Review of differences in snow crab shore prices paid in Newfoundland and Labrador vs. the rest of Atlantic Canada

Submitted to:

Newfoundland and Labrador
Department of Fisheries and Aquaculture

Submitted by:

Michael Gardner
mgardner@gardnerpinfold.ca
Gardner Pinfold

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Gardner Pinfold
Consultants Inc.
www.gardnerpinfold.ca

Nova Scotia
1331 Brenton St.
Halifax, NS
Canada, B3J 2K5
Ph: 902-421-1720
Fax: 902-422-5343
mgardner@gardnerpinfold.ca

New Brunswick
46 Weldon Street
Sackville, NB
Canada, E4L 4N4
Ph/Fax: 506-939-2261
gregmacaskill@gardnerpinfold.c

British Columbia
6150 Baillie Rd.
Sechelt, BC
Canada, V0N 3A7
Ph: 604-740-2703
Fax: 604-885-9450
tpinfold@gardnerpinfold.ca

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Summary

The main conclusion drawn from this analysis of the reported gap between snow crab shore prices in Newfoundland and Labrador (NL) and the rest of Atlantic Canada is that if a gap exists at all, it is much narrower than the official data indicate.

The official statistics produce misleading shore prices for NL. This arises because of the way landings data are collected and reported by DFO: landed value data for the Maritimes and Québec are based on actual prices paid, while value data for NL are based on minimum negotiated prices, not actual prices paid. The actual prices paid in NL include bonus payments that are excluded from consideration in valuing landings.

Drawing on the various factors outlined in this report, it is possible to narrow the gap considerably based on *direct* factors influencing price. Differences in processor cost factors as they influence margins and ability to pay for raw material have an *indirect* effect on price and would reasonably explain at least part of a difference in shore prices. Differences in competitive conditions in each fishery would also be expected to play a role.

The direct factors influencing shore prices include bonus payments (assumed at the low end of the range indicated by processors and the FFAW), the payment of benefits (WC and EI) by processors in NL that are incurred as costs by harvesters in the Maritime Provinces (effectively reducing prices), and the effect on shore prices arising from differences in product prices (due to crab size and characteristics). How these factors impact the effective shore price in each fishery is shown in Table S-1.

Table S-1: Net impact on NL minimum price of key price factors

	Shore price (avg)		Impact of price factors			Net impact	
	Reported	Difference	Bonus	WC/EI impact	Product price	Effective shore price	Price difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
NL	1.57	-	0.20	0.07		1.84	
Gulf	2.10	0.53	-	-0.03	-0.10	1.97	0.13
NS	1.93	0.36	-	-0.06	-0.08	1.79	-0.05

1. 5-year average reported shore price (2007-2012, excluding 2011) from Table 2, above
2. NB and NS shore price minus NL minimum price
3. Typical overall average bonus paid acording to industry sources
4. 2012 WC and EI rates applied to Col. 1 prices (see Table 4)
5. Net effect on NL shore price of higher NB and NS product prices (see Table 3)
6. Shore prices (Col 1) adjusted for impact of price factors (Col 3, 4 and 5)
7. Difference between NL and Gulf/NS effective shore prices (Col 6).

The analysis does not fully explain the price gap. Indeed, the figures in Table S-1 are subject to estimating error since they rely heavily on the accuracy of the bonus. But assuming they are at least indicative of prevailing values, then the residual price differences (both plus and minus) could be explained by other factors – differences in cost structure and in the competitive environment that cannot easily be quantified, but would tend to narrow the gap. All the available evidence points to a competitive environment for raw material in NL no different from that existing elsewhere in Atlantic Canada.

1. Context for this study

About the price gap

This study concerns the observed difference in the shore price for snow crab received by harvesters in Newfoundland & Labrador and elsewhere in Atlantic Canada. The lower price paid to harvesters in Newfoundland & Labrador (NL) is observed in so-called "implicit" prices derived from DFO landings data. Price data are neither systematically nor rigorously compiled by DFO, but may be derived from the official landings data by simply dividing landed value by tonnage. These data indicate a persistent price gap between NL and the rest of Atlantic Canada, though one that has fluctuated in magnitude since 1990. But this gap is more apparent than real, because NL processing companies pay bonuses to harvesters. These bonuses are undisclosed, so how far they go in eliminating the gap is not clear.

Past studies have grappled with the observed price difference, trying to determine its actual magnitude and the reasons for it. The 1993 study by Gardner Pinfold pointed to several factors including differences in physical characteristics of crab, competitive factors (licensing and processing regulations) and production costs that combined to limit the revenue available to pay harvesters.[1] Changes in regulations and subsequently in the price-setting mechanism eventually led to a narrowing of the gap as NL processors began to compete in the same product markets as their counterparts elsewhere in the region.[2] Nonetheless, the apparent gap did not close, and became one of the issues carefully dissected by the 2003 *Fish Processing Policy Review*.[3]

A decade later, the observed gap has not disappeared and continues to be a matter of concern to NL harvesters. The snow crab fishery represents the main source of income for the harvesting sector, typically accounting for 35% of total NL landed value in recent years (and as high as 50% in 2004). The perceived difference in prices has contributed to several late starts to the fishing season, including in 2013 when harvesters refused to fish until the stipulated minimum price was increased.

Study objectives

This study addresses the apparent price gap in an effort to:

- Determine the existence and magnitude of any gap in the actual shore price for snow crab between NL and other crab fisheries in Atlantic Canada
- Identify and explain the factors for any such actual price gap.

[1] Gardner Pinfold, 1993. *The Impact of Newfoundland Processing and Licensing Regulations on the Landed Price for Snow Crab*.
[2] Report of the Task Force on Fish/Crab Price Settlement Mechanisms in the Fishing Industry Collective bargaining Act, 1998. *New Beginnings: Bringing Stability and Structure to Price Determination in the Fishing Industry*. This report concluded price differences were attributable to intrinsic characteristics of crab, quality differences and competitive factors.
[3] Eric Dunne, 2003. *Fish Processing Policy Review*. This report identified and discussed 15 possible factors that would narrow the gap between apparent and actual prices, but in the absence of reliable data on key variables (especially bonus payments) did not offer a quantification of any actual (rather than perceived) price gap.

Approach and data sources

The analysis relies on quantitative and qualitative information obtained from harvester representatives (FFAW), processing companies and government sources, as well as published reports and materials. More specifically:

- Interview with FFAW officials to gain insight into the bonus system (and any estimate of the range of bonuses paid), as well as information on cost factors that would help to explain price differences (Employment Insurance and Workers Compensation). Perspectives on the price setting mechanism in NL were also provided, along with minimum prices over the past decade.
- Interviews with six of the largest NL processing companies (including companies with interests in processing plants in the Maritime Provinces) to obtain data on bonus payments, as well as other cost factors that would help to explain differences in apparent prices. Perspectives on the price setting mechanism in NL were also provided. The companies provided estimates of average or typical bonus payments, but for reasons of commercial confidentiality would not reveal financial information that would allow third-party verification of the amounts paid.
- Interviews with DFA representatives to gain insight into the NL price setting mechanism and the issues surrounding price disputes in the crab fishery, as well as a review of other factors that would help explain the apparent price gap. The DFA also provided product mix and export data, and constructed an index of annual changes in production on an unidentified, plant-by-plant basis.
- Interviews with DFO officials in NL and the Maritimes to verify the basis for compiling crab price and landings data.
- Databases maintained by DFO, the US National Marine Fisheries Service, the PEI Department of Fisheries, Aquaculture and Rural Development, and Urner Barry to obtain shore price, export price and wholesale product price data.
- Various reports on the snow crab industry in NL and Atlantic Canada generally, provided comparative data and perspectives on industry structure and competitive behaviour.

