
Part C. Seafood Business Assessment

5.0 BC FISH HARVESTING INDUSTRY

The BC fish harvesting sector produces a variety of protein raw material for conversion to finished food products that are distributed throughout the world. The harvesting sector is diverse in terms of species harvested, gear employed, vessel size, and scale of operation.

Exhibit A.1 in Appendix A provides an overview of different fleet components and their recent trends in landings and landed value as well as a “snapshot” of fleet activity and employment in 2002.

5.1 Markets

The capture fishery produced \$364 million in landed value in 2002.

In 2002, the BC wild fishery produced 194,300 tonnes of fish and shellfish, consisting of 33,200 tonnes of salmon, 25,200 tonnes of herring, 117,300 tonnes of groundfish, and 18,600 tonnes of shellfish. The 2002 landed value for wild fish totalled \$364 million, composed of \$57 million of salmon, \$47 million of herring, \$153 million of groundfish, and \$107 million of shellfish.

5.1.1 Domestic and Export Markets

Landed values for wild fish and shellfish are largely based on netback prices. A netback price is the market price paid by the end consumer less the costs and margins of intermediate marketers, distributors, transporters, and processors. Landed prices to fishermen are determined largely by the same factors that affect wholesale prices received by processors. Depending on fishermen-processor relationships, there may be elements of price negotiation.

Buyers

Most of the harvest is sold to BC processors.

The bulk of fishermen sell their catch to BC buyers, who process and sell a wide variety of live, fresh, frozen, canned, smoked, roe, and other products. A small share of the catch in some fisheries, such as halibut and groundfish, is sold to buyers in Washington State and Oregon.

As well, a few fishermen are selling directly to retail, food service (restaurants), and home consumers. For example, one Prince Rupert salmon gillnet fisherman has struck a strategic alliance with a high-end seafood restaurant in Vancouver; he sells high quality stunned and bled salmon for which the restaurant pays a higher price.

Self-processing is on the rise.

In other cases, fishermen are self-processing, that is arranging for the custom processing of their fish and then taking responsibility for marketing the finished product. This is becoming increasingly common in the roe herring fishery, after having been the standard practice for the herring spawn-on-kelp fishery for some time.

Geographic Distribution of Sales

The majority of wild seafood products are exported.

About three-quarters of BC wild seafood products by sales value, go to export markets. The remaining one-quarter is divided between sales within BC (15%) and those to the rest of Canada (10%). The export market share and the specific market destination vary with the species and product.

About 50% of wild salmon is destined for export markets with the UK an important market for canned salmon. In contrast, more than 90% of roe herring, herring spawn-on-kelp, and frozen sablefish is exported to Japan. The US is a key market for fresh whole halibut and fresh groundfish fillets. Asian markets predominate for certain shellfish products such as frozen prawns (Japan) and live geoducks (Hong Kong).

Market Cooperation in the Value Chain

Fishermen-buyer cooperation is common in IQ fisheries.

Many fishermen develop a relationship with a particular buyer, especially in IQ fisheries which are market-driven businesses. For IQ fisheries, cooperation helps in scheduling deliveries, meeting buyer specifications for quality and on-board handling, and communicating information on market needs. Activities such as these are essential features of the global food business today.

In contrast, there is much less value chain cooperation in the case of other seafood products, such as salmon. A major contributing factor is the lack of consistent production, quality, and price incentives under current fishing practices and fisheries management.

Niche and Commodity Products

Fishermen can receive much higher prices for high-quality niche products that command high prices in the marketplace and require very little processing on land. Examples are live geoducks and frozen-at-sea (FAS) prawns. In contrast, prices to fishermen are lower for fish destined for low-value commodity markets such as canned pink salmon or hake surimi.

Developing higher-priced niche products is very difficult.

Niche product development by individual harvesters is very difficult. The problem is that an individual harvester's production is very small, is not labelled or "packaged", and loses its identity through processing and other stages of the value chain. However, a group of producers working together along with a processor or marketer could have the production volume, quality control discipline, and marketing expertise to develop a niche product for a specialized market segment (see Case Study 3).

5.1.2 Prices Received

Over the last 20 years, prices in IQ fisheries have risen faster than those in competitive fisheries.

Exhibit 15 displays landed prices to fishermen for selected species from 1982 to 2002. Different trends emerge. Generally, IQ-managed fisheries have shown greater price increases over the past 20 years than have competitive fisheries, including salmon. However, prices in some non-IQ shellfish fisheries, such as prawn and crab, have also shown large price increases. Exhibit A.1 in Appendix A displays catch volumes and values, and by implication prices, for a variety of BC fleet segments.

Salmon

Salmon prices increased from the early 1980s through 1988 when market demand was driven by strong world economies, particularly in Japan, as well as by favourable exchange fluctuations. For example, the average sockeye price to fishermen rose from (per kg round) \$2.60 in 1982 to \$8.10 in 1988, while the average pink salmon price increased from (per kg round) \$0.80 to \$1.50 over the same period.

Case Study 3: Chignik Salmon Seine Fishery Cooperative in Alaska

Issue

In the Chignik area on the southern side of the Alaska Peninsula, the value of the sockeye salmon harvest to seine fishermen fell dramatically over the last ten years. Various factors, including competition from farmed salmon, smaller harvest levels, changes in consumer demand, and a worldwide economic slowdown, contributed to this decline. In response, many permit holders began to explore ways to reduce the numbers of boats fishing the available harvest, in order to cut costs and improve quality.

Several Chignik fishermen and a wild salmon processor had visited a BC farmed salmon processing operation, and had observed the holding, handling, and processing techniques required to meet the quality standards of the fresh salmon market. They petitioned the Alaska Board of Fisheries (BOF) in 2002 to allow a cooperative fishery.

Response

The BOF agreed to a one-year experiment and gave the 100 permit holders the option of joining the cooperative – the Chignik Seafood Producers Alliance – or fishing independently. Of these permit holders, 77 joined the co-op and 23 did not. The co-op received an allocation of 69% of the total sockeye harvest (0.9% for each member permit holder) and the other 31% went to independent permit holders. During the 2002 season, the Alaska Department of Fish and Game (ADFG) managed the fishery with separate openings for these two groups. The co-op paid 22 members to fish (about \$US 47,000 each, plus fuel and insurance costs) and all 77 members, including those who did not fish, shared the remaining catch value net of labour costs (about \$US 22,000 each).

The 22 boats that fished did not actually land the fish on board; rather, the fish were pumped directly from the seine net into circulating seawater in the tender. About 15 tenders were used, or two for every three boats fishing. Part of the co-op harvest was delivered from the tender live into net pens at the plant, where the fish were held until processing. These live fish were bled, processed, and shipped fresh or frozen on demand, for the highest grade of salmon available on the market. The co-op trademarked the name “Castle Cape Reds” to distinguish this premium product and the unique cooperative approach from which it is derived.

The BOF agreed to continue the experiment for 2003. Nonetheless, the cooperative concept is controversial. There has been intense debate concerning: (1) the appropriateness and fairness of the allocation between the two groups; (2) the distribution of costs and profits among co-op members who fish and those who do not; and 3) the decision by the co-op to contract only with Norquest Seafoods, and not with the other traditional Chignik processor, for processing services.

Results

The management innovation for the 2002 fishery did succeed in reducing costs and improving quality. There was a more uniform distribution in the volumes of fish daily delivered to processors in 2002, as opposed to the boom-and-bust pattern of previous years.

In addition, the co-op fishery allowed the manager to fine tune catches to escapement needs. The co-op fleet agreed to daily harvest levels when requested by ADFG, and these daily limits (ranging from 1,000 to 10,000 sockeye per day) were occasionally increased, lowered or removed, as escapement needs were determined. This allowed the authorization of a small-scale fishery (e.g., 5,000 fish), which would not have been possible had the entire fleet of 100 vessels been fishing.

Lessons Learned

The allocation to a cooperative was a new development in the management of Alaska salmon fisheries. There has been considerable interest within the salmon industry and Alaska in the effects of the management change and the co-op, with similar initiatives being considered in other locations (e.g., Prince William Sound). Industry leadership was a critical component in the politics of establishing the coop, and in the business of running it. The BOF's willingness to pass regulations for a Chignik co-op fishery and the ADFG management to escapement levels were other success factors.

Salmon prices have fallen since the late 1980s, with the burgeoning farmed salmon supply.

After 1988, prices underwent a decline. By 2002, the average sockeye price was just under \$4 per kg and the average pink price was only \$0.33 per kg, a 60% reduction from 1982. (The price spike in 1994 was an anomaly caused by Japanese buyers who, mistakenly believing that there would be a supply shortfall, bid up prices past market-clearing levels. The 1999 spike was due to a very low BC catch of sockeye that year.)

The major reason for today's very low prices is the burgeoning supply of farmed salmon which offers consistent availability, quality, and price. Other reasons include the persistent weak economy in Japan, an important export market for Canadian sockeye, and the large supply of canned salmon from Alaska. Prices for chinook, coho, and chum salmon have also declined, in large part because of the loss of the European frozen salmon market to fresh Norwegian farmed salmon.

Herring

Roe herring prices have also declined due to a market shift in Japan.

Roe herring is mainly processed into roe for sale to Japan, traditionally for the high quality year-end gift pack trade. The soft Japanese economy has weakened sales of what is seen as a luxury item. Younger people in Japan are increasingly buying flavoured roe products that are convenient, lower-priced, and consumed year-round. The decline of the gift market has shifted Pacific product into the lower-priced flavoured roe markets.

The price to herring fishermen peaked in 1996 at \$3.50 per kg round, and then crashed to one-quarter of this value two years later. The price has since rebounded and remained relatively stable at about \$1.50 per kg for the past four years. This stability reflects the market shift to flavoured products that, besides being sold year-round, show less price variability from year to year than roe destined for the gift pack market.

