products:** with few exceptions, plants in the province lack the size and resources to attempt to develop or adapt new products, relying instead on what they know and what has worked in the past. But driven by declining margins, some are exploring new products and niche markets (including lobster and scallop). Also, with the expansion of the snow crab fishery in eastern Nova Scotia in the early 2000s, several companies have entered the industry to process for the section market in the U.S. and Japan.
- ❑ **Markets:** the historical dependence on the U.S. market appears to be diminishing, with the total value of Nova Scotia seafood exports destined for that market dropping from the 80% range during the early 1990s, to 65-70% in recent years. This is driven by two key factors – the declining value of the U.S. dollar (affecting all species) and increasing pressure on prices arising from oversupply in key markets (primarily shrimp). Nova Scotia companies are forced to look to other markets to find more profitable opportunities. This means less live lobster, scallop and groundfish to the U.S. and more to the EU and Far East, and less shrimp to the EU and more to emerging markets including Russia and China.
- ❑ **Technology:** though many of the province's processing companies have invested little or nothing in plant and equipment in the past several years, several companies have done so in order to respond to market opportunities or to improve efficiency. Much of the investment has occurred in the lobster sector. Many plants have invested in dry land holding facilities in order to diversify their operations and take advantage of off-season market opportunities. One company is diversifying away from a dependence on live lobster using new technology to produce a line of raw frozen products. Firms are also investing in vessels with at-sea freezing capacity (scallop and clam) in order to improve product quality and efficiency (and reducing the requirements for on-shore processing capacity).

External factors create difficult conditions...

Several factors over which Canada has no control combine to create a difficult operating environment for Nova Scotia processors. There is no evidence that any of these factors are likely to become less burdensome in the near future.

- ❑ **Low cost producers.** China and other Far East nations have entered the global seafood market, competing directly with the Canadian processing industry in its traditional markets, offering the same products or close substitutes at prices local companies find difficult to meet. Even markets for a product as quintessentially Nova Scotian as saltfish have been largely taken over by the Chinese. On the positive side, low cost production also creates opportunities. For example, one of Nova Scotia's largest seafood producers (Highliner) secures almost all its raw material from China, allowing it to remain competitive in various segments of the North American frozen fish market.
- ❑ **Exchange rate.** Nova Scotia processors (as well as other Canadian processors) have seen their revenues from the U.S. market erode by 30-35% over the past five years. The Canadian dollar continues to strengthen against the U.S. dollar, further undermining the competitive position of the industry.
- ❑ **Food security/traceability.** The industry has had to upgrade facilities and systems to meet CFIA standards. The industry can expect to be required to meet even more stringent standards of food safety as international concern over food security and traceability grows.
- ❑ **Eco-labeling and sustainable fisheries.** Consumers are putting pressure on major distributors and retailers to ensure the seafood they sell originates from fisheries that are managed sustainably. At present, only the Marine Stewardship Council (MSC) certification system is widely recognized in the marketplace and many of the leading retailers in the EU and U.S. are advising suppliers that the products they ship will have to bear the MSC logo. With competitors seeking MSC certification for such species as shrimp and lobster, the pressure will be on to have our fisheries certified as well. Responsibility to initiate and pay for this rests with the harvesting sector and DFO. Securing the certification would affect the ability to access markets and hence the value of the products.

Industry structure creates internal weakness...

The Nova Scotia processing sector consists of some 200 companies, all but a handful of which are small and specialized with limited market reach and little or no marketing and product development capacity. Most operate independently from the harvesting sector, resulting in intense competition for raw material and on-going cash flow constraints. In this environment, there is limited scope or appetite for collaboration and cooperation on policy or marketing issues. These factors combine to make the industry vulnerable to the increasing market power of large distributors and retailers.

The fragmented industry structure and competitive environment resulting from it are largely the product of the regulatory framework governing the industry.