2. Market context for shore prices

Demand and supply

Global markets consume about 1.5 million t of crab (all species) annually. In recent years, snow crab has accounted for about 10% of total supply (150,000 t), with Canada the leading producer (55-60%). Other sources include the U.S. (Alaska), Russia, South Korea, Japan and Greenland.[4]

Historically, two markets dominated global demand for snow crab: the U.S. and Japan (combined demand accounted for about 95% of the total). Japan relied on Canada and Alaska for most of its imported supply during the 1990s, but this market gradually declined due to a combination of reduced demand resulting from a weak economy and the availability of lower cost supply from Russia.[5] The U.S. is Canada's most important market for snow crab, from 2008-2012 accounting for 60-70% of our exports. The

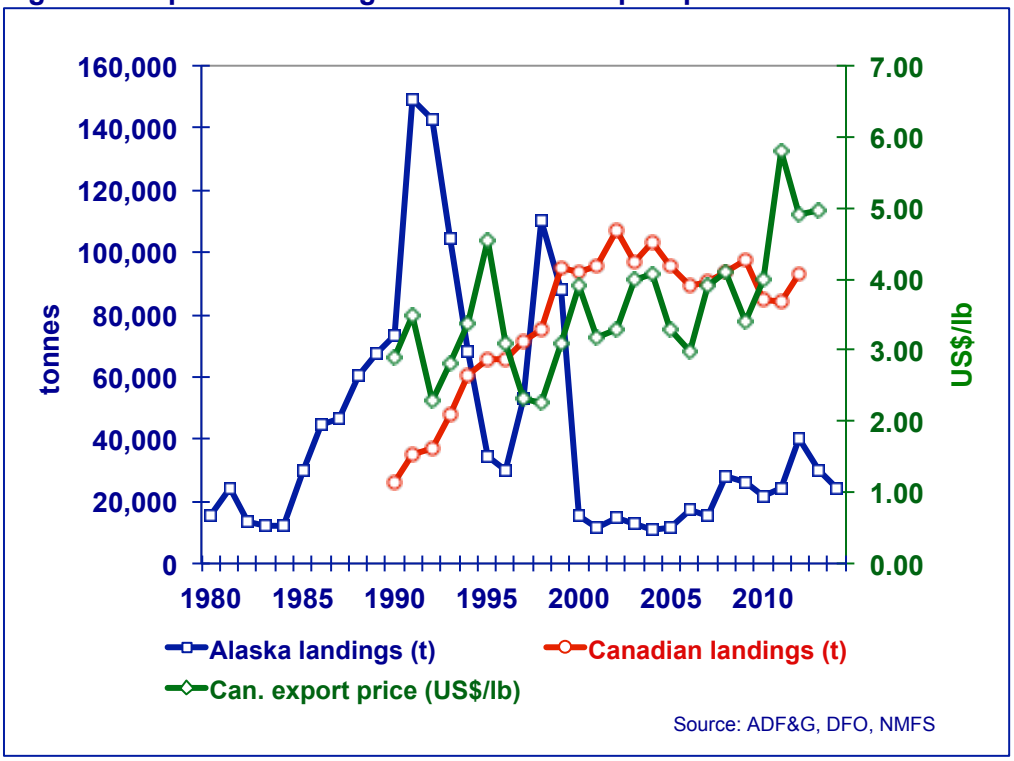
[4] UN Food and Agriculture Organization. http://www.fao.org/fishery/statistics/global-production/query/en
[5] Gardner Pinfold, *Overview of the Atlantic Snow Crab Industry*, 2006

Japanese market (25-35% of exports) is recovering, with much of the product taking a detour through China's low cost processing plants to extract meat for the sushi trade.[6] Contributing to the improved economic outlook for Japan is the declining value of the yen, which began to have adverse consequences for crab imports in 2013.[7]

In light of several factors on the demand and supply sides of the market, snow crab prices are susceptible to wide swings. On the supply side are the cyclical nature of supply in the few areas where snow crab is fished, and the ready availability of substitute species. Among the demand side factors are the limited markets in which snow crab is sold, and the relatively narrow segments it occupies in these markets.

The impact of key factors on the Canadian export price is illustrated in Figure 1. To simplify the analysis, the price impact of only two supply side factors is considered – Alaskan and Canadian landings (the role of exchange rates – a key factor on the selling side in Canada and on the buying side in Japan – is discussed below).

Figure 1: Impact of landings on Canadian export price to the U.S.



The sensitivity of price to shifts in supply is clear from Figure 1. The combined effects of the sharp increase in landings in the early 1990s caused Canada's export price to the U.S. to drop sharply (note, prices are given in US$ terms so as not to confuse the supply impact with the effect of the shifting exchange rates shown in Figure 2). The sharp decline in Alaskan landings in the mid-1990s outweighed the increase in Canadian supply, causing the export price to spike in 1995. It dropped just as sharply the following year, hitting a new low in 1998 as both Alaskan and Canadian supply increased. These price swings continued between 2000 and 2010. Major increases occurred in 1999 and 2000, with the collapse of the Alaskan fishery. The export price fluctuated between

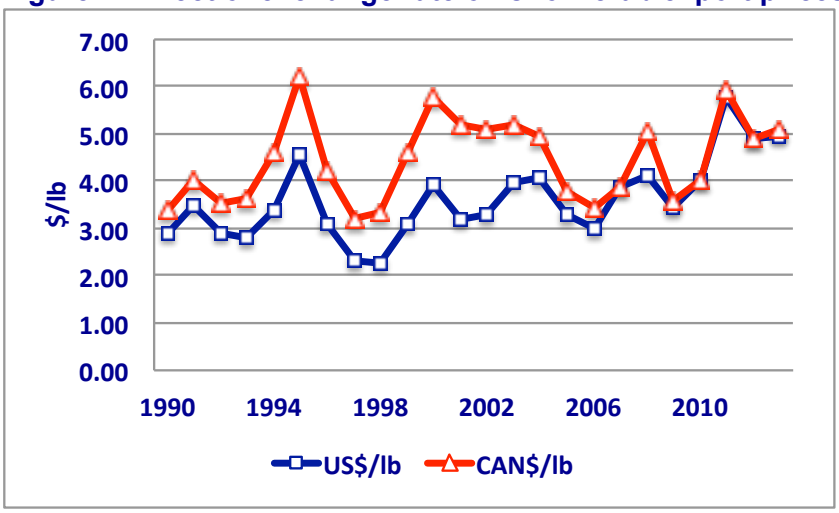
[6] Statistics Canada, Trade Data Online, https://www.ic.gc.ca/app/scr/tdst/tdo/crtr.html?&productType=HS6&lang=eng
[7] John Sackton, *Crab Market Report*, March 2013.