Groundfish

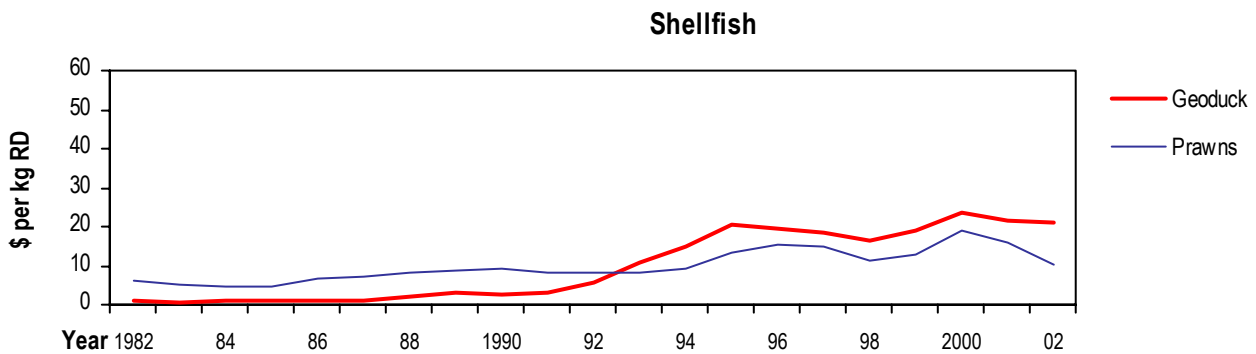
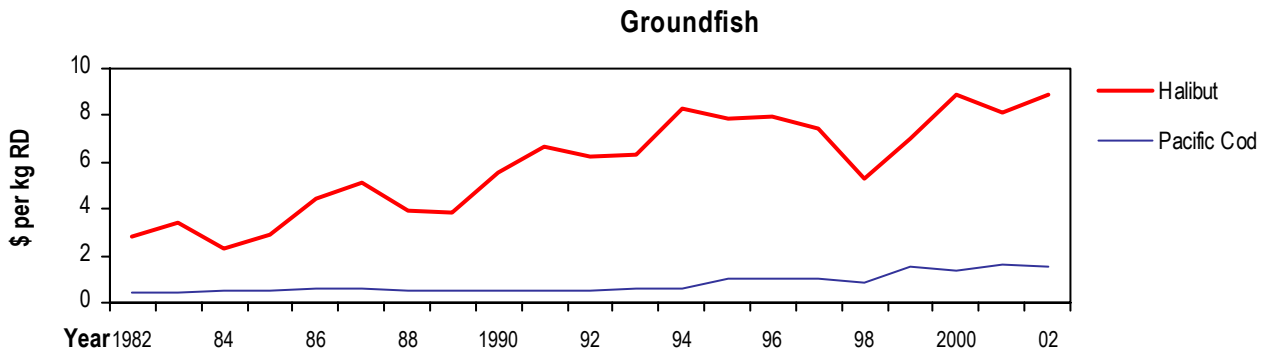
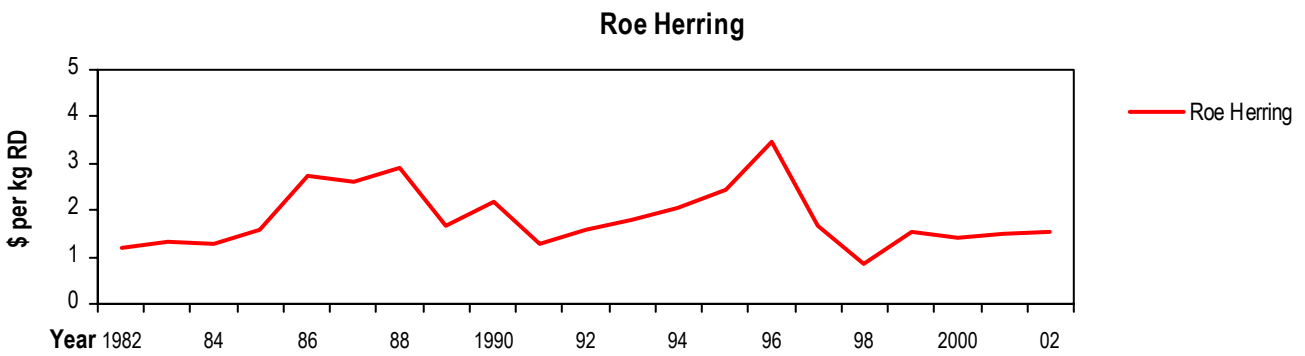
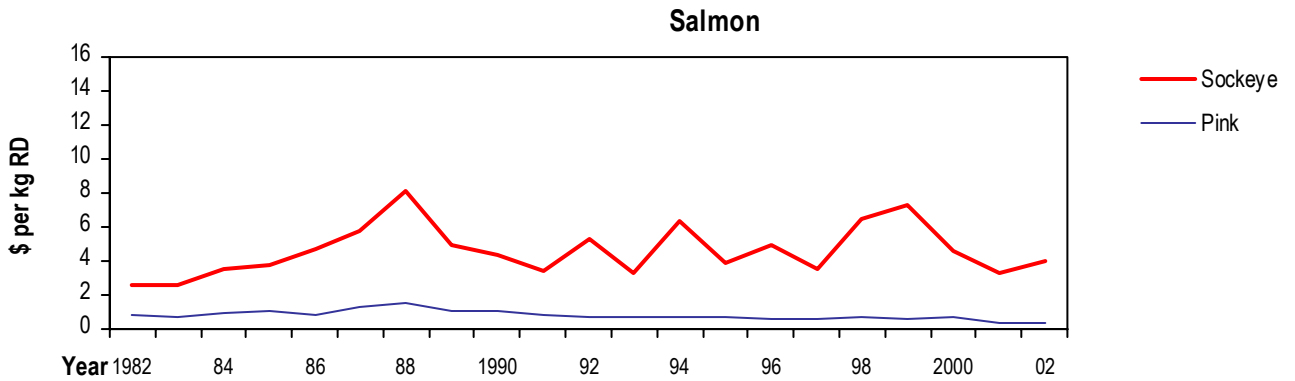
Prices for halibut and other groundfish have increased with IQ management.

Halibut prices have increased substantially since the introduction of the IQ program in 1991. Prior to the program, the majority of the halibut catch was sold frozen whole by processors because the fishery lasted only ten days or less. However IQ management over a longer fishing period (8 months) has enabled access to the higher-value fresh market.

Groundfish prices have also increased since the introduction of the groundfish trawl IQ program in 1997. More groundfish is now converted into quality fresh fillets, when previously substantial amounts of fillets had to be frozen at the plant due to market gluts. These gluts have been much less frequent under the orderly and predictable fishing pattern of IQ management. This year has seen a drop in price because of the strengthening of the Canadian dollar against the US dollar.

The price of Pacific cod has increased by 50% since the mid-1990s and has tripled since the mid-1980s. These price increases reflect not only the availability of better quality fresh product, but also the decline in whitefish landings worldwide, particularly Atlantic cod, since 1990. Pacific cod, pollock, and other species are filling the market gap. There appears to be strong demand for high-quality whitefish around the globe.

Exhibit 15: BC Landed Prices for Selected Species



Shellfish

Geoduck and prawn prices are up substantially as a result of new product and market development.

Geoduck prices to fishermen have increased 20-fold since the early 1980s. Geoduck fishermen were successful in developing a new product (live geoduck) and a new market (Hong Kong). Twenty years ago, much of the geoduck harvested was sold as meat for chowders and the like. In 2003, prices plummeted by 30%, due to the spring SARS epidemic which severely curtailed restaurant sales in Hong Kong.

Prawn prices doubled in the latter half of the 1990s, with the development of a new product and market, frozen-at-sea (FAS) prawns destined for Japan. As well, live prawns are increasingly being sold in Asian restaurants along the West coast of North America. Prices have recently fallen in response to the troubled Japanese economy. Much of BC's shrimp is processed into peeled product. Prices have been low recently due to a glut of frozen shrimp in US and other world markets.

Less is More – The Case of Live Rockfish

A premium market exists in Greater Vancouver and Western North America for live quillback and copper rockfish, and to a lesser extent for China and black rockfish. The market is primarily targeted at people of Southeast Asian descent, and is characterized by seasonality – peaking around Chinese New Year in late January/early February and during the summer wedding banquet season. It is also extremely sensitive to supply conditions. The price for live rockfish is by far the highest price fishermen receive for three different product forms. Although the market for live rockfish is limited, the example does demonstrate the substantial premium prices fishermen can receive for the highest quality product.

Market Product Form	2000 Prices Paid to Fishermen (\$/lb RD)
Live	\$5.45 per lb (round)
Fresh Whole	\$1.37 per lb (round)
Fresh Fillet	\$0.60 per lb (round)

* quillback and copper rockfish (usually about 2 lbs each)
 Source: GSGislason & Associates Ltd. "The Rockfish Hook & Line ZN Fleet: Landed Prices 1996 to 2000", 2001

Both the geoduck and prawn fisheries are examples of fishermen reaping high prices by serving niche markets that value whole seafood products. The added value derives not from cutting and/or processing the product, but from handling, refrigeration, packaging, and transport to preserve the seafood's pristine quality after harvesting. These two fisheries also exhibit the price volatility that can occur from dependence on a single export market.

5.2 Government Policies and Regulations

5.2.1 Resource Access, Licensing, and Fees

DFO has sole jurisdiction over tidal fish harvesting management in BC.

Under the 1867 *Fisheries Act*, the federal government has sole responsibility for the management of tidal fish harvesting in British Columbia. The underpinnings of Canadian fisheries regulation are licensing restrictions and input controls such as time, area, and gear restrictions. DFO first implemented limited entry licensing in 1969 for the BC commercial salmon fishery. Since then, limited entry has been applied to most of the valuable Pacific fisheries.

Limited Entry Fisheries

Limited entry fisheries are either competitive or quota-based.

Limited entry fisheries fall into two broad classes:

- **Competitive** – In competitive fisheries, licensed individuals/vessels compete for the available catch.
- **Individual quota** – In IQ fisheries, licensed individuals/vessels are allocated a predetermined share of the available catch.

There is also herring “pool” fishery management whereby the licensed fleet is divided into pools, each pool receives the same quota, and the pool decides how many boats fish the aggregate quota. This management approach is very closely aligned to IQ fisheries management.

What is a Fishing Licence?

According to DFO (DFO, “The Management of Fisheries on Canada’s Atlantic Coast”, 2001):

A fishing licence is an instrument by which the Minister of Fisheries and Oceans, pursuant to his discretionary authority under the Fisheries Act, grants permission to a person including an Aboriginal organization to harvest certain species of fish or marine plants subject to the conditions attached to the licence. The licensee is essentially given a limited fishing privilege rather than any kind of absolute or permanent right or property.

Most fishing licences can be transferred in practice.

A fishing licence is not owned by the person to whom it is issued; rather, it is the property of the Crown. Strictly speaking, licences cannot be transferred, but in actual practice they do change hands. A person who wishes to transfer his or her licence relinquishes it to DFO and identifies to whom a “replacement licence” is to be issued. DFO will then issue the replacement licence to the person named by the current licence holder.