- **Provincial licencing policy.** This has the scope to determine the number and scale of plants permitted to process each species. In other words, it has the scope to determine industry structure and capacity and, effectively, the degree of competitiveness amongst plants in their quest to secure raw material and sales. The industry holds varying views on the desirability of limiting access to processing licences. Some argue that limited access is essential to prevent destructive competition (both in buying and selling), while others contend that ease of entry is essential to ensure healthy competition.
- **Federal licencing policy.** Federal policy governing primary fisheries contributes to industry structure by limiting the vertical integration of vessels and plants to the offshore sector and to those in some selected inshore fisheries. Under the fleet separation policy in place for the past 30 years, inshore vessels and the landings they produce may not be controlled directly through plant ownership or control of fishing licences. While protecting the bargaining power of harvesters is the main objective of the policy, it also sets up a difficult operating environment for plants who cannot rely on secure supplies of raw material in order to establish marketing arrangements. The efforts over the years to simulate vertical integration through formal arrangements (i.e. trust agreements) have worked to the benefit of certain plants, but recent policy announcements by DFO appear to be set to undo these arrangements.
- **Focus is on cash flow not return on investment.** The nature of the business is such that processors tend to focus on cash flow rather than conventional indicators of financial health such as return on investment. Cash flow is a major concern because most processors can only keep the business going by selling product as soon as it is produced in order to cover the costs of raw material. Strong competition to acquire raw material and to make sales tends to result in narrow margins. In short, the industry tends to compete against itself at both ends of the market, virtually guaranteeing a position of on-going weakness.
- **Access to capital limited.** With few exceptions, firms report they have limited access to capital from conventional lenders (other than lines of credit for working capital). This presents a challenge for some plants wishing to diversify or up-grade facilities, but for many it is less of an issue because investment in plant and equipment simply means increased fixed costs, and in the current economic climate these plants want to avoid the risk this entails.

2. Critical success factors

The critical success factors for a competitive fish processing industry include:

- ❑ **Access to steady supplies of high quality raw material**, ideally on a year-round basis and at a cost that supports competitive pricing of final products and allows a return consistent with long-term viability of the enterprise;
- ❑ **Access to sufficient supplies of skilled labour** based on year-round employment, good working conditions and attractive wages;
- ❑ **Access to the technology** needed to operate efficiently and competitively, and access to sufficient raw material to allow high capacity utilization rates;
- ❑ **Access to the funds** needed to meet working capital requirements, medium term requirements to take advantage of product and market development opportunities, and longer term investment needs to upgrade plant and equipment in order to remain competitive and meet regulatory requirements;
- ❑ **Access to markets** without tariff and non-tariff barriers is essential to allow the industry to meet market requirements on an equal footing with its competitors;
- ❑ **A supportive regulatory environment** providing a constructive framework at the harvesting, processing and marketing stages, allowing fish processors to compete effectively in a global market.

The data in Chapter II reveal a processing sector with considerable variation in size, species specialization and scope at the plant level. Despite this disparate mix of companies, it is possible to make some general observations about how well the industry meets the success factors. At the most general level, it is safe to say that only the integrated companies meet all or most of the factors set out above. Most fall short in several key areas.

- ❑ **Access to raw material.** Most Nova Scotia processors rely almost exclusively on raw material obtained from local waters. Several plants had imported groundfish in the early 1990s, but this became uneconomic. So, what is available locally determines whether we have an industry or not, but the terms under which it is secured goes a long way in determining industry structure and its financial health. In this respect, access to raw material and another success factor – the regulatory framework – are closely intertwined.

The most successful companies share one common characteristic – they are vertically integrated from ocean to customer. Subject to resource conditions and management considerations, these companies are able to rely on their own vessels to supply all or most of their raw material, allowing them to specify quality standards and delivery schedules. This allows them to exercise greater control over costs and to meet production plans, and enables them to establish long-term marketing arrangements with retail and food service companies in key markets. It also provides a basis for product development and investment in the technology and marketing needed to establish and expand market share. Access to capital tends not to be problematic for these firms as long as they are well managed and produce satisfactory financial results.