US$3.00 and $4.00/lb, reaching a low point in 2005-2006 following a collapse of the U.S. market in response to excessive wholesale pricing in 2004. The market recovered by 2007, only to be hit by the effects of the financial crisis and recession. Reduced landings in both Alaska and Canada in 2010 and 2011, coupled with aggressive competition for product in both the U.S. and Japan, caused the export price to spike to almost CAN$6.00/lb in 2011, before dropping back to the CAN$5.00 range in 2012 and 2013.[8]

Exchange rates play a role

These shifts in the export price occurred against the backdrop of a steady strengthening of the U.S. dollar between 1990 and 2001, causing sales to the U.S. to become worth more in Canadian dollar terms (e.g., in 2001, the export price of US$3.18/lb was worth $5.19/lb in Canadian dollar terms). This price premium gradually disappeared over the next six years as the U.S. dollar weakened, trading at par in 2007. This served to amplify the revenue impact of the export price drops after 2000 and diminish the significance of any increases. Between 2001 and 2007, the shift in the exchange rate alone effectively reduced industry revenues by almost 40%.[9] The price spike in 2011 is attributable in part to the sharp increase in Japanese demand spurred by the rise in the value of the yen and the drop in Russian supply following a crackdown on illegal fishing.[10]

Figure 2: Effect of exchange rate on snow crab export prices



Source: US National Marine Fisheries Service and Bank of Canada

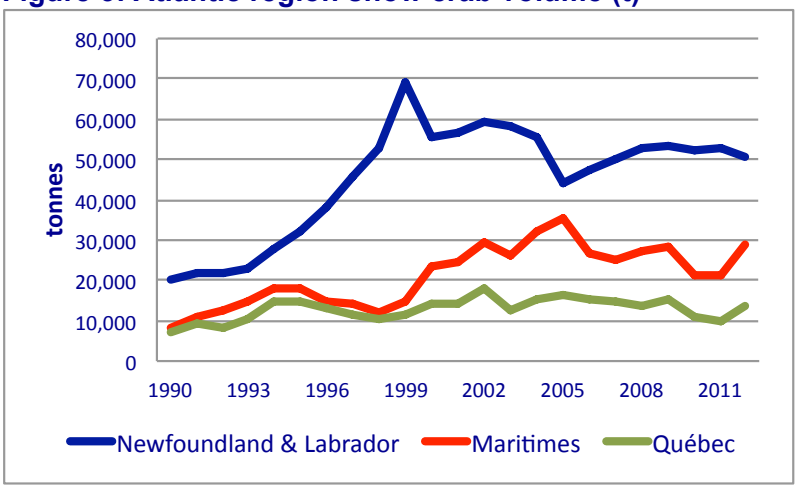
Uncontrollable factors shape and drive the industry

The Canadian snow crab industry is supply driven on two levels: resource and economic. As such, it both contributes to and accepts global market conditions. Quotas are set in response to resource abundance, with limited concern for market impact or price considerations. Economic considerations, both a cause and an effect of industry structure and competitive behaviour, ensure that volume is the main driver of activity, particularly within the processing sector.

[8] The export price refers to the selling price received by processing companies from importers in export markets. Importers sell to distributors and wholesalers. For U.S. sales shown in Figure 1 it includes transportation costs.
[9] The 40% decline reflects the exchange rate loss alone before considering any change in market prices or quantity exported.
[10] John Sackton, *Update on Snow Crab Markets, 2011; 2012 Crab Market Update.*

These forces influence the volume and value of snow crab landings in Atlantic Canada. The impact of shifts in resource abundance is seen clearly in Figure 3, with the strong growth in Newfoundland and Labrador waters during the 1990s, followed by a decline and leveling off in the 50,000 t range after 2005. The increase in resource abundance was less spectacular and occurred later in the Maritimes and Québec, and with cyclical variation, has average just over 40,000 t.

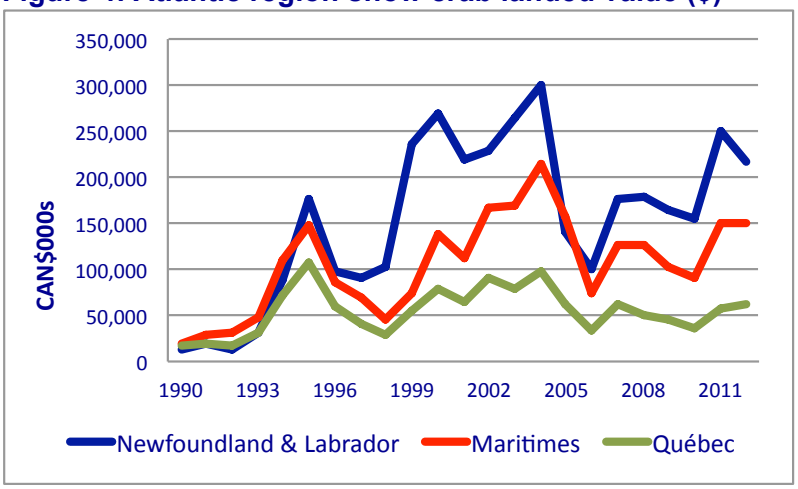
Figure 3: Atlantic region snow crab volume (t)



Source: DFO

The combined effects of market conditions, shifting exchange rates and differences in shore price formation on landed value result in a much choppier picture of industry trends in landed value (Figure 4).[11] The price impact of the wide swing in Alaska landings in the mid- and late-1990s is evident. More serious was the market collapse in 2005-06, driving down total landed value by just over $400 million (66%) in just two years. This was felt most severely in Newfoundland and Labrador (NL), where landed value dropped by $200 million. Fortunately, the market reversal was relatively short-lived, with a strong recovery in 2007 followed by weakness during the recession, and then a further upswing in prices in 2011.

Figure 4: Atlantic region snow crab landed value ($)



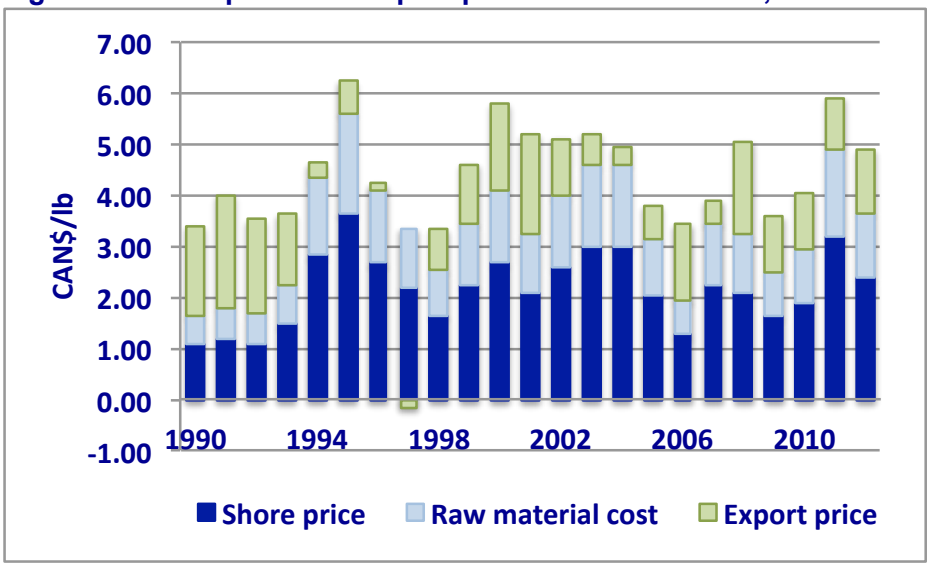
Source: DFO

[11] It is important to note that the landed value in NL is understated to the extent of any bonuses paid to harvesters. This is because bonuses are not recorded on landing slips and DFO has no alternative but to use the negotiated minimum prices as the basis for determining landed value.