Pacific Region Licensing

BC fisheries typically follow some general rules.

The Pacific Region commercial fisheries licensing system is characterized by:

- **Limited entry licensing** – Almost all fisheries limit the number of licences and participants in the fishery. Some fisheries operate under IQ fisheries management.
- **Vessel-based licensing** – For most fisheries, licences are attached to specific vessels and the overall allowable length (OAL) of the vessel is specified on the licence. An individual can own more than one licensed vessel.
- **Transferability** – A vessel-based licence can be transferred only to another vessel that does not exceed the OAL of the originating vessel.
- **Marrying of licences** – In a licence transfer, a commercial fishing vessel with more than one commercial fishing licence, e.g., a vessel with both salmon seine (“AS”) and groundfish trawl (“T”) licences, must transfer both licences to the replacement vessel.
- **No owner-operator clauses** – The owner of a licence does not have to be on the vessel while it fishes that licence.
- **No fleet separation clauses** – Corporations, including those involved in processing, may own fishing licences.
- **Prohibition on mobile fish processors** – The Pacific Region, unlike the East Coast of Canada, does not licence large combination harvest-processor vessels, such as groundfish freezer-trawlers or floating processors.

There are some exceptions to these general rules. For example, roe herring licences are not attached permanently to a vessel and do not have an OAL attached to them. Initially, the herring seine (“HS”) and herring gillnet (“HG”) licences were non-transferable personal licences with an owner-operator requirement. However, in 1979 the owner-operator requirement was dropped and in 1991 the licence became transferable.

Limited entry licences currently total about 7,468 in BC.

Exhibit 16 indicates the status of commercial licences as of 2002 including aboriginal-held licences. There are currently 7,468 limited entry fishing licences in BC, of which 1,956 (26%) are held by aboriginal interests.

Fees

Licence or resource access fees are paid to DFO.

Licence holders pay a licence fee or a resource access fee to DFO. The fee is based on a percentage of fleet landed value during a base period. The formula is:

- **IQ fisheries** – 5% of the base period price multiplied by the tonnes of IQ allocated, less 40% up to a maximum reduction of \$1,000; and
- **Competitive fisheries** – a “stepped” fee comprising \$100 up to the first \$25,000 in the base period landed value per licence, plus 3% of the next \$50,000 in the base period landed value purchase plus 5% of any landed value per licence over \$25,000.

The base period for all fisheries is 1990 through 1993 except for salmon licences where a more current base period is used to calculate salmon licence fees. Aboriginal people or bands holding commercial salmon or herring licences may choose to pay a “reduced fee”, but such licences can only be transferred to another aboriginal person. Because of the \$1,000 offset or credit and the fact that fees are not pegged to current landed value, fees in practice comprise from 2% to 3% of landed value.

A commercial vessel must be registered and obtain a vessel registration certificate. The one time fee applicable at ownership change is \$50. Every person 16 years of age or older who fishes as a skipper or deckhand on a commercial fishing vessel in BC must have a Fisher’s Registration Card (FRC) and pay an annual fee of \$50.

5.2.2 Developments in the 1990s

Four major developments in the 1990s affected the licensing of BC fisheries: a move to quota management, the decline in salmon stocks, introduction of the Aboriginal Fisheries Strategy (AFS), and a shift to fisheries co-management.

The Move to IQ Fisheries

IQ fisheries began in the 1980s.

The trend to IQ management began in the 1980s. The changeover from competitive to individual quota management generally followed four steps:

1. An industry vote or expression of support by licence holders in favour of the concept;
2. The implementation of IQs, with a non-transferability provision, on a trial or temporary basis;
3. A review of the trial program, including a survey or vote of licence holders on satisfaction to date and potential modifications; and
4. Implementation of the program on a permanent basis and permitting of the transfer of licences and quotas, after a favourable vote by the licence holders.

Exhibit 16: BC Commercial Licence Status Report for Limited Entry Fisheries 2003

	Total Licences	Aboriginal-Held Licences				% Aboriginal
		"F" Communal	Reduced Fee	Full Fee	Total	
Salmon						
Seine "AS" ³	276	12	18	50	80	29.9%
Gillnet ¹ "AG" & "N"	1,406	76	418	42	536	38.1%
Troll "AT"	<u>539</u>	<u>19</u>	<u>24</u>	<u>7</u>	<u>50</u>	9.3%
Subtotal	2,221	107	460	99	666	30.0%
Herring						
Roe Herring - Seine "HS"	252	1	51	11	63	25.0%
- Gillnet "HG"	1,271	27	325	2	354	27.9%
Spawn-on-Kelp "J"	<u>46</u>	<u>11</u>	<u>n/a</u>	<u>25</u>	<u>36</u>	78.3%
Subtotal	1,569	39	376	38	453	28.9%
Groundfish & Other Fish						
Halibut "L"	435	26	n/a	27	53	12.2%
Sablefish "K"	48	1	n/a	1	2	4.2%
Groundfish Trawl "T"	142	0	n/a	5	5	3.5%
Rockfish Hook & Line "ZN"	262	14	n/a	5	19	11.1%
Sardine by Seine "ZS"	50	25	n/a	4	29	58.0%
Eulachon "ZU"	16	0	n/a	2	2	12.5%
Category "C"	<u>541</u>	<u>8</u>	<u>n/a</u>	<u>12</u>	<u>20</u>	3.7%
Subtotal	1,494	74	n/a	56	130	8.7%
Shellfish						
Crab "R"	222	9	n/a	2	11	5.0%
Prawn "W"	252	5	n/a	4	9	3.6%
Geoduck "G"	55	0	n/a	1	1	1.8%
Red Urchin "ZC"	110	6	n/a	8	14	12.7%
Green Urchin "ZA"	49	0	n/a	0	0	0%
Sea Cucumber "ZD"	85	0	n/a	10	10	11.8%
Shrimp Trawl "S"	246	11	n/a	4	15	6.1%
Euphausid "ZF"	19	1	n/a	1	2	10.5%
Clam by Hand ² "ZF"	<u>1,146</u>	<u>0</u>	<u>n/a</u>	<u>648</u>	<u>648</u>	56.5%
Subtotal	2,184	32	n/a	678	710	32.5%
Total	<u>7,468</u>	<u>252</u>	<u>836</u>	<u>871</u>	<u>1,959</u>	26.2%

- Notes: 1. Includes 254 reduced fee salmon gillnet Northern Native Fishing Corporation (NNFC) "N" licences.
2. Does not include Haida First Nation and Heiltsuk communal clam licences in which 150 to 300 individuals may be involved in harvesting.
3. Does not include 49 aboriginal-operated salmon seine licences owned by processors.

Source: Michelle James "Native Participation in BC Commercial Fisheries- 2003" Prepared for MAFF, November 2003.

The majority of BC fisheries are now IQ-managed.

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

Salmon Stock Declines

The Mifflin Plan and PFAR rationalized the salmon fishery in the late 1990s

In the mid-to-late 1990s, BC salmon stocks declined and consequently, commercial salmon catches, prices, and landed value severely declined. In 1998, there was extreme concern for coho stocks, particularly those in the Fraser River and Skeena River drainages. In response, the federal government rationalized the salmon fishery, first in 1996 through the so-called “Mifflin Plan”, and then in 1998 with the Pacific Fisheries Adjustment and Restructuring (PFAR) program (Gislason et al. 1996; Federal Provincial Review 1996; GSGislason & Associates Ltd. 1998), The June 1998 program also included an adjustment program for industry workers.

The Mifflin Plan implemented area and gear licensing for the salmon fleet (2 areas for seine, 3 for gillnet, 3 for troll) and allowed stacking of more than one licence onto a single vessel. A key part of the federal government initiatives in 1996 and 1998 was the purchase or retirement, on a voluntary basis, of commercial salmon licences. The \$280 million buyback program resulted in a substantial decline in fishing vessels and licences. The number of commercial salmon licences in BC halved from approximately 4,400 to 2,200 between 1995 and 2000.

Aboriginal Fisheries Strategy (AFS)

The Aboriginal Fisheries Strategy was a response to the 1990 Sparrow decision.

First announced in 1992, the *Aboriginal Fisheries Strategy* resulted from the Supreme Court of Canada’s 1990 Sparrow decision which clarified the aboriginal right to fish for food, social, and ceremonial purposes. Under the AFS, DFO entered into agreements with aboriginal groups to address: 1) joint management including regulation of fishing surveillance and catch monitoring; 2) financial contribution to cover infrastructure and training costs; and 3) specific salmon allocations of two types.

The AFS established “F” licences and Pilot Sales Agreements.

For the first type of allocation, the federal government purchased commercial licences from existing fishing participants and transferred them to First Nations or aboriginal organizations as communal “F” category licences. These “F” category licences were to be fished under the same rules as the regular commercial fishery.

The second type of allocation was Pilot Sales Agreements (PSA), which gave specific First Nations on the Fraser and Somass Rivers exclusive time-limited rights to catch specific quantities of salmon in-river, in areas where the regular commercial fishery was not allowed to operate, for commercial sale. Some commercial licences also were purchased from existing participants in establishing the PSA.

The PSAs were controversial. Participants in the regular commercial fishery argued vehemently that the agreement eroded their rights and income and created a separate commercial fishery based on race, in violation of the 1982 *Constitution Act*. In July 2003 the BC Provincial Court ruled the PSA to be illegal. DFO is appealing the decision.

Case Study 4: 2002 Barklay Sound Commercial Seine Fishery

Issue

During the early 1990s, sockeye salmon stocks declined dramatically in Barklay Sound on the West Coast of Vancouver Island. After peaking at almost two million fish in 1991, sockeye returns fell by ten times to only 200,000 returning fish in 1995. There was no commercial seine fishery in the Sound between 1994 and 2001. Then in 2002 DFO identified the opportunity to have a limited sockeye seine fishery in Barklay Sound Area 23. However, the Department was not willing to accept a competitive fishery for all 159 southern licensed seine vessels, as such a large fleet was considered unmanageable.

Response

A seine fishermen's association suggested a way to match fleet size to size of the fishing opportunity. The pilot initiative for 2002 entailed:

- designating weekly catch targets or total allowable catches (TACs) for the total commercial sector;
- consulting with the three commercial sectors (seine, gillnet, and troll) on splitting the weekly TAC;
- segmenting 159 seine licences into eight working groups;
- designating approximately one seine vessel to catch each 2,000 to 3,000 TAC component;
- validating all catches through a dockside monitoring program (DMP); and
- implementing “catch-up/make-up” for underages/overages from one week to the next.

