TORNGAT WILDLIFE PLANTS & FISHERIES SECRETARIAT

A Socio-Economic Analysis of the Nunatsiavut Snow Crab Fishery

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2011

Torngat Joint Fisheries Board
Torngat Wildlife, Plants & Fisheries Secretariat Series 2011/02

Torngat Wildlife, Plants and Fisheries Secretariat

The primary responsibilities of the Torngat Wildlife and Plants Co-management Board and the Torngat Joint Fisheries Board are to establish total allowable harvests for non-migratory species of wildlife and for plants, recommend conservation and management measures for wildlife, plants, and habitat in the Labrador Inuit Settlement Area (LISA) and to make recommendations in relation to the conservation of species, stocks of fish, aquatic plants, fish habitat, and the management of fisheries in the Labrador Inuit Settlement Area.

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Introduction

This paper was prepared for the Torngat Joint Fisheries Board and presents a socio-economic analysis of the Nunatsiavut Snow Crab Fishery.

The long-time attachment, reliance and cultural significance of fish, marine mammals and plants in the diet, to the identity, social well-being and economy of Nunatsiavut residents is manifest in the archaeological record, artwork, and folklore of early inhabitants of this region. Recent studies and analyses of the Atlantic Canadian fisheries and fisheries crises, and provisions of the Labrador Inuit Land Claims Agreement provide testimony to the personal and collective importance of the fishery in the lives of Nunatsiavut residents. A review of an *"Obituary on the Labrador Coast Fishery (Brice-Bennett, 1992)"* or *"Our Footprints are Everywhere...Inuit Land Use and Occupancy in Labrador"* (LIA, 1977) graphically captures the history, traditional locations, and the significance of hunting and fishing in almost every isolated inlet and island along the northern Labrador coast. In short, fish and the pursuit of fish is part of the fabric of the Nunatsiavut community.

The snow crab fishery in Nunatsiavut, when compared to subsistence and long running commercial harvests of marine species is in simplest terms a new fishery that emerged only over the past couple of decades. Its significance should not be underscored, as Nunatsiavut fishing enterprises depend on allocations of this shellfish off the coast of Labrador in the wake of the decline of the commercial fisheries for salmon and cod. Even the offshore shrimp fishery and nearshore and deepwater turbot fisheries that have become staples for the Labrador Inuit did not figure heavily in economic development and fishing operations in northern Labrador until the late 1970s. They are new fishery developments on the historical time scale when compared to the seal fishery or cod, salmon and Arctic char fisheries, and are now economically and socially significant because they sustain livelihoods and continue an identity and relationship with the sea.

Nunatsiavut Fish harvesters and processors, indeed the broader community, has been forced to change and adapt to the present times. New industries have arisen in the north, new technologies have emerged in every sector and the fishery is no exception. Innovations in navigation and communication equipment, trawl sensors, radar, fish finding and harvesting tools over the past quarter century have enabled Nunatsiavut fish harvesters to exploit further ashore and deeper water for non-traditional species.

This paper is prepared for the purpose of providing a current understanding of the social and economic significance of the snow crab fishery to the individuals directly involved in the fishery, and the communities in Nunatsiavut that will continue to exist on the wealth of the sea. The value of the fishery in terms of dollars and the well being it provides to individuals and the community will be examined. Challenges and issues identified in the snow crab fishery will be presented, and their relevance to overall fishery development in Nunatsiavut will be described to allow the reader to contemplate and evaluate alternatives and policy options. This paper is intended to support the Torngat Joint Fisheries Board in discharging its responsibilities relating to effective management and policy development in the fisheries, as specified in the Labrador Inuit Land Claims Agreement, and to provide the

casual reader an understanding of the many variables that resource managers, government decision makers, and individuals must contemplate in fisheries policy development.

The reader of this document should be cognizant that positions, statements, commentary and information contained herein do not reflect any express policy of the Torngat Joint Fisheries Board. Rather, where statements or commentary is provided, it represents the consultant's research and interpretation of information and is intended solely as"food for thought" and options to consider. It is expected that some of the options and ideas will be summarily dismissed as untenable, and this fits with the intent of this exercise. The objective of this paper is to assist the Board, participants in the fishery, and the community with information in their discussions, deliberations and decision making.