Prices start in product markets

The relationship between shore price and export price depends on conditions and expectations in final product markets (chiefly the U.S. in the case of snow crab), as well as the competitive environment in port markets. This relationship is illustrated for the Maritimes in Figure 5 for the years 2000-2012. The CAN$ export price (top line) is the amount paid to processors per pound of product (including freight) by U.S. distributors. The green shaded segment of each bar represents the processor share of the export price. The dark blue segment represents the harvester share, determined by the price the processor pays for raw material (shore price). The light blue segment represents the yield loss (±35%), which, combined with the shore price determines the processor's ex-vessel cost of raw material.[12]

Figure 5: Shore price and export price in the Maritimes, 2000-2012



Source: DFO and NMFS

Three points are noteworthy in Figure 5:

- The wide swing in the export price (almost $6.00/lb in 2000 and 2011, and as low as $3.40/lb in 2006). The flat export price from 2001 and 2004 obscures the rising wholesale price in the U.S., which was offset by the declining value of the U.S. dollar (Fig. 2). The wholesale price rose by US$1.00 between 2001 and 2003, as the U.S. emerged from recession. It dropped by US$1.00 between 2004 and 2005, as the market rejected the higher prices and substituted lower priced crab species. It has risen and fallen twice since 2006 in response to supply shifts and general economic conditions.
- The extremes in the harvester-processor shares of the export price (as high as 60% and as low as 40% for each). This has moderated since the early 2000s, with the respective shares in recent years varying within a 45-55% range. The harvester share reached the 55% range in 2007 and again in 2011, the latter a year when wholesale prices increased by US$2.00 over 2010.

[12] Yield loss refers to the weight of crab not included in final product weight. The processor pays harvesters for the whole crab, but sells only the legs ("sections") as final product. The sections typically comprise approximately 65% of the live weight, implying that 35% is discarded. Accordingly, the effective price paid by the processor for the product weight is just over 50% higher than the shore price.

- How competition for raw material can drive up the shore price (and processor's cost of raw material) to unprofitable levels. This occurred in the mid-1990s and early 2000s. The shore price moved from an abnormally low 40% of export price in 2001 to 60% by 2004, driven largely by processing sector response to rising U.S. wholesale prices (in U.S.$). Processors clearly overpaid in 1996 and 1997 (when the processor margin was negative), and again in 2004, when there was little room between the cost of raw material and the exchange rate-adjusted export price. The market fell in 2005-2006, with export prices dropping to the CAN$3.45 range.

3. Shore prices in Atlantic Canada

The competitive environment

Virtually all the snow crab landed in Atlantic Canada and Québec is processed in one of the region's 70-75 processing plants. Little, if any, raw crab bypasses the processing sector for the live or restaurant trade. Upwards of 97% of the crab entering the plants is processed into one product – sections or clusters of legs.

Processors do not have direct access to the resource. They secure supply from (mostly) independent harvesters at prevailing shore prices. Competition for raw material tends to be intense, and in many areas, not limited to price. Processors (or independent buyers) may offer a range of financial and non-financial incentives to secure supply. By their nature, the form and magnitude of these incentives are secret, making it difficult to determine shore prices with precision.

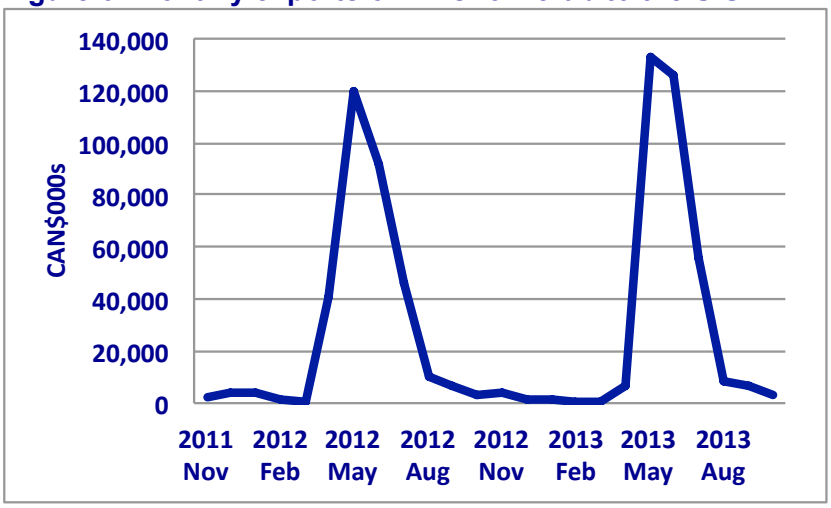
Though the harvesting sector fishes subject to individual quotas, the action on the water simulates a competitive fishery. Harvesters fish intensively at the start of the season when catch rates are highest and to limit the risk of an early shutdown due to soft shell crab. Seasons are predictably short, causing some areas to impose daily and weekly trip limits. Gluts and poor handling practices resulting in poor quality are not uncommon. The processing sector over time has adjusted its capacity to meet seasonal peaks, resulting in excess capacity for much of the season and intense competition for raw material.

Several hundred million dollars passes from the processing to the harvesting sector in the space of a several weeks. This cash flow requirement puts tremendous pressure on processors to move product to market as quickly as possible. Processing, then, is a cash-driven enterprise leaving no time (and limited margin) to do anything but sell the product to the highest bidder as it is produced (April-July). For many, does it not leave sufficient margin to carry product in inventory waiting for higher prices that can occur through August-December. The monthly export pattern to the U.S. is shown in Figure 6.

Harvesters act individually or in small groups when selling crab, negotiating directly with buyers or processors. Through their communication networks harvesters effectively act in concert (informally) to drive the shore price more or less uniformly to the highest level possible. Buyers/processors are obligated to pay the prevailing shore price or risk losing the vessel's crab supply. The buyer also risks losing all the other landings from that vessel.

All the structural and operating conditions for both vessels and plants lead inevitably to supply-driven procurement. In short, despite their large numbers, the competitive balance tends to favour harvesters because of generally strong demand and finite supply over a relatively short season.

Figure 6: Monthly exports of NL snow crab to the U.S.



Source: Statistics Canada

Setting shore prices: Maritimes and Québec

Though the industry conforms generally to a price-competitive model, it also departs from it in certain key ways. The structure of the fishing industry is such (independent fleet and processing sectors) that there is a strong incentive for processors to try to avoid price competition when buying raw material. This is because they know that offering to increase the price does not generally lead to increased supply for any individual plant, nor for the processing sector as a whole (because landings are quota-limited). As soon as one processor offers more, others are forced to pay the higher price or risk losing vessels. Yet, this is precisely what happens unless processors can figure out a way of limiting their demand for increased volume.