Results

As a result of the industry plan, there was a commercial seine fishery in Barklay Sound for the first time since 1993. The aggregate TAC of 205,000 sockeye was met exactly. The bycatch of 110 chinook and coho salmon was minimal and all were released live. Other benefits included: (1) lower costs; (2) higher quality/shorter trips; (3) no visual gear conflicts; (4) co-management and cooperation fostered among the gear sectors; and (5) the opportunity to test selective fishing gear/techniques. This industry-driven initiative converted the opportunity to fish into a specific allocation. That is, it strengthened property rights to fish for the 2002 season.

Fishing Week (2002)	No. of Days Fished	No. of Vessels Fishing	Total Allowable Catch (Pieces)	Catch (Pieces)
June 16 – 22	1	2	4,000	3,721
June 23 – 29	2	5	20,000	14,624
June 30 – July 6	2	13	40,000	45,954
July 7 – July 13	2	14	40,000	38,915
July 14 – July 20	4	18	60,000	60,915
July 21 – July 27	2	13	41,000	41,000

Lessons Learned

The Barklay Sound pilot showed that effective solutions are fisherman-driven. DFO is willing to accept creative approaches as long as the fishery is sustainable, that is: (1) industry can demonstrate its ability to fish to a TAC; (2) an industry-funded catch monitoring or DMP is in place; and (3) the bycatch is controlled. Slowing down the harvest can increase fish quality, but this higher quality fish needs to be handled, processed, and marketed differently.

Co-management and Higher Industry Fees

Co-management agreements are common between DFO and industry.

A large number of co-management agreements have been struck between DFO and industry organizations. In many cases, DFO has required that industry assume responsibility and pay for activities such as dockside monitoring, onboard observers, and enforcement, before it would agree to change the management of a particular fishery from a competitive to an IQ format.

To date, the salmon fleet has been largely exempted from paying management fees and there is relatively little co-management. At the other end of the spectrum, harvesters in the geoduck and sablefish fisheries, which are both IQ-managed with about 50 licences each, pay for a wide spectrum of monitoring, science, and research and development activities (Gardner Pinfold and GSGislason 1999; Edwin Blewett & Associates 2002).

Better industry organization is necessary for continued development of co-management.

The major factor limiting the development of co-management is the lack of an effective industry organization. The shrimp and salmon fisheries have been cited as fisheries in which lack of sufficient common purpose or vision is an obstacle to co-management. This lack of vision includes management reform to better meet the needs of the marketplace (Edwin Blewett & Associates 2002).

The clear trend in BC is towards greater industry co-management and higher cost recovery fees. This, in turn, has given industry a greater say in fisheries management matters (see the example of BC halibut in Gislason 1999).

5.2.3 Allocation

Under the *Constitution Act*, the first priority after conservation of the resource is the right of First Nations to fish for food, social, and ceremonial purposes. This right was confirmed and clarified by the 1990 Sparrow decision.

Only salmon and halibut are covered by formal allocation policies.

Formal allocation policies for residual use by commercial, recreational, and other uses exist for salmon and halibut. In 1999, DFO's Salmon Allocation Policy gave the recreational sector priority access over the commercial sector to chinook and coho salmon, and the commercial sector priority access to sockeye, pink, and chum salmon (DFO 1999). In October 2003, the Minister of Fisheries and Oceans announced that a 12% catch "ceiling" of the total commercial-recreational allowable catch for halibut would be allocated to the recreational sector. In addition, there are growing concerns within the commercial sector over increasing recreational catches of crabs and prawns. To support sustainable fisheries management and the necessary control over total harvest levels, the move to formal intersectoral allocation appears to be the trend.

DFO has established target allocations for the seine, gillnet, and troll components within the commercial salmon fleet. The allocations are expressed as a share of the total coastwide catch of all species on a sockeye equivalent (SE) basis: one SE is the landed value of an average sockeye in the previous year. However, this measure dulls the incentives for individual fleet segments and operations to improve quality and value as any benefits are shared among the entire fleet in future years. In addition, the salmon fleet has eight gear-area licence combinations, not three. The result is that the use of the SE allocation measure has created tension and competing interests within each of the seine, gillnet, and troll sectors.

Commercial salmon fisheries interests assert that DFO's interpretation of the precautionary approach to salmon management results in the reallocation of fishing opportunities to in-river ESSR fisheries (see ESSR catch data in Section 2.2.4).

5.2.4 Uncertainty of Access

Treaty and AFS Issues

Uncertain access due to aboriginal rights and title limits industry development.

The majority of BC's land base is not subject to treaties and, therefore, may remain subject to aboriginal rights and/or title. Currently, many treaties are being negotiated with the province's aboriginal peoples, but the only successful completion in the past 30 years is the Nisga'a Treaty. Fisheries interests cite the uncertainty surrounding the Treaty and AFS processes as a major barrier to long-term planning and investment in the seafood sector (harvesting, aquaculture, and processing).

The vast majority of fisheries and aquaculture interests suggest that, if existing fisheries and aquaculture rights and licences are impaired through treaties, then the government should purchase these rights and licences at fair market value for transfer as part of the treaty settlement process (the "industrial solution"). This practice was followed in the creation of category "F" commercial fishing licences under the AFS. However, this was not strictly followed in developing the PSA component authorizing in-river commercial fisheries for certain First Nations, or when DFO allocated the Heiltsuk First Nation eight commercial spawn-on-kelp licences through an AFS agreement. In the latter case, DFO increased the number of commercial category "J" licences from 38 to 46.

A court case determined that the Heiltsuk Nation had an "existing" aboriginal right to fish commercially for spawn-on-kelp. DFO has interpreted this ruling, identifying an existing aboriginal right, as eliminating the need for compensation to existing users.

Non-Aboriginal Issues

Industry is also concerned about the potential for more users to access the resource.

Industry maintains that its rights and business value are diluted if additional users are, or can be, provided resource access under Ministerial directive. These additional participants could be licensed commercial fishermen (e.g., spawn-on-kelp in BC, snow crab on the East Coast), growth in another fishing sector competing for the same resource (e.g., the recreational fishery), or special allocations under scientific permit (e.g., fish for aquaculture broodstock or live penholdings). The question of access is, therefore, not merely related to aboriginal rights and the AFS.

The key issue is the unfettered discretionary authority vested in the Minister of Fisheries and Oceans. As long as a fishing licence and/or quota is a limited fishing privilege rather than a property right per se, and the Minister can cancel existing licences, issue new licences, or otherwise allocate the resource across user groups at his or her discretion, there cannot be complete security of access to the resource – a stated goal of the BC Seafood Alliance and others. Industry cites this deficiency as a major concern that shortens the business planning horizon, prevents financing of operations (especially for small operations), and lowers business value. As well, uncertainty of access prevents the move to full co-management and reinforces the view of Savoie (Chairman of the Partnering Panel) and others that micromanaging has created a culture of paternalism in Canadian fisheries management (Savoie et al. 1998).

5.2.5 Incentive Programs and Subsidies

Past subsidy programs for harvesting have been removed.

The harvesting sector used to benefit from subsidy programs, such as vessel construction subsidies, accelerated capital allowances, and arguably the salmon licence buyback programs in the late 1990s that were 100% funded by the federal government. These subsidy programs no longer exist.

Fishermen are the only self-employed workers in Canada eligible for EI. Furthermore, the EI benefits paid to fishermen vastly surpass the EI premiums paid by fishermen. In 2002, BC commercial fishermen earned an estimated \$115 million in wages, on which \$6 million was paid in premiums. That same year, \$36 million in EI benefits were paid to BC commercial fishermen. In other words, for every dollar of EI contribution, about six were received in EI benefits.

One can also argue that the DFO Small Craft Harbours (SCH) program, supporting 101 fishing harbours along coastal BC, is a subsidy. Commercial fishing vessel owners pay moorage rates that are far less than recreational vessel owners or other harbour users. The “reduced fee” salmon and herring licences available to aboriginal people are also a subsidy.

5.2.6 Federal-Provincial Cooperation

The federal and provincial governments cooperate through a series of Memoranda of Understanding on fisheries issues (see Exhibit 2 in Section 2). There are also both federal and provincial seats on a series of industry advisory processes (e.g., the Halibut Advisory Board). In 2003, the federal Minister of Fisheries and Oceans, the BC Minister of Agriculture, Food and Fisheries, and the Yukon Minister of the Environment established the Pacific Council of Fisheries Ministers to work cooperatively to resolve issues of common interest.

DFO and the Province are cooperating in new species development and other areas.

The provincial government has also worked closely with DFO, as well as industry, on several initiatives related to new product and new commercial species development (e.g., dogfish, tanner crab, sardines). Although DFO has exclusive jurisdiction over the management of tidal commercial fisheries, increasingly the federal and provincial governments are working together on fisheries matters. This has been aided in recent years by the transfer and secondment of senior managers between the two organizations.

The federal and provincial governments have a different management focus.

However, according to interviews conducted for this study, there is a fundamental difference in focus between the two levels of government. DFO is primarily focused on resource management and conservation, often to the exclusion of economic considerations. The Province, on the other hand, sees a healthy resource as a means to create wealth and business opportunity.

A two member federal-provincial task force is providing advice on the integrated management of post-treaty fisheries.

5.2.7 Aboriginal Issues

Licensing provisions encourage aboriginal participation in harvesting.

Aboriginal people are an important component of the fish harvesting sector, comprising about one in four fishing jobs in the province. Special DFO licensing provisions exist to stimulate and preserve aboriginal participation, including:

- the Northern Native Fishing Corporation (NNFC) and associated 254 category “N” gillnet licences that are leased to aboriginal fishermen each year;
- the communal category “F” licence;
- the “reduced fee” licence option for salmon and herring aboriginal licence holders (and the restriction on these licences to be transferable only to another aboriginal individual); and
- the pool of licences reserved for aboriginal people in any newly-licensed fishery (e.g., sardine).

These aboriginal licence holders and fishermen endure the same uncertainty of rights and access as do their non-aboriginal counterparts. In particular, the AFS Pilot Sales Agreements created another user group, without compensation to existing users, which eroded the income earning potential and business value of all licence holders.

5.3 Human Resources

The fishing fleet and number of fishermen have been halved over the past 15 years.

The combination of increasingly competitive seafood markets, globalization, fleet rationalization, and resource declines has reduced the number of fishing jobs and employment. Today, fishing vessels and fishermen number only half of those 15 years ago.