The greatest weaknesses facing non-vertically integrated companies arise from the uncertainty surrounding the availability and quality of raw material, and also to the highly seasonal supply pattern characteristic of the inshore fishery. Though most processors work out seasonal supply arrangements with vessels or buyers, these can be and often are disrupted, with companies either losing supply to competing plants or facing abrupt changes in raw material prices. This leaves plants operating on a day-to-day basis, with limited ability to develop marketing plans and the production and investment decisions flowing from them. This leaves processors with limited bargaining power and places them in a high-risk category in the eyes of conventional lenders.

- ❑ **Access to skilled labour.** Supply conditions are currently satisfactory for most processors most of the time, though many also report that their workforces are aging and supplies are likely to be inadequate in the next few years, particularly for jobs requiring technical skills. People are also less willing to take jobs in plants because the work is seasonal or episodic, and the wages tend to be low. Neither of these conditions is likely to change in the foreseeable future, given the landing patterns for key species and the need to remain competitive with low cost producers.
- ❑ **Access to technology.** Plants have access to technology that would improve productivity, but for most, investing beyond minimum requirements would not make economic sense. Seasonal supply, potential supply disruptions and the need for operating flexibility combine to limit the attractiveness of capital investment. The labour intensive approach used in most plants suits the operating constraints, though it limits the ability to compete head-to-head with low cost producers (e.g., frozen groundfish in the U.S. market).
- ❑ **Access to financing.** Most plants report limited access to long-term financing from conventional lenders. Several factors including a lack of direct access to raw material, high raw material prices, adverse exchange rates and strong competition from low cost producers combine to produce a poor investment climate.
- ❑ **Access to markets.** The industry enjoys good access to its major markets, subject to meeting increasingly stringent regulations regarding food safety (traceability and country of origin labeling in the U.S.). The ability to demonstrate sustainable fisheries through eco-labeling is emerging as another factor that will affect the marketability of products to major retailers in the EU and the U.S.
- ❑ **Supportive regulatory environment.** Regulation provides many necessary controls and some desirable ones, but in doing so it also adversely affects the industry by undermining its ability to operate in the most efficient manner. Among the necessary controls are federal regulations aimed at promoting resource sustainability, and federal and provincial regulations aimed at ensuring food safety. Federal regulation of fishing through limited entry and effort controls was necessary in the 1970s and 1980s to try to avoid over-capitalization of the fleets, which tended to result in short seasons, poor quality and low incomes in the competitive fisheries. But these controls also led to high operating costs as fleets were prevented from investing in the most efficient technologies. This continues into the 2000s, even with the introduction of ITQs. Moreover, ITQs have been fairly ineffective in controlling harvest rates, to the detriment of product quality and the effective utilization of shore-based processing capacity in some fisheries.

But from the perspective of plant operating efficiency, fleet separation presents the greatest challenge. The policy aims to protect the interests of harvesters by establishing competitive conditions (independence of vessels and plants) for the acquisition of raw material. Vessels benefit from competitive prices, while plants benefit (theoretically) from open access to raw material. But open access has resulted in a competitive structure in port markets where price functions poorly in its influence over the timing, quantity and quality of raw material supply. Without such influence over supply, plants are at a considerable disadvantage in meeting the needs of the market. In designing its commercial licencing policy, DFO clearly had just its own constituency in mind, rather than the interests of the industry as a whole.

While all these factors are important for success, two stand out as critical: access to raw material and a supportive regulatory environment. These form the essential underpinning of a competitive industry. Once these are in place, the other factors tend to become more manageable, placing the industry on a solid path to viability.

3. Recommendations

Several factors – declining raw material supplies, challenging policy environment, dysfunctional port markets, adverse exchange rate shifts, intense global competition, emerging labour shortages, excess capacity and weak margins, poor access to capital – have combined to undermine the viability of the Nova Scotia processing sector.