Prices easily can be bid up to levels that produce minimal returns, while simply resulting in a transfer of revenue from processors to harvesters with little or no supply gain to any individual processor. For these reasons, non-price incentives (e.g., free ice, discounted bait, vessel financing, administrative services) are common in the industry to secure supply (post-season settlements also exist in some areas). But in most areas, these incentives amount to nothing more than a sort of “right of first refusal”; they do not remove the need for the processor to match others’ prices and pay the prevailing shore price.

Setting shore prices: Newfoundland and Labrador

A different approach to price formation occurs in Newfoundland and Labrador, at least in the initial stage. A minimum opening price is established through a collective bargaining process that culminates in formal Final Offer Selection, should negotiations between the parties fail to produce an agreement. Though the process has evolved since it was introduced in 1998, three key elements survive:

- The bargaining agents (Parties) remain the same; the Food Fish and Allied Workers (FFAW) represents harvesters, and the Association of Seafood Processors (ASP) represents processing companies.
- Time-limited negotiations between the Parties to set a minimum price and to agree on conditions of sale, with the parties sharing market information provided by a market specialist (John Sackton).

- The Standing Fish Price-Setting Panel makes a final decision on an opening season price in the event the facilitated negotiations fail to produce agreement. Each party submits its final offer and the Panel selects one or other of the prices submitted (the Panel may not set its own price) as the minimum price to be paid. In-season price adjustments may be made. Initially these were formula-based depending on market conditions, but this approach was discontinued in 2008 because the FFAW contended the formula failed to produce a price that "reflected the fair market value of the crab being landed".

An adjustment was made in 2009 to compensate for currency fluctuations. In 2010, ASP withdrew from negotiations, leaving the Panel to make a decision without its input. ASP subsequently requested an adjustment, but the Panel denied this request. The Parties reached a negotiated settlement in 2011, with reports of substantial bonuses paid in light of high U.S. prices (Fig. 1). The Panel set prices in 2012 (FFAW offer) and 2013 (ASP offer). Fishermen refused to fish at the 2013 opening season price; it was increased without formal application to the Panel.[13]

These annual negotiations play out against a backdrop of considerable weakness in the financial health of both the harvesting and processing sectors. This weakness is not new and would help to explain the difficulty the parties have faced over the years in reaching an agreement on price. The 2011 MOU Steering Committee report on *Fishing Industry Rationalization and Restructuring* concluded that between one-third and two-thirds of harvesting enterprises are not viable; and that the level of profitability in the NL processing sector is "well below the Canadian seafood processing sector norms and is unacceptable". The Report recommended rationalization of both sectors.

Rationalization is occurring through attrition in the processing sector. At its peak in 2003, the crab sector had 42 licensed and active processing plants. By 2013, the number of active plants had dropped to 28, a decline of one-third (five fewer than active in 2011 when the MOU report was issued).[14] Competition for raw material is one factor driving attrition, as plants differ in the financial resources available to retain boats or lure them away from other plants.

This is evident from the figures in Table 1, where the experience of 8 of 30 plants serves to illustrate how shares of the total volume of crab processed have shifted since 2005 (the other 22 plants would fall into one or other of these categories).[15] Based on competitive performance in securing raw material, plants are notionally divided into one of four categories: Plants A and B show a fairly rapid decline to zero activity; Plants C and D show a moderate decline, but are still active; Plants E and F are fairly stable, showing limited change in annual share of volume; and Plants G and H have been successful in attracting and retaining boats, as their share of total annual landings has increased over time.

[13] *Decision of the Standing Fish Price Setting Panel*, various years.
[14] Newfoundland and Labrador Department of Fisheries and Aquaculture.
[15] Actual plant throughput data are confidential, so at the request of the consultant, DFA constructed an index of change by first setting each plant's percent of total volume in 2005 = 100. Next, each plant's volume as a percent of the industry total in each subsequent year was then indexed in relation to the base year to normalize for changes in overall quota (landings). Index information was provided for 30 plants, though two of these had ceased to operate in the last year of the time series.

Table 1: Shift in NL processing plant shares of total annual volume

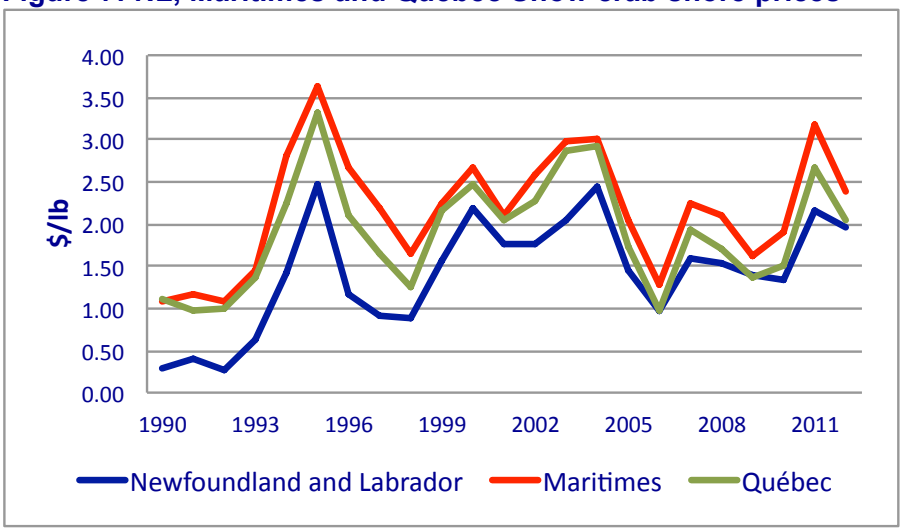
	Plant A	Plant B	Plant C	Plant D	Plant E	Plant F	Plant G	Plant H
2005	100%	100%	100%	100%	100%	100%	100%	100%
2006	143%	98%	93%	100%	83%	126%	134%	113%
2007	113%	125%	31%	106%	72%	128%	137%	103%
2008	140%	121%	22%	148%	114%	145%	294%	121%
2009	136%	84%	13%	84%	92%	117%	209%	217%
2010	113%	68%	36%	75%	98%	106%	225%	330%
2011	95%	67%	30%	38%	94%	115%	265%	302%
2012	33%	0%	42%	67%	132%	119%	214%	283%
2013	0%	0%	52%	69%	117%	107%	259%	276%

Source: DFA

Price levels compared

This study is about the observed difference in the shore price for snow crab received by harvesters in Newfoundland and Labrador and elsewhere in Atlantic Canada. The lower apparent price paid to harvesters in Newfoundland and Labrador (NL) is observed in so-called "implicit" prices derived from DFO landings data by simply dividing landed value by tonnage. These data indicate a persistent price gap, though one that has fluctuated in magnitude over the years (Figure 7).

Figure 7: NL, Maritimes and Québec Snow crab shore prices



Source: DFO

One of the key factors explaining the difference in the apparent prices lies in the way DFO compiles the data.