5.3.1 Labour Utilization and Wages

Fishing jobs are seasonal. The fishing time for an individual harvester can last from two to 25 weeks or more (see Exhibit A.1 in Appendix A). Several vessels participate in more than one fishery as there are 7,468 limited entry fishing licences and about 3,000 active fishing vessels.

Jobs and Employment

Harvesting employment totalled 3,410 person-years in 2002.

The 8,375 fishermen with FRCs in 2002 are estimated to have fished for 12 weeks on average, amounting to 0.4 person-years (PYs) of employment. (Thirty weeks fished is assumed to be one PY, allowing for pre- and post-season maintenance, business planning, etc.). The result is 3,410 PYs of employment in the fish harvesting sector in 2002.

	Employment* (PYs)	Wages* (\$ millions)	\$ per PY
Salmon	950	18	\$19,000
Herring	300	10	\$33,000
Groundfish	830	44	\$53,000
Shellfish - clams by hand	240	5	\$21,000
- other	<u>1,090</u>	<u>38</u>	\$35,000
	<u>3,410</u>	<u>115</u>	\$34,000

** includes the skipper*

Wages

Crew payment arrangements have changed, dramatically, especially in IQ fisheries.

In past years, crew on BC fishing vessels were typically paid on a share system: the gross value of the catch, less certain expenses, was divided between a “crew share” and a “boat share”. However, crew arrangements have changed dramatically in many cases especially in IQ fisheries where quota can be leased. With leasing, the norm is for the cost of the quota to be deducted from gross catch value prior to devising crew and boat shares. That is, the quota receives a share. And, where the quota is not actually leased, the imputed cost of the quota may be used. In other cases, the crew are paid a fixed daily rate (e.g., herring gillnet operations) or on a trip basis (e.g., halibut).

Salmon crew wages are less than half what they were in the early 1990s.

The changes have meant that crew are receiving a decreasing share of the catch value while the licence or quota holder is receiving an increasing share. However, crew members now typically earn more than before because with fleet reduction, vessels

catch more fish on average than before and the unit price of the catch has increased substantially. The exception is the salmon fleet where crewmembers today typically receive less than half what they did in the early 1990s. (The total salmon catch value has declined by 75% or more.). In contrast, crewmembers on groundfish trawl vessels or “draggers” can earn substantial incomes of \$75,000 or more.

Crews and Licence Leasing

Leasing of licences and quota redistributes catch value from labour to capital.

The annual costs to lease a licence or quota in IQ fisheries can range from 40% (e.g., groundfish trawl) to 80% or more (e.g., roe herring) of the gross revenue potential. The practice of leasing quota is controversial for several reasons:

- It decreases the share of catch value accruing to crew (“labour”) and increases the share accruing to the licence or quota holder (“capital”).
- The licence holder does not actually have to fish a licence/quota to reap benefits, i.e., the person can lease the quota, stay on land, and be a so-called “armchair fisherman”.
- Leasing increases the power of the licence holder and decreases the power of the crew, i.e., causes a shift in the capital-labour balance of power in fishing.
- Debate whether the Crown earns a sufficient return on the public resource.

Without leasing, there would be more vessels/physical capital and labour employed to catch the same amount of fish. In this sense, leasing increases the economic efficiency or net economic benefits of fishing.

The controversy then reduces to the appropriate distribution of benefits among private capital, private labour, and the federal government, or Crown, as owner and steward of the public resource. This is largely a personal and philosophical preference. It is worth noting, however, that DFO does recover a modest 5% resource rent or access fee for IQ fisheries, and does not put to auction the annual privilege of a fishing licence. That is, some economic rent has already been recovered on the quota holding and DFO does not try to maximize its rent collection. Moreover, the leasing of property or rights is common in other segments of the economy, including businesses operating on public or Crown land, e.g., logging, mineral exploration, and tourism in provincial and national parks.

The groundfish trawl fishery has controls to ensure fair payment to crews.

The groundfish trawl fishery is an example where fisheries regulations and policies have attempted to limit the impact of quota leasing on crews. As a condition of the IQ program launch, crew shares are monitored through a compliance-driven process, to ensure that crews are treated fairly in terms of remuneration. In this case, the imputed annual licence lease costs for originally-allocated quota cannot be subtracted from gross revenues before calculating crew shares, as is the norm in other fisheries.

Workers’ Compensation

WCB premiums are higher in the commercial fishery than in aquaculture or sportfishing.

The buyer pays Workers’ Compensation Board (WCB) premiums on behalf of fishermen. The WCB rate for commercial fishing is higher than for aquaculture or commercial sportfishing operations.

The base rate for the fishing industry is \$5.17 per \$100 of “accessible earnings”, which WCB deems to be 60% of landed value. However, for the BC fishery fleet as a whole, wages to crew total \$115 million from \$365 million in landed value for 2002 or about 30%.

WCB Premiums on Assessable Earnings 2003	
Industry	Per \$100 Assessable Earnings
Commercial Fishing	\$5.17
Aquaculture	\$3.30
Fish Processing	\$5.71
Chartered Boat Tours	\$1.33
Lodges and Resorts	\$1.94

The incidence of WCB premiums discourages worker safety.

The fact that the fish buyer is deemed to be the employer who pays WCB premiums dampens incentives for the vessel skipper and crew to make safety a high priority. In Alaska, vessel owners must obtain private sector insurance coverage to guard against injuries and accidents to the crew. Monthly premiums typically range from \$600 to \$1,100 per crewmember. The premiums vary with the safety record of the operation.

5.3.2 Recruitment, Skills, and Training

Shift in Skill Requirements and Recruitment

Historically, crew would start working as deckhands at a young age often for a father or other relative and return each year. Some would eventually skipper their own boat. The skipper provided on-the-boat training in areas such as navigation, setting nets, baiting hooks, dressing fish, and operating heavy equipment. The valued crew skill was the ability and willingness to work hard over intense periods of several days, often with little sleep, to help maximize the catch during the competitive fishery opening. The valued skipper skill was an ability to find the fish and keep harmony among diverse personalities onboard. Other valued skills for the skipper and crew were cooking and engine maintenance and/or repair.

Skill requirements have changed for the capture fisheries.

Today's valued skill set is different. The move to IQ fisheries has eliminated the "race for the fish". With more market-driven and technologically advanced fisheries, skippers and crew need additional business planning, marketing, and electronic equipment operating skills. Traditional fishing skills tied to hard work and endurance are less valued, although there are exceptions (e.g., crew on groundfish trawl vessels). Skippers of trawl vessels require substantial skill to meet catch targets for IQ species, while not exceeding ceilings for non-target species.

Lower earnings have affected worker recruitment.

With decreased earnings in the salmon fleet, there is more casual labour and less continuity in the workforce from year to year, and attendant high turnover. Salmon seine boat owners in particular are having a very difficult time finding crew.

Impediments to Change

Older workers and limited education hinder industry growth and renewal.

Fishermen today must be able to change with the industry's shifting requirements, including much greater attention to on-board handling of fish and selective fishing practices and gear. This ability to change is impeded by the advanced age and generally poor education of fishermen. More than 40% of fishermen are 45 years of age or older (skippers are even older) and over half of fishermen do not have high school diplomas (Census of Canada). Literacy skills and English language ability are also an issue for a significant share of the current workforce (Workplace Training Systems 1992).

Better food handling practices are needed to restore BC's quality reputation.

There is a need to improve onboard handling techniques, that is, to better meet food industry standards. For example, in 2002, salmon freezer trollers received \$3 per lb. for large chinook salmon dressed head-off. However, the quality was poor since too much fish was put in the freezer during extended trips.

Buyers only noticed the problem after purchase. The result was that BC lost its reputation for quality the price plummeted in 2003 to \$1.50/lb. Some buyers switched to Alaskan sources that have invested heavily in improving quality. It will take some time to restore BC's reputation and higher prices. The poor handling issue was not so much an education one. Rather, the problem was the freezer trollers' priority of catching as much fish as possible in the competitive fishery, even at the sacrifice of quality.

Available Training

Certification programs available to fishermen include: the mandatory Marine Emergency Duties or MED; Fishing Master Levels II, III, and IV; First Aid and CPR; Marine Engineer; and Marine Telephone operator. Service providers include BCIT, Northwest Community College, and North Island College. The dive fisheries have specialized training for their divers and tenders.

BC industry has not supported the move to professionalization and accreditation.

There has been a movement to professionalization and accreditation of fishermen in certain regions of Canada which has been supported by DFO. However, all fleet sectors must embrace these concepts and recognize the professionalization agency. This criterion has not been met in BC, in large part due to the service delivery model, but has been achieved in Newfoundland.

A Weak Training Culture

BC's has a weak training culture for the fishery.

In conclusion, the training culture is generally weak in the fishing industry primarily because education and training were not traditionally seen as means of entry or as keys to success. With the dramatic changes in the industry's business environment and the attendant need to adapt, this lack of training culture is a serious deficiency.

5.3.3 Labour Productivity

International competitiveness is important to the fishery in the 21st century, and productivity is a major contributor to maintaining and improving competitiveness. As shown below, the labour productivity of the salmon fishery lags far behind that of the herring, groundfish, and vessel-based shellfish fisheries.

	Landed Value* (\$ millions)	Employment* (\$ millions)	\$ Value per PY
Salmon	57	950	\$60,000
Herring	47	300	\$157,000
Groundfish	153	830	\$185,000
Shellfish - Clams by hand	5	240	\$25,000
- Other	<u>102</u>	<u>1,090</u>	\$95,000
All	<u>364</u>	<u>3,410</u>	<u>\$107,000</u>

*Exhibit A.1, Appendix A

BC's relatively small vessels result in lower productivity.

The average size (length) of BC vessels is small by international standards. As a result, the BC fleet tends to have lower productivity (output per unit fishing capacity and per unit labour) than countries with significant fleet components comprised of larger, offshore fishing vessels that process their catch at sea (GSGislason & Praxis 2001). For example, Iceland, Australia, New Zealand, and Denmark all have higher output ratios and productivity than Canadian and BC vessels. Apart from fleet size, a key difference across countries is the fisheries management system. In particular, Iceland and New Zealand lead the world in IQ quota management; all their key fisheries are IQ-managed.

5.3.4 Management and Labour Environment

Most fishing vessel and licence owners also operate their vessels. In many cases, crew members are family. The owner-operator and family nature of these fishing businesses diminishes the potential for serious labour-management issues.