Action on several fronts would appear to be necessary. In formulating recommendations, the focus is on areas of provincial jurisdiction. The province has no jurisdiction in one area of considerable influence on sector viability, namely, fisheries management. The federal government exercises jurisdiction over fisheries, with management and policy influencing both resource sustainability and licencing. The former directly affects the quantity and quality of raw material supply, while the latter (through fleet separation) determines the terms and conditions under which it is acquired by processors.

Recommendation 1: Take steps to rationalize processing capacity

The industry is characterized by too many plants with too much capacity chasing too few fish. This weakens the industry because it results in plants bidding up the price of raw material to unprofitable levels in order to secure enough supply to cover fixed costs. This results in thin margins and often in distress selling in an effort to meet cash requirements.

Even though many plants have discontinued operations in the past several years, many continue to report highly seasonal or sporadic production interspersed with long periods of idleness. Part of this is due simply to the biological factors that determine seasons, and part to the urgency with which harvesters exhaust the quota (a function of excess harvesting capacity and the wish to maximize net earnings). But part is also due simply to the number and capacity of plants competing for raw material. Resolving this issue could take years, but could start immediately with the following steps:

- ❑ Revoke licences that have not been used for a specified period (say, two years)
- ❑ Ensure all plants (including fish packers) meet a common set of QMP standards
- ❑ Provide no financial support for troubled plants (no exceptions)
- ❑ Establish firm criteria for issuing new licences (based on industry consultations)
- ❑ Impose a moratorium on new licences until criteria have been established

Recommendation 2: Establish a clear policy on inter-provincial trade in unprocessed fish

Nova Scotia has traditionally allowed unrestricted trade in unprocessed fish. Crab, lobster and other species move freely between the Maritime Provinces, while Newfoundland and Labrador (NL) maintains a restriction on raw fish exports in order to protect jobs in the province.

Nova Scotia's position changed in 2004 when the export of unprocessed crab to Newfoundland and Labrador was prohibited. This measure was introduced reluctantly, but in light of rising crab exports from Nova Scotia to that province and the existing NL restriction, the Government of Nova Scotia felt it had no choice.

This restriction was introduced in response to particular circumstances. Nova Scotia adheres to the 1994 Agreement on Internal Trade (AIT), as do the other Atlantic Provinces and Québec, though Québec and NL have exemptions for fish under the AIT (as well as NAFTA). A province is permitted under the AIT to retaliate with similar restrictions, if it is being harmed by another's actions.

This recommendation calls for the formulation and adoption of a trade policy that would establish principles governing restrictions and spell out circumstances where Nova Scotia might implement restrictions. This would follow consultations on the matter with the fishing industry.

Recommendation 3: Review provincial financial assistance policy

Providing financial assistance to the fish processing sector is a contentious issue within the industry. Nova Scotia currently offers financial assistance to fishing enterprises and the aquaculture sector through the Fisheries Loan Board, but limited support to fish processors when this adds to capacity. Ad hoc funding for such initiatives as market development may be available from time to time, but generally the province offers limited financial support to the processing sector. Neither are financial assistance programs available at the federal level, other than general business program offered through ACOA (for secondary processing only).

The limited assistance available to the fish processing sector finds its rationale in two factors: general overcapacity in the sector and the availability of financing from conventional lenders (which is not generally available to fishing enterprises and aquaculture because of the risks). Overcapacity continues to characterize the industry, but many processing companies report that conventional lenders are increasingly reluctant to provide loans because of the poor investment climate.

Opinion in the industry is divided on the need for or desirability of provincial financial assistance programs. Those in favour cite the need to upgrade facilities and equipment in order to remain competitive, but point out that the assumption that conventional financing is available is no longer valid. Those against recognize the need, but express concern about the competitive advantage this would give companies particularly at a time when the industry, or at least segments of it, do not need additional capacity.