- In NL, DFO simply uses the minimum price in force at the time of landing to value landings instead of requiring a record of the actual price paid (minimum plus any bonus payments). In any event, if a price appears on a sales slip, it is the minimum, not the actual. Limited public information is available about bonus payments, given the nature and objectives of the system (more on this below). The average price shown in Table 2 reflects in-season changes in the minimum price resulting from application of the "price to market formula" up to and including 2007, and Panel directed changes in 2008 and 2009.

- In the Maritimes and Québec, as well, prices tend not to appear on sales slips. DFO makes monthly contact with a sample of buyers in each region to determine prices paid. Prices from these different sources are considered accurate by DFO as long as they fall within a narrow range. A review of the on-going bi-weekly regional compilation of fish prices by the PEI Department of Fisheries, Aquaculture and Rural Development shows that the survey contains the same prices as those derived from DFO data for the Maritimes.

Table 2: Snow crab shore prices by region (all prices in CAN$/lb)

	Nova Scotia		New Brunswick	Prince Edward Island	Québec	Newfoundland & Labrador		Alaska
	Atlantic	Gulf	Gulf	Gulf	Gulf	Opening	Average	
2000	2.40	2.97	2.80	2.80	2.48		2.19	2.74
2001	1.85	2.11	2.40	2.40	2.04		1.75	2.52
2002	2.61	2.77	2.50	2.50	2.28	1.80	1.75	2.15
2003	2.98	3.12	2.83	2.99	2.86	2.08	2.05	2.40
2004	2.99	3.00	3.00	3.00	2.91	2.47	2.45	2.50
2005	2.09	2.10	2.00	2.00	1.73	1.60	1.45	1.99
2006	1.29	1.44	1.19	1.25	0.97	1.05	0.97	0.92
2007	2.05	2.49	2.25	2.17	1.94	1.65	1.60	1.48
2008	2.08	2.35	2.00	2.00	1.70	1.61	1.54	1.99
2009	1.44	1.75	1.76	1.75	1.36	1.55	1.40	1.43
2010	1.79	2.30	2.00	1.91	1.50	1.35	1.35	1.14
2011	3.09	3.26	3.42	3.25	2.68	2.15	2.15	2.18
2012	2.26	2.39	2.50	2.50	2.05	1.95	1.95	1.89

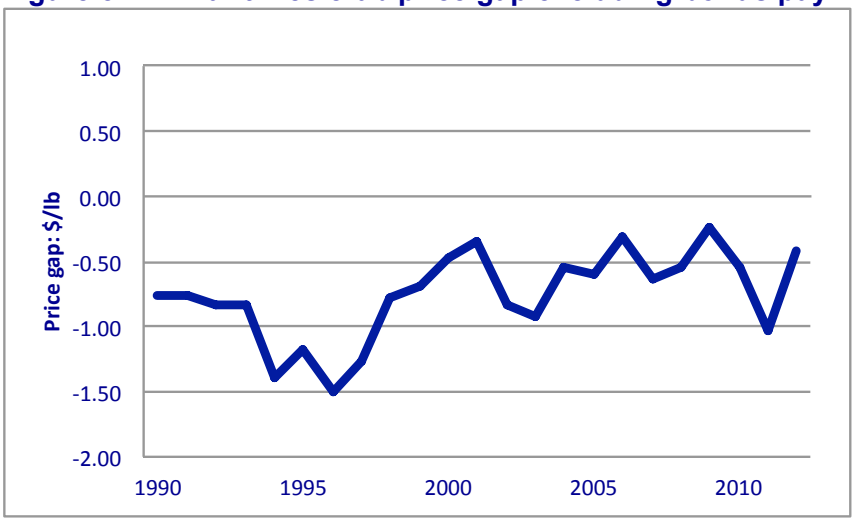
Source: DFO and FFAW for Atlantic Provinces data; US National Marine Fisheries Service for Alaska data.

In light of these differences, it makes sense to draw a distinction between what these prices represent. At best, the NL prices record the minimum paid, while elsewhere the prices reflect market conditions, even though they may understate the full value of the transaction. In short, the prices are *conceptually different and not directly comparable*, and therefore *should not be held up as an indication that effective prices are lower in NL*.

What is clear from the price comparison in Table 2 is that there is not just variation between NL and the other provinces, but also among the other provinces themselves. For example, a gap of $0.25-0.50/lb is common between New Brunswick and Québec. A gap of $0.20-0.30/lb is common between New Brunswick and the Atlantic shore of Nova Scotia (this fishery runs along the eastern Scotian Shelf). These differences are explained mainly by crab size and quality characteristics, variations in yield, and relative competitiveness.

The size and variation of the price gap is more easily understood with the use of a diagram showing only the difference (Figure 8). Except during years of extreme in-season changes in market prices that are not reflected in NL minimum prices or price adjustments (2002/3 and 2011), the apparent gap is in the range of $0.50/lb. In other words, the widening of the apparent gap in those years occurs because the pricing system in NL only adjusts the minimum price according to either the “price to market” formula or in response to a request by one of the parties. If these mechanisms fail to capture market shifts fully, or are not triggered, then the gap would widen because shore prices in the Maritimes adjust readily to shifts in final product markets. In practice, competition for raw material would narrow the gap by adjusting bonuses in NL, but these do not show up in landed value and implicit prices.

Figure 8: NL-Maritimes crab price gap excluding bonus payments



Source: DFO; Table 2 (above).

4. Factors explaining the price differences

The transaction is about net revenue, not price

The 2003 *Fish Processing Policy Review* identified 15 factors that the Commission believed influenced snow crab price levels throughout Atlantic Canada, noting that these factors can work to increase or decrease the differences in observed shore prices. These factors provide a useful starting point for explaining the observed price differences. The objective is to determine the extent to which these (or any other) factors fully account for the price difference. This is a difficult objective to meet, given the non-disclosure of bonuses and uncertainty surrounding several other factors.

Among the complexities of the Atlantic fisheries is the relationship between harvesters and processors. Contributing to this complexity is the independence of the sectors and the inherent challenges of selling/buying raw material on the most favourable terms.

- **The harvester's objective** is (ordinarily) to maximize net revenue, and this can be accomplished in a variety of ways, including directly through price paid and indirectly through obtaining some combination of fishing inputs and services that reduce cost or add to revenue. The harvester solicits the highest price by contacting (or being contacted by) buyers and processors, and in the process also solicits non-price benefits.
- **The processor's objective** is also to maximize net revenue, and fundamental to this is ensuring a secure supply of high quality raw material at the lowest cost. Various methods are used to secure harvester loyalty (enterprise financing; supplying bait, ice, gear, off-loading services; providing administrative services for EI and tax); but the rule generally is that such methods only secure loyalty – the processor still has to pay the going price. In NL, a system of bonus or side payments has evolved that allows processors to avoid payment of higher average prices to *all* boats (with landings in the 50,000 t range, each 1.0 cent/lb more at the shore implies a transfer of $1.0 million from the processing to the harvesting sector in NL).

The point is that price may be just one element in the transaction that transfers revenue from processors to harvesters in exchange for securing raw material supply. Differences among fleet sectors and across regions in how these transactions are structured clearly render simple price comparisons between NL and the Maritimes and Québec of questionable meaning.