However, there are some individuals and corporations, including processing companies, who operate a fleet of vessels and hire skippers and crew. In the case of the processor-owned fleet of salmon and herring seiners and groundfish trawlers, there are explicit crew share arrangements that have been negotiated between the major companies and the United Fishermen and Allied Workers' Union (UFAWU). These arrangements include 45% of salmon seine value for sockeye going to the crew and a minimum payment of \$300 per short ton to the crew of roe herring seiners.

Price discussions between harvesters and processors have evolved.

In addition, annual herring and salmon price negotiations were held between the UFAWU and the major companies through the processor organization, the Fisheries Council of British Columbia (FCBC). These negotiations were often acrimonious and sometimes resulted in strikes (e.g., in 1975, 1980, and 1989). In recent years, the negotiations have become discussions, as the norm is to roll over the previous year's minimum price parameters. This reflects three changes in the work environment:

- the decline in UFAWU bargaining power with the Mifflin Plan area licensing for salmon and the pool arrangements for herring;
- the shutdown of BC Packers, the largest processor, and the disbanding of the FCBC organization in the late 1990s; and
- the depressed state of herring and especially salmon markets.

Today, UFAWU and the large companies hold discussions on salmon and herring prices that provide price leadership to the rest of the industry.

5.4 Investment, Financing, and Capital

5.4.1 Size of Vessels and Technology

Length Class of Vessels

The BC fishing fleet is characterized by relatively small inshore vessels, with 94% of vessels being under 65 feet (19.9m) in length and 44% under 35 feet (10.7m).

2000 Length Class	No. of Vessels	Percent (%)
< 35'	1,477	44%
35' – 44'	1,261	38%
45' – 64'	400	12%
65' – 99'	194	5%
100' +	<u>20</u>	<u>1%</u>
	<u>3,352</u>	<u>100%</u>

The larger vessels over 65 feet comprise mainly salmon and/or herring seine vessels and groundfish trawlers.

Technological Improvements

New materials and technologies have significantly improved the BC fleet.

While vessels were traditionally constructed of wood, over the past 30 years the use of fibreglass, aluminium and steel construction has increased. There has also been a trend to more sophisticated refrigeration equipment (e.g., RSW, freezers), greater electronic equipment (e.g., colour sonar, GPS), and use of hydraulic lifting of gear. In addition, since the mid-1990s significant gear advances have allowed for more selective fishing (e.g., live release tanks for coho and steelhead on all salmon vessels, release grids on shrimp trawlers). The fleet today is much more powerful and sophisticated than 20 years ago.

5.4.2 Investment Levels

Licence and Vessel Values

Licences and quota values make up the largest share of investment in fishing.

To fish requires capital namely a vessel, a licence (and a quota in the case of an IQ fishery), gear, and equipment. Prior to limited entry in 1969, there was no licence and no licence cost. Gradually, as fisheries became more valuable and fleet rationalization programs evolved, the licences and quota acquired a value. Today, licence and quota values dominate the fleet's balance sheet. The following estimates are based on several sources (GSGislason & Praxis 2001; Nelson Bros. 2003).

	Market Value (\$ millions)		
	Licences & Quota	Vessel	Total
1990	860	710	1,570
1994	1,140	470	1,610
1998	1,600	300	1,900
2002	1,820	300	2,120

The market value share accruing to salmon and herring operations has decreased from over 75% of the total in 1990 to less than one-third today.

Higher Licence Values in IQ Fisheries

IQ fisheries have seen the most growth in licence values.

Exhibit 17 presents licence value trends since 1990 for selected types of licences. The fisheries with IQ management such as halibut, geoduck, and groundfish trawl, have shown the greatest growth in licence values. The stronger harvester rights implicit in IQs have increased product quality and prices, reduced harvesting costs, and strengthened security of access to the resource, thereby extending the business planning horizon. These benefits have more than offset the additional costs incurred by IQ fleets due to fisheries management and economic rent changes. As a result, licence and quota values for IQ fisheries are up substantially from pre-IQ levels.

Security of access to the resource remains an issue for IQ fisheries.

Nevertheless, as noted earlier these rights for IQ fisheries are not secure. The Minister of Fisheries and Oceans has been reluctant to dilute the rights of existing licence holders through cancellation or issuance of new licences, but has in fact done so on occasion (e.g., issuing new spawn-on-kelp licences in BC and snow crab licences in New Brunswick). This uncertainty has reduced asset values, heightened risk, and increased the target return for industry investment. Security of access is a major concern for the fish harvesting sector.

Government Policy and Licence Values

Government policy affects the number of fishing licences, the terms and conditions under which they can be transferred, the economic viability of the fishery, and several other factors, all of which impact the value of fishing licences.

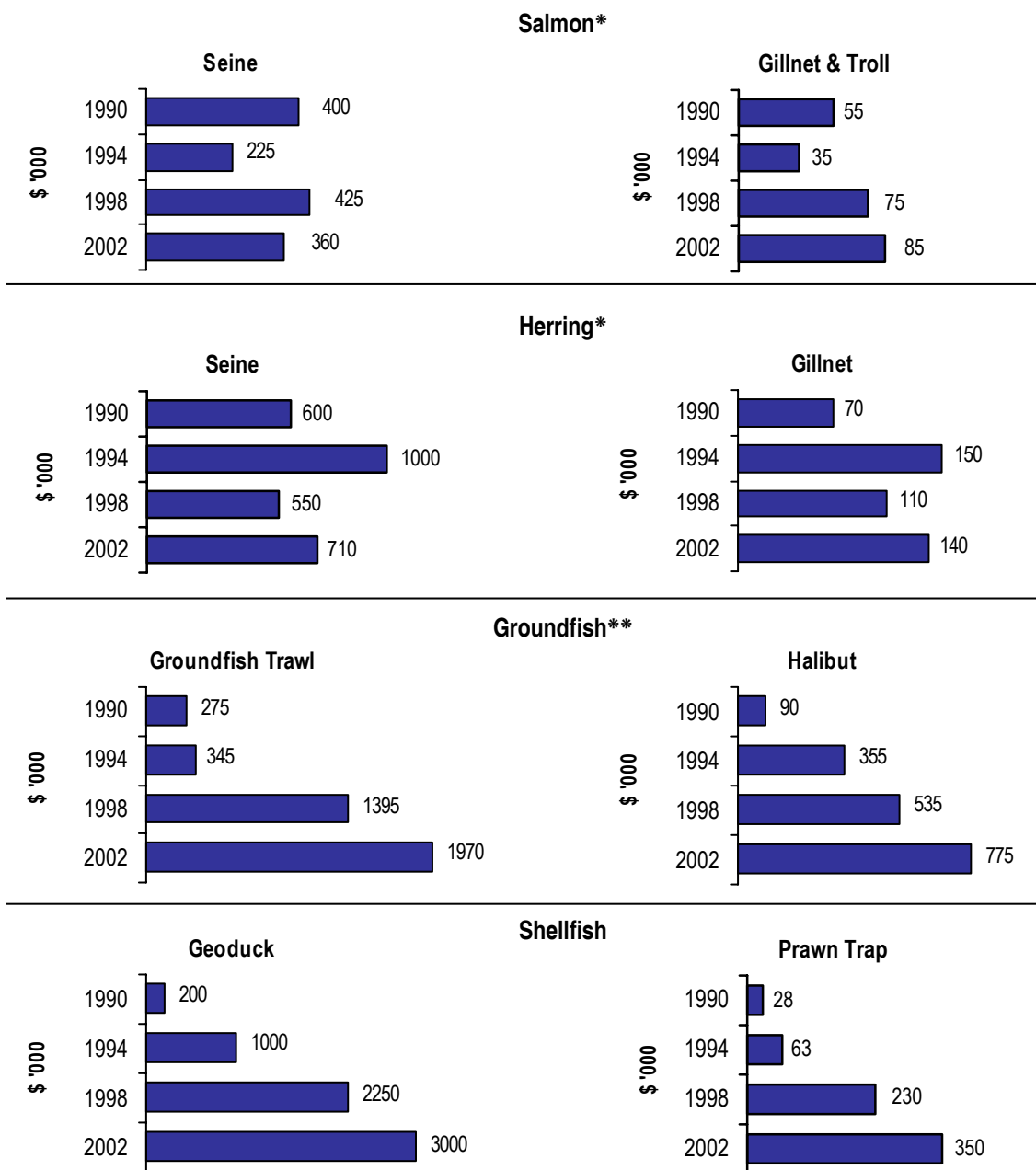
Government policy has increased licence values and improved industry viability.

Licensing. Government policy that permits practices such as the consolidation of fishing privileges on vessels through individual quotas and stacking raises the value of licences and/or quota. First, such provisions expand the pool of potential buyers to include people already in the industry. Second, existing participants can afford to pay more for a licence than a new entrant because fixed costs, such as moorage and insurance, are already met by revenue from the current operation. The additional licence yields a higher net cash flow to an existing participant than to a new participant. Not unexpectedly, many current licence buyers already have a foothold in the industry which was not the case 20 years ago (i.e., high licence values inhibit the entry of young people into the industry). The explicit intent of many government policy changes over the past two decades has been to improve the economic viability of a smaller and more diversified fleet leading directly to higher licence values.

Licence holders have acted to avoid capital gains tax from selling their licence.

Capital Gains. Individuals who sell their fishing licences must pay capital gains tax on 50% of the difference between what they originally paid for the licence (less accumulated depreciation) and the selling price. Since those who paid very little for their licence would be subject to significant capital gains on licence sale, many choose to continue fishing or to lease their licence. Leasing provides an annual income or an annuity and avoids capital gains tax. Licence holders who are willing to sell ask a high price, so that the after-tax income can fund a second career or retirement. Some individuals who sold their licence to the salmon licence retirement program in BC reinvested the proceeds in a non-salmon licence to avoid capital gains tax. The result was to bid up the price of halibut, prawn, and other licences.

Exhibit 17: Selected Commercial Fishing Licence and Quota Values in BC - 1990-2002



* Salmon and herring values are full fee licence values.

** Groundfish values include quota values.

Source: GSGislason & Praxis (2001) and Nelson Bros. Fisheries Ltd. (2003).

The federal buyback program and AFS licence purchases have increased licence values.

Buyback and AFS Licence Purchases. The federal government licence retirement programs and ongoing federal AFS licence purchases have increased licence values. Much of this increase has been driven by the salmon licence retirement programs and by federal government purchases of licences for aboriginal treaty settlement or for increased aboriginal participation in fisheries under the AFS. Another repercussion is insecurity in financing. Lenders will not lend money on a non-recourse basis to purchase a licence, and a licence cannot be used as security on loans. This differs from jurisdictions such as Iceland, New Zealand, and Alaska.