To guide policy development, the province should engage in industry-wide consultations aimed at addressing the need for a provincial program of financial assistance, and what form and scope any such program would take. For example, support aimed at promoting technological innovation and processing new species may be acceptable, while support aimed simply at plant expansion may not.

Recommendation 4: Conduct policy consultations on licencing, financing and trade

Acting on recommendations 1-3 would require extensive consultation with industry. These should be conducted around the province, following a format familiar to the industry: circulation of material outlining the issues and options, open hearings to receive comment and positions, circulation of report outlining policy positions and rationale.

Recommendation 5: Encourage formation of a single industry association

The industry lacks a province-wide organization able to make effective interventions on broad policy issues. At present, two organizations exist: the Nova Scotia Fish Packers Association (representing mainly independent processors in Southwest Nova Scotia) and the Seafood Producers Association of Nova Scotia (representing the province's few large integrated companies).

For reasons of history, geography, competing interests, or a lack of appreciation of areas of common interest, little or no effort has gone into forming a province-wide association of fish processing companies. Processors in northern areas of the province belong to no organization at all. In fairness, developing an organization and running it requires a serious commitment of time and financial resources on the part of the members, and in recent years both these requirements have been in short supply.

Several of the issues identified in this study require policy decisions by the province, and action by the industry. These include licencing, inter-provincial trade, programs to assist with product and market development, emerging human resource constraints, product traceability and eco-labeling requirements, and financial assistance. An association of processing companies could develop and advance industry positions on these issues and serve as a single voice or window in discussions with government agencies.

Representatives of the Department of Fisheries and Aquaculture should explore with industry leaders the interest in a province-wide association of processors, or even a federation of two or more regional or sector-based organizations.

Recommendation 6: Up-date industry human resource demand-supply analysis

Human resource constraints are emerging as a major issue in the industry. The last comprehensive analysis of the issue was conducted over five years ago. In light of concerns expressed by processing companies in the course of this study, an up-date of this 2002 study would appear to be warranted. Not only would it assess the future demand-supply balance, it would document the changing needs of the industry and the kinds of skills and training programs required to meet the needs.

Recommendation 7: Strengthen market intelligence

The industry is composed of a few large companies with marketing departments, and many small companies where the owner/manager doubles as the point of contact with distributors or retail customers. The smaller companies generally lack the resources to explore the full range of market opportunities, often relying on a narrow range of brokers or distributors for demand and price information. Most companies lack the resources needed for product and market development.

The Department of Fisheries and Aquaculture an important role to play in supporting the marketing efforts of the industry. This includes providing intelligence on market opportunities and prices, with information tailored (content and frequency) to the needs of the industry. This would be augmented with occasional studies on specific issues designed to explore matters in more detail. The Department currently offers some of these services, but not in as much depth as many in the industry appear to need. Consultation with industry would be required to identify specific needs and methods of disseminating information.

Recommendation 8: Improve industry information base

Considerable resources were required to gather the information contained in this report. It serves as a useful baseline of industry structure and operations in 2006. On-going collection of all or some of the data would contribute greatly to a better understanding of sector trends, and would improve policy development. The Department of Fisheries and Aquaculture should make it a condition of licence that companies provide basic information.

There is likely to be some resistance by industry to providing this information. It would be up to government to specify the information to be collected, indicate clearly why it is being collected and how it is going to be used. The industry should receive feed-back in the form of annual reports showing industry trends and analysis.

Recommendation 9: Encourage fishing industry/DFO to pursue MSC certifications

The processing sector, and the industry generally, has much to gain from MSC certification (or some other well established and widely accepted eco-label) of the various fisheries. Indeed, the industry may in the coming years have little option but to secure certification if it wishes to supply major retailers in key markets. It could be shut out of those markets otherwise, as consumers are increasingly demanding clear indications (eco-labels) that the seafood they are buying originates from fisheries managed using sustainable methods.

The processing sector, with the support of the province, should take the lead in urging eco-label certification for key fisheries.