To facilitate discussion and analysis, the 15 factors identified by the Commission may be placed in one of two categories determined by how they influence net revenue: directly through price, or indirectly through an impact on costs.

Price factors

- **Bonus payments:** These serve as inducements to secure raw material. That bonus payments by processors to harvesters are a well-established feature of the NL crab fishery is not in dispute: this is confirmed in discussions with processing companies and the FFAW, through a review of past reports on the crab fisheries, and in sworn evidence on bonus payments presented by the FFAW to the Standing Fish Price Setting Panel in 2008.[16] The real question, then, concerns the magnitude of the payments in any given year, and what this works out to as an average price. Bonus payments vary by license category (size of quota), area fished (crab size and quality), other species fished by the license-holder, competitive conditions in the area landed, and conditions in final product markets. Processors interviewed for this report indicate that bonuses averaged over all license classes have ranged between $0.20-0.25/lb in the past several years (though higher in 2011, a year of abnormally high product prices).
- **Price-setting system**: The fundamental difference in approach to price formation between NL and the rest of Atlantic Canada (described above) makes apparent prices non-comparable. The NL system of negotiating minimum prices leaves scope for bonus payments in most years, bringing up the effective price. Prices in the rest of Atlantic Canada are determined through competition – reported prices are those actually paid by independent buyers (who handle transactions and logistics) and by processors (taking direct delivery). DFO surveys buyers to determine shore prices paid. The prices are comparable across regions; the buyer receives a commission to cover costs (and margin) that the processor would otherwise have to incur for handling, transportation, etc. This commission varies with market conditions, but is generally in the $0.20-0.30/lb range.[17]
- **Raw material competition:** That the systems for determining shore prices differ does not mean that competition for raw material is not equally strong throughout the Atlantic Region. The competition in the Maritimes shows up in shore prices that range between 45-55% of export prices, averaging about 50% over the past decade. Even if harvesters in NL did not have the resources of the FFAW to draw on, through their own information channels they would have little difficulty determining conditions

[16] In an effort to being its dissatisfaction with the bonus system to a head, the FFAW collected affidavits from 170 harvesters with the intention of submitting this as evidence to the Panel at the 2008 hearing. Over objections by the bargaining agent for processors, the Panel eventually accepted (at its April 3rd hearing) direct and affidavit evidence that bonus payments varied from year to year, and ranged from no bonus (for smaller vessels) to as high as $0.43/lb for larger vessels. References were also made to free ice and price concessions on bait. The summary of evidence and Panel decision is contained in the Panel report, *Snow Crab Fishery – 2008*.
Http://www.hrle.gov.nl.ca/fishpanel/pricingdecisions/index.html

[17] Gardner Pinfold, *Overview of the Atlantic Snow Crab Industry*, 2006

in the U.S. (information services quote prices on a daily basis), and how this is translating into shore prices in the Maritimes (the seasons overlap). And further, they would know that the same products are produced in NL and shipped to the same markets. They would not necessarily expect to obtain the same shore price as in the Maritimes due to differences in crab characteristics and various costs, but would reasonably expect that competition would drive price to a level higher than the negotiated minimum. Indeed, by all accounts, they shop their catches around as much as the processors compete to secure the boats.

- **Crab characteristics:** Crab from different areas differs in its physical characteristics (colour and shell cleanliness) and also in size distribution (larger average size in the Maritimes). Both factors contribute to a higher market price for Maritime crab (with the presence of barnacles on NL crab in some areas also contributing to lower yield).[18] Favourable characteristics allow Maritime processors to obtain higher prices and, through competition, this would be reflected in a higher shore price. The impact on shore prices using 2012 market price data is illustrated in Table 3.

  The unit price difference at the same sizes (wholesale price data indicate that NL sections tend to sell for $0.10-0.20/lb less), coupled with the higher proportion of larger sizes in the Gulf and NS, results in a weighted average price difference in the $0.15-0.20/lb range (e.g., the difference between $5.04/lb in NL and $5.25/lb in the Gulf in Table 3). It is worth noting that published data on the size distribution of crab sections is not available for the Maritimes (DFA provides these data for NL); the data are based on estimates provided by NL companies with plants in both locations, as well as from a large NB crab marketer. With shore prices at about 50% of the export price, a difference of $0.15-0.20lb would reduce the apparent price gap by $0.07-0.10/lb.

Table 3: Weighted average crab section prices (2012) – NL vs. Gulf and NS

	Newfoundland & Labrador			Gulf			NS Atlantic coast		
	%	$/lb	Price ($/lb)	%	$/lb	Price ($/lb)	%	$/lb	Price ($/lb)
<5 oz	0.10	4.55	0.46	0.09	4.69	0.42	0.09	4.69	0.42
5-8 oz	0.70	5.00	3.50	0.55	5.10	2.81	0.62	5.10	3.16
>8 oz	0.15	5.35	0.80	0.24	5.54	1.33	0.23	5.54	1.27
>10 oz	0.05	5.63	0.28	0.12	5.76	0.69	0.06	5.76	0.35
Wt Average			**5.04**			**5.25**			**5.20**

Source: Urner Barry for crab prices; DFA and NL and NB crab processors for pack mix

- **Prohibition on shipping unprocessed crab:** This was a major factor before NL regulations were changed to remove restrictions on producing sections. But for all the reasons cited in the 2003 Commission report, allowing the shipment of unprocessed crab from NL is unlikely to have a significant impact on the *actual* shore prices currently being paid. The NL crab would have the same characteristics it has today and would be expected to fetch a shore price consistent with these characteristics. Shore price would be depressed by the cost and additional time required to move it to plants in the Maritimes. Moreover, it is not clear that Maritimes plants would have the capacity to take additional volumes since the seasons overlap to a large extent and plants already face peak loading problems.

[18] Lower yield because barnacles add to live weight, effectively increasing the percentage of discarded weight. Processors indicate this increases cost by 1-2%.

Cost factors

The direct and indirect costs of doing business have an impact on the revenue available to pay for raw material, and hence, to the extent that differences exist between NL and the rest of Atlantic Canada could explain part of observed price gap. The main cost items are:

- **Plant labour costs**: after raw material, wages generally represent the second largest expense, typically accounting for 10-12% of total variable operating costs. Processing companies indicate that two factors cause overall labour costs to be higher in NL: higher hourly wage (about $14/hr in NL vs. about $12/hr in the other Atlantic Provinces), and in some areas, higher labour content per pound of finished product (due to additional time needed to clean barnacles from the crab). These higher unit labour costs reduce processor margins and the capacity to purchase raw material. While the labour cost factor could help explain the price gap, there is no firm evidence that it actually works to put downward pressure on prices in NL, rather than to erode margins.
- **Workers Compensation and EI**: WC and EI contributions paid by the processing companies in NL help to explain part of the price gap. Processors in NL pay WC and EI contributions on behalf of harvesters (who are considered employees). The WC contribution ($3.67/$100 of output, or 3.67%) coupled with the EI premium (2.56% of earnings) paid by processors in NL (2012 rates) results in an effective increase in the shore price of $0.08/lb based on a 5-year average price of $1.77/lb (*Note*: this prices includes the assumed $0.20/lb bonus). In the rest of Atlantic Canada, WC contributions are based on payroll cost (assumed at 30% of landed value) and are deducted from harvester settlements (a cost of doing business). EI premiums are paid by all harvesters (NL and the rest of Atlantic Canada) at the same 1.83% of insurable earnings, and consequently offset each other in terms of price impact (Table 4).