5.4.3 Viability and Financial Performance

Financial Returns

The lack of a recent financial survey of the fleet hinders analysis of the harvesting sector.

DFO has not sponsored a costs and earnings financial survey of the BC fishing fleet since the 1994 fishing season. This has severely impaired the ability to analyse the industry and its significant changes over the past decade. Exhibit 18 presents estimated revenues and returns for the four main fleet classes. The estimated returns represent a pure return to capital, since a wage to the vessel operator has been subtracted.

Viability Defined

Viability is an elusive concept for the fishing fleet. For the purpose of this report, viability is defined as the ability to generate sufficient income to provide an adequate long-term return on capital invested. Without a sufficient return on capital, investment will cease and the industry as a whole will decline.

To assess viability requires a quantification of both capital invested and an adequate return. Business viability depends on a number of individual-specific factors, ranging from the type of gear used to the fisherman's debt load. In the short term, a fisherman owning a boat and a licence outright may be satisfied with covering operating costs plus a small return for his or her time. However, this is not sustainable in the long term as there is no provision for capital replacement. A fisherman with bank loans would have to make at least enough money to cover the payments in order to remain solvent.

Financial viability is measured here as pre-tax income and operating income.

For this study, two measures of fleet financial return are employed:

- **Pre-tax Income** (net income before tax) – the return to the owner of the vessel, equipment, and licence(s) after all financial costs, including depreciation and interest and a wage to the skipper, have been deducted; and
- **EBITDA** (earnings before interest, taxes, depreciation, and amortization) – the earnings to provide for debt service, a depreciation reserve, and a return on investment.

Obviously, fishermen do not approach capital spending decisions with only business school principles in mind. Lifestyles and tradition also affect on the decision to enter or remain in the fishing business. Nevertheless, if the long-term returns are not sufficient to allow for capital replacement, the future survival of the industry is threatened.

To simplify the presentation of calculations, return on investment is determined using the measure given by EBITDA (operating income). Investors in small- and medium-sized businesses typically require an operating return of between 15% and 30% on assets. Fishing is a relatively risky business, suggesting that a return above the minimum should be obtained.

Experience in a variety of resource and non-resource sectors suggests a minimum operating income or hurdle rate of 25% of net book value of fishing assets. The analysis also investigates whether the operating return meets the target return of 10% of market value of assets, a common benchmark cited by fishermen.

The target operating income for harvesting as a whole is estimated at \$150 million.

The \$2.1 billion in market value of fishing assets is estimated to translate to a net book value of \$600 million. That is, the target operating return for the harvesting sector as a whole is \$150 million (25% of \$600 million) or about 40% of the \$364 million landed value.

Actual Returns in 2002

The aggregate harvesting sector met both targets for 2002, but the salmon fleet fell considerably short.

Exhibit 18 displays estimated returns for 2002. The fleet as a whole received operating income of \$165 million and net income before tax of \$115 million from a revenue base of \$364 million. Therefore, the harvesting sector in aggregate met its financial targets for that year. The salmon fleet, on the other hand, did not meet its financial targets given a negative net income and a marginal operating income considerably short of target. These very poor returns for salmon drag down the financial returns of the entire harvesting sector.

The herring, groundfish, and shellfish fleets did meet the financial targets. The vast majority of the \$165 million operating income accrues to licence/quota holders, including those owners who lease their licence or quota to others.

5.4.4 Access to Financing and Equity

The costs to enter a fishery are high and dominated by licence and quota costs. The total current market value of fishing assets is \$2.1 billion or \$700,000 for each of the 3,000 active fishing vessels, \$600,000 for the licence and quota, and \$100,000 for the vessel (Nelson Bros. Fisheries Ltd., 2003).

Licences and quotas can be expensive, but are not recognized as secure assets.

High licence and quota costs present a financing dilemma for fishermen. Banks and other traditional financial institutions do not recognize fishing licences as secure assets and do not make loans for licence purchase. Increasingly, financial institutions are making loans based on cash flow rather than on assets. Existing fishermen can generate greater cash flow than new entrants since most of the fixed costs have already been paid. The new fisherman is at a disadvantage.

Many fishermen must rely on non-traditional financing sources, such as processing companies or family members, for debt financing of licence purchases. Processing companies will often provide loans at favourable terms but, in return, require some form of security (i.e., a covenant on the licence or quota), and access to the licence's production (i.e., through a production delivery contract). The result is processor control over the licence and its production, at least during the term of the loan. Processing companies will also consider joint ownership with the fishermen having the option to purchase the processor share over time.

Exhibit 18: 2002 Financial Returns to the BC Fishing Fleet

	2002 Fleet				
	Salmon	Herring	Groundfish	Shellfish	Total
Assets (\$ millions)					
Market Value (MV)					
Licences and Quotas	240	390	800	390	1,820
Vessels	<u>100</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>300</u>
Total	340	440	900	440	2,120
Net Book Value (NBV)	110	120	250	120	600
Revenues and Returns (\$ millions)					
Landed Value	57	47	153	107	364
Operating Income or EBITDA	5	35	75	50	165
Net Income Before Tax	(10)	25	60	40	115
Financial Ratios					
EBITDA to NBV	5%	29%	30%	42%	28%
Net Income to Revenue	(18%)	53%	39%	37%	32%
EBITDA to MV	1%	8%	8%	11%	8%

- Note:
1. NBV estimated as 25% of licence/quota MV + 50% of vessel MV.
 2. Operating incomes are earnings before interest, taxes, depreciation, and amortization (EBITDA). A wage to the operator has been subtracted.
 3. Licence lease costs are not treated as a revenue or a cost in the analysis i.e., EBITDA and Net Income include the return to the licence holder.
 4. There is considerable variation within each group e.g., in groundfish, net returns to sablefish and halibut fisheries would be higher than net returns to groundfish trawl and rockfish hook & line fisheries.

Source: Market Value of Assets – Nelson Bros. Fisheries (2003).
Landed Value – MAFF & DFO.
Financial Returns and Ratios – GSGislason & Associates Ltd. estimates.

5.4.5 Research and Development (R&D)

Traditionally, BC has been a West Coast fishery leader in developing new technology for catching fish more efficiently e.g., stern ramps on seiners, “red gear” to catch sockeye salmon on trollers.

Selective fishing and sustainability are driving development of new technology.

In recent years, the impetus for R&D on fishing technology has been the need to fish more selectively. This started with the “weedline” experiments in the North Coast salmon gillnet fishery during the late 1980s, and recently has encompassed a variety of initiatives, e.g., the exclusion grates for shrimp trawlers, live fish holding boxes on salmon vessels, “Alaska twist” gillnets. In addition, new catch monitoring systems such as the Electronic Monitoring (EM) systems in halibut and crab fisheries are in various stages of development.

Further research and development will likely continue focussing on selective fishing and sustainability issues. The rising importance of traceability, ultimately back to the vessel and the area where the fish is caught, also is a significant research area.

5.4.6 Overall Investment Climate

Investment is affected by security of resource access and market prices.

The overall investment climate for the BC fish harvesting sector is mixed. For IQ fisheries, the climate generally is much better than for non-IQ fisheries such as salmon, since they have formal catch shares and can plan their harvesting and marketing around these predictable volumes. For salmon, the investment climate is very poor and has been for some time. This reflects the enormous uncertainty around the salmon fishery – the size of the run, how much fish the commercial sectors will be allowed to harvest, and the particular harvest shares accruing to an individual operator. It also reflects the very low salmon prices and returns under current management practice, and the inability to change to make the fishery more market-driven.

For all fisheries there is considerable uncertainty associated with aboriginal land claims, the Aboriginal Fishery Strategy, and security of access to the resource, the Species-at-Risk Act, and other regulatory issues. These factors dampen investment and inhibit long term strategic planning. And industry in general is worried about the effects of the strengthened Canadian dollar on market prices and industry viability.

5.5 Supply Chain Issues and Services

A healthy aquatic environment and resource base is important to sustain a viable harvesting sector. The analysis of Section 4 indicates that the majority of BC fish stocks are healthy but that the status is “mixed” for some species such as coho salmon, lingcod, and shelf/slope rockfish. Uncertainties exist as to impacts of the ocean environment and climate change on fish stocks. Moreover, regulatory policies regarding the Species-at-Risk Act (SARA), the Wild Salmon Policy, and new and emerging species create additional uncertainty.

There do not appear to be any major supply constraints for important goods and services to the BC harvesting sector. With the downsizing of the salmon fleet and other sectors over the past 10 years, there is an abundance of non-licensed fishing vessels and used fishing equipment on the market.

5.6 Catch Monitoring

The IQ fisheries have good catch monitoring, but improvements are needed in non-IQ fisheries.

All the BC IQ fisheries have strong Dockside Monitoring Programs (DMP) where 100% of the harvest is validated at landing. In contrast, the Alaska halibut and sablefish IQ program has only 5 to 10% DMP coverage (GSGislason, “Regulation of the BC and Alaskan Halibut Seafood Sectors”, October 2003).

The groundfish trawl IQ fishery has 100% observer coverage to provide information on bycatch and at-sea discards. The halibut longline IQ fishery has about 15% observer coverage and for the last two years has been experimenting with an electronic monitoring (EM) program, a measure that could be very cost-effective relative to onboard observers. The Area “A” (QCI) crab fishery has 100% EM, a measure initiated by industry to prevent poaching of traps.

Non-IQ fisheries such as salmon, shrimp trawl, and prawn trap do not have DMP. Rather there is a myriad of sales slips, logbooks, hail and other measures. Some salmon fisheries do have selected observer programs. The catch monitoring system for commercial salmon fisheries, especially the commercial aboriginal in-river components, require substantial improvement. As with co-management in general, the catch monitoring programs for IQ fisheries are more advanced than for non-IQ fisheries.

5.7 Industry Liaison and Relationships

Several characteristics of fish harvesting, including significant government regulation, perishable food production far removed from the ultimate customer, and small individual production, necessitate a large degree of industry cooperation and trust. Relationships are even more important in the face of consolidation, globalization, and other major forces affecting the world food industry.

Cooperation and trust are highly beneficial, as shown by harvesters who contributed to the IQ fisheries development.