  The combined impact of WC and EI effectively reduces the shore price by $0.03/lb in New Brunswick and $0.06/lb in Nova Scotia, compared with a net increase of $0.07/lb in NL (Table 4). It should be noted that in NB and NS, only vessels with three or more crewmembers (in addition to the skipper) are covered by WC and subject to WC contributions. The actual proportion of vessels covered by WC in each province is not available, but with an average crew of four in the Maritimes, not all vessels would be covered (all are covered in NL). Accordingly, Table 4 overstates somewhat the negative price impact in NB and NS.

Table 4: Price impact of WC and EI contribution payments

	Workers' Compensation			Employment Insurance			Total
	% (1)	Price (2)	Impact	% (3)	Price (2)	Impact (4)	$/lb (5)
NL processor	3.67	1.77	0.065	2.56	1.77	0.014	**0.08**
NL harvester				-1.83	1.77	-0.010	**-0.01**
NB harvester	-3.36	2.10	-0.021	-1.83	2.10	-0.012	**-0.03**
NS harvester	-7.72	1.93	-0.045	-1.83	1.93	-0.011	**-0.06**

1. NL rate based on landed value; NB and NS based on payroll (assumed at 30% of landed value or price)
2. 5-year average reported shore price (2007-2012, excluding 2011) from Table 2 (includes $.20/lb bonus)
3. In NL, processor is the employer; pays employer premium ($1.83) times 1.4.
4. EI premium applied to earnings (assumed at 30% of lnded value or price)
5. Totals are rounded.

Source: Provincial Workers Compensation agencies; Service Canada

- **Handling and transportation**: NL has many relatively small landing sites for crab, often fairly remote from processing plants. The number of landing sites is more concentrated in the rest of Atlantic Canada, and with a wide distribution of processing plants trucking distances and delivery times tend to be lower (most crab travels less than two hours from landing sites to plants). Not only does this result in lower trucking costs, but it also contributes to higher raw material quality and lower mortality. Both factors would help to explain higher port prices in the Maritimes and Québec.
- **Product shipping costs**: most product for both NL and the Maritimes is shipped to the U.S. by truck. Costs for NL processors are higher by virtue of the longer distance and the expense of the ferry across the Cabot Strait. Depending on respective locations in NL and the Maritimes, transportation costs may range from $0.04-0.05/lb higher for NL processors (NL: $0.08-0.10/lb vs. Maritimes: $0.04-0.05/lb).[19]
- **Dockside grading**: This is mandatory for snow crab landings in NL, but not in the Maritimes and Québec. Grading fee is based on a fixed charge per landing plus a variable component based on quantity landed and adds 1.5-2.0 cents/lb to NL processor costs.[20]
- **Other costs**: Several other sources of cost (i.e., vessel financing, provision of ice and bait, payroll tax, CPP) were identified in earlier studies and found to have a marginally greater impact in NL than elsewhere in Atlantic Canada (implying lower margins). These costs and potential impact on NL prices could not be quantified.

5. Concluding observations – price gap is perceived, not real

The main conclusion drawn from this analysis of the reported gap between NL and Maritimes snow crab shore prices is that if a gap exists at all, it is much narrower than the official data indicate.

The official statistics produce misleading shore prices for NL. This arises because of the way landings data are collected and reported by DFO: landed value data for the Maritimes and Québec are based on actual prices paid, while value data for NL are based on minimum negotiated prices, not actual prices paid. The actual prices paid in NL include bonus payments that are excluded from consideration in valuing landings.

The evidence that the price gap is more apparent than real is direct as well as circumstantial. Drawing on the factors outlined above in Section 3, it is possible to narrow the gap considerably based on *direct* factors influencing price. Differences in processor cost factors as they influence margins and ability to pay for raw material have an *indirect* effect on price and would reasonably explain the balance of any shore price difference. Differences in competitive conditions in each fishery would also be expected to play a role.

The direct factors include bonus payments (assumed at the low end of the range indicated by processors and the FFAW), the payment of benefits (WC and EI) by processors in NL that are incurred as costs by harvesters in the Maritime Provinces (effectively reducing prices), and the effect on shore prices arising from differences in product prices (due to crab size and characteristics). How these factors impact the effective shore price in each fishery is shown in Table 5.

[19] Quote provided by Day & Ross.
[20] Information provided by processing companies

Table 5: Net impact on NL minimum price of key price factors

	Shore price (avg)		Impact of price factors			Net impact	
	Reported	Difference	Bonus	WC/EI impact	Product price	Effective shore price	Price difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
NL	1.57	-	0.20	0.07		1.84	
Gulf	2.10	0.53	-	-0.03	-0.10	1.97	0.13
NS	1.93	0.36	-	-0.06	-0.08	1.79	-0.05

1. 5-year average reported shore price (2007-2012, excluding 2011) excluding bonus in NL
2. NB and NS shore price minus NL minimum price
3. Typical overall average bonus paid acording to industry sources
4. 2012 WC and EI rates applied to Col. 1 prices (see Table 4)
5. Net effect on NL shore price of higher NB and NS product prices (see Table 3)
6. Shore prices (Col 1) adjusted for impact of price factors (Col 3, 4 and 5)
7. Difference between NL and Gulf/NS effective shore prices (Col 6).

The derivation of the effective shore prices is as follows:

- Column 1 shows the derived shore price in each fishery based on the five-year average (2007-1012) of DFO landings data shown in Table 2 (2011 is excluded because of atypical conditions in markets and the effect on product prices, shore prices and bonus payments). Prices for NL are the provincial average; the Gulf price represents the average for the NB and NS fisheries in the Gulf of St. Lawrence; and, the NS price covers the eastern Scotia Shelf fishery.
- Column 2 shows the price differences between NL and the other areas derived from DFO landings data.
- Column 3 shows the bonus paid in NL (based on information provided by processors and the FFAW).
- Column 4 shows the impact on price resulting from who pays WC and EI premiums. This effectively adds to price in NL where processors pay, and adds to cost in the Gulf and NS where harvesters pay.
- Column 5 shows the impact of differences in crab characteristics on product prices and the resulting impact on shore prices.
- Column 6 shows the net impact of the price factors (Columns 3, 4 and 5) on the reported shore prices (Column 1).
- Column 7 shows the residual difference in effective shore prices after the adjustments: the Gulf shore price is $0.13/lb higher, while the Nova Scotia shore price (Scotian Shelf fishery) is $0.05/lb lower.

The analysis does not fully explain the price gap. Indeed, the figures in Table 5 are subject to estimating error since they rely heavily on the accuracy of the bonus. But assuming they are at least indicative of prevailing values, then the residual price differences (both plus and minus) could be explained by other factors – differences in cost structure and in the competitive environment that cannot easily be quantified, but would tend to narrow the gap. All the available evidence points to a competitive environment for raw material in NL no different from that existing elsewhere in Atlantic Canada.

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