Cooperation and trust is needed among harvesters, between harvesters and government, and between harvesters and processors/buyers. However, they can be foreign words for fishermen, who are fierce individualists and traditional competitors. Nevertheless, many harvesters have seen the benefits of cooperation and a single unified voice in effecting change to the benefit of all. For example, it was geoduck, sablefish, and halibut fishermen who crafted the initial IQ management proposals in the late 1980s and steered them through the birthing process. These sectors demonstrated leadership, as DFO has done in nurturing the process.

5.7.1 Industry Associations

Harvester Associations

With the exception of salmon, most licence holders have formed successful industry organizations.

The majority of BC commercial fisheries licence holders have formed industry organizations to represent the interest of their particular licence class of licence. These organizations are legally registered non-profits that represent the majority of licence holders and have a duly elected Board of Directors and a constitution. Examples include the Pacific Halibut Management Authority (PHMA), Canadian Sablefish Association, and Underwater Harvesters Association (UHA), which represents geoduck licence holders.

These organizations are vehicles for harvesters to discuss and debate broad policy issues, draft resolutions and positions, and present a single voice to DFO and other outside concerns. They are generally cohesive and have been very effective in implementing co-management, including IQ fisheries with DFO.

Case Study 5: The New Zealand Challenger Scallop Fishery

Issue

New Zealand's largest scallop fishery at the north end of its South Island peaked in 1975 at more than 200 boats and over 1,200 tonnes landed. When overfishing led to closures in 1981 and 1982, the country's first controlled fishery was introduced, resulting in 48 boats and fewer than 300 tonnes landed in 1983. To help rebuild the southern scallop fishery, industry formed the Challenger Scallop Enhancement Company (Challenger) in 1994. Since then, the company's role has grown from the provision of enhancement services to active involvement in research, monitoring, and co-management of the fishery.

Response

In 1995, Challenger assumed the government's management responsibility to consult with representatives of the recreational scallop fishery. This resulted in the formation of what would eventually become the Challenger Scallop and Dredge Oyster Recreational Advisory Group, including representatives from dive and marine fishing clubs, the New Zealand Recreational Fishing Council, and residents' associations. Today, commercial and recreational fishers manage the fishery cooperatively, meeting regularly and sharing detailed stock information as well as access to the fishery.

The southern scallop fishery is the only New Zealand fishery exempt from the normal regulatory process of setting TACs, due to the fact that it is managed on a rotational and enhanced basis. Challenger develops the annual harvest management plan with the participation of both recreational and customary (Maori) fishers. Included in the plan are rotational area closures to ensure sustainability and negotiated closures to improve recreational and customary access in local areas. Aside from determining area closures, catch allowances, and size limits, Challenger is responsible for conducting monitoring and enforcement activities.

The company itself is wholly owned by the scallop quota owners with members' voting rights proportional to their quota holdings. Ten elected directors govern Challenger and approve its annual business plan and budget. Funding comes from a commodity levy of up to 25% of landed value collected from processors.

Results

Challenger's success is evident in the degree of cooperation achieved among commercial, recreational, and customer interests in the scallop fishery. To date, there has been full agreement on the annual harvest plan with the exception of one year where a small dispute was settled quickly by the government. In 2001, a difficult year for harvesting, the Recreational Advisory Group gave its support to an extension to the commercial fishing season. In another case, when a line error resulted in a large commercial catch in a residential fishery area, Challenger addressed the concerns of local recreational fishers and the media by committing to reseed the area.

In terms of biomass impacts, catch and recruitment figures indicate that scallop abundance is gradually increasing from the low levels experienced in 1996.

Lessons Learned

The southern scallop fishery is a success story of co-management involving industry and resource users. Key elements contributing to that success include:

- a system for allocating property rights (scallop quotas) that provides an incentive for cooperation and long-term sustainable management;
- a flexible regulatory framework combined with strong leadership from industry and other resource users;
- the willingness of different fishery interests to negotiate in good faith for cooperative access and to resolve disputes internally;
- concerted enhancement and rotational fishing efforts aimed at increasing stocks; and
- an effective research and monitoring program that allows changes in fishery management throughout the season.

The Challenger example also demonstrates the effectiveness of seemingly disparate interests, in this case the commercial and recreational sectors, working together to achieve common resource management goals.

The exceptions are salmon and shrimp. While there are organizations representing the eight salmon area-gear combinations, some are not duly established, some do not represent the majority of licence holders, and some have significant divisions within their membership and leadership. These limitations prevent them from achieving their potential.

Salmon licence holders need a single organization to represent them and work with government.

A bigger issue is the need for a single commercial organization that democratically represents salmon licence holders to consult and work with DFO. As it stands now, DFO does not know with which organization to work. There is an advisory process in place but significant inter-sectoral issues undermine its usefulness. In addition, the process is vulnerable to attacks on its legitimacy, in terms of who do the people around the table represent.

Interviews with harvesters, DFO, processors and others constantly highlighted the need for a unified voice as being critical. There are two somewhat competing visions of how to address this need; 1) the Pacific Salmon Fisheries Initiative, whereby anybody with an FRC can join for a minimal fee (\$10); and 2) the Pacific Salmon Harvesters Association attempt to establish eight duly constructed salmon organizations each of which would elect members to serve on a board representing all salmon licence holders. The latter initiative is moving forward and appears more promising.

Commercial Salmon Advisory Board

Eight Salmon Area Councils are currently being formed each with 8 to 12 Directors that are elected by commercial salmon licence holders in the area. Each Salmon Area Council will elect two of their Directors to sit on the Commercial Salmon Advisory Board (CSAB) which also will include 2 individuals from each of United Fishermen and Allied Worker's Union (UFAWU), the Native Brotherhood of BC, and salmon processors. The CSAB will be the main source of consultation with DFO on all matters affecting the commercial salmon industry. The CSAB also will appoint individuals to sit on DFO's Integrated Harvest Planning Committee for Salmon comprised of commercial, recreational, First Nations, and environmental issues.

DFO Advisory Processes

DFO's advisory processes have worked well, again except in the case of the salmon fishery.

DFO has struck a series of broad-based advisory processes and boards that deal with commercial fishing interests, among others. For example, the Herring Advisory Committee, launched in the late 1970s and comprising fish harvesting, processors, First Nations, and other interests, has been crucial to implementing herring management changes. The Halibut Advisory Board (HAB) process was instrumental in ushering in the IQ system for halibut in 1991, and the subsequent change in the fishery. There is general consensus that these processes work well.

Again, the most notable exception is salmon due to the lack of a cohesive voice for salmon licence holders, but industry notes that a major problem with salmon is that there are two dozen or more DFO personnel involved in salmon management and salmon management decisions. DFO itself does not have a single voice and has difficulty internally in developing a position on many matters.

Broad-Based Industry Associations

The United Fishermen and Allied Worker's Union (UFAWU) at one time represented a significant share of commercial fishing licence holders and deckhands, especially in the salmon seine and gillnet, herring seine, and groundfish trawl fleets. Its membership appears to have waned in recent years with the advent of individual species-licences and IQ fisheries, the area licensing management system for salmon, and the attendant rise of harvester associations representing species-specific licence holders.

The UFAWU still serves an important role.

The UFAWU traditionally negotiated minimum price agreements with the large processing companies for net-caught salmon and herring, and crew share arrangements on specific large seiners and draggers. Its price negotiating role has eroded due to changes in the salmon marketplace. However, the UFAWU is still influential and provides an important voice on broad industry issues. (The union is one of the prime movers behind the aforementioned Pacific Salmon Fisheries Initiative.)

The Native Brotherhood of BC (NBBC) represents the interest of aboriginal fishermen, mostly salmon fishermen, and aboriginal shoreworkers. As with the UFAWU, its role in negotiating fish prices has waned in recent years.

The BC Seafood Alliance is seeking collective action for an expanded provincial seafood sector.

The BC Seafood Alliance consists of more than a dozen members and is open to representative associations from harvesting, processing, and aquaculture. One of its goals is to grow the total value of the provincial seafood sector and engage the diverse interests to cooperate in achieving that goal. The organization is providing leadership through building common positions that it then advocates to government and is helping to overcome the traditional fragmentation of industry. The Alliance has also been instrumental in helping member organizations access marketing funds from Agriculture and Agri-Food Canada, and is heavily involved in the seafood value chain strategic planning exercise recently launched by Agriculture Canada.

5.7.2 Integration and Strategic Alliances

Cooperation between harvesters and processors has provided mutual benefits.

Understandably, there is some tension and mistrust between fishermen and processors/buyers. Nonetheless, many do cooperate to a significant degree and have struck strategic alliances. These include joint ownership of boats and licences, the provision of services by processors in return for assured delivery of fish, and, more recently, the scheduling of deliveries. In IQ fisheries, fishermen and processors can coordinate the fishing process to meet the timing, quality, and volume needs of the marketplace. Both sides benefit through higher prices/margins, lower costs, and reduced business risk. Some promising attempts at cooperative fishing and trust-building are being attempted in Alaska and BC (see Case Study 3, *Chignik Salmon Seine Fishery Cooperative in Alaska*, and Case Study 4, *2002 Barklay Sound Commercial Seine Fishery*).

In the salmon fishery, the value and usefulness of fishermen-processor cooperation is impeded by the management system. There is still the competitive race for the fish that tends to emphasize production volumes at the expense of quality and value. As a result, there is broad consensus that the wild fishery often produces an inferior seafood product compared to farmed salmon, in terms of freshness, gutting, and other factors. (For example, there is very little bleeding of wild salmon, while all farmed salmon is bled, a process that improves product shelf life enormously.)

Mistrust between salmon harvesters and processors undermines BC's competitiveness.

Salmon, more than any other fishery on the coast, is still very far from being a market-driven fishery. Market focus is a key tenet of the business model of red meat and poultry producers, salmon's major competitors in the marketplace. In addition, salmon is still characterized by a high degree of mistrust between harvesters and processors that undermines the cooperation needed to be competitive in the food business.

5.7.3 Public Perception

Salmon are special to British Columbians. Beyond their economic importance salmon are part of the intrinsic identity of our province to both those who live here and those who visit from somewhere else. In spite of this emotional attachment, there is the perception that the salmon industry is fractious and subsidized by the taxpayer.

The public's knowledge of BC fisheries is limited.

In contrast, public knowledge and awareness of other groundfish, herring, and shellfish fisheries is very limited. What awareness exists reflects largely environmental concerns and headlines.

To build a more positive public image for salmon will require a new spirit of cooperation and trust. Building trust will take leadership and the setting aside of historic grievances and the present adversarial stances and institutions.