Finally, for background, readers of this document are encouraged to review the March 2010 report on the history of the snowcrab fishery in Nunatsiavut: ***"Snow Crab - A Review of the Development and Management of the Chionoecetes opilio fishery in Nunatsiavut"***

A Current Overview

A Regional Snapshot

This section of the document is intended to provide background for the discussion and analyses provided later. It is necessary to gain some appreciation of demographics and the social and economic drivers in Nunatsiavut from a present day perspective. This will provide context for the ensuing analyses, discussion and planning initiatives that may arise as individuals and decision makers contemplate the Nunatsiavut fishery development agenda.

Like other regions in Canada's north, and as observed in aboriginal communities across the country, the community and population profiles of Nunatsiavut are characterized by a high percentage of young people under 25 years of age, below average levels of income, and still significant reliance on transfer payments of various forms (EI, Income Support, CPP) as a contributor to annual income. The series of graphics presented below reveal the population of Labrador north as found in the Community Accounts database of the Newfoundland Statistics Agency of the NL Dept. of Finance. The figures are derived from the latest Census (i.e. 2006) and tax filer data available from Statistics Canada and the Canada Revenue Agency, as well as data from other provincial agencies.

It should be noted, unless otherwise indicated, the series of graphics and information for Labrador North in some instances include data for Natuashish. This will not overly skew results and observations as the demographic profile in this Innu community is similar to those of the Inuit communities. Please note that individual numbers and totals portrayed in the following graphics and tables may not reconcile, and reflects the manner in which the referenced agencies treat the data where the sample size (I.e. the number of individuals reporting) is small to avoid providing indentifying information. Rounding of numbers up or down to the nearest 5 or 10 (or not reporting data) is routinely done to ensure identity protection.

Demographic Indicators - Northern Labrador

Figure 1 shows the population in Northern Labrador (Economic Zone1) for the last census period (2006) was 3,120, a decline of 3.1% from 3,220 in 2001. A perennial observation from the demographic data for northern aboriginal regions and communities is the high proportion of young people, who often constitute 50% or more of the population. Indeed, the proportion of the population under 25 years of age is the striking feature of the population pyramid in 2006. This is very pronounced and in contrast to Newfoundland and Labrador as a whole where the population in rural areas is getting significantly older. This is corroborated by the census data for the province that reveals median age in northern Labrador was 26 in 2006, whereas the median age for Newfoundland and Labrador was 41. For clarity, the median marks the point where half the population is older than that age and half is younger. In straight forward terms, aboriginal communities are young communities.

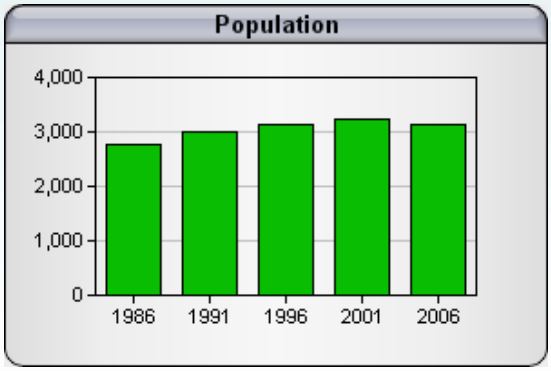

Figure 1. Population Profile Northern Labrador 1986 – 2006
Source: Newfoundland Statistics Agency

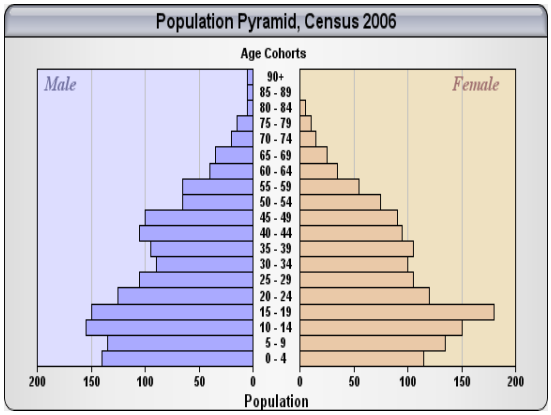

Figure 2. Population Pyramid for Northern Labrador.
Source: Newfoundland Statistics Agency

The population pyramid to the right provides some important data for policy developers in the communities and governments. It offers some indication of the potential workforce in the next decade, but also the demands that will be placed on resources, services, and social programming. A young population will eventually need to be employed. They will require training and employment opportunities, ideally at home, to become contributing members to the economy and community.

If opportunities are not available, a percentage of these young people will move for education and work, and a portion who can't find work will become dependent on what the local community and governments can provide. Regrettably, a portion will become the victims of idleness and lack of opportunity; whose symptoms are manifested in substance abuse, decreased health, family violence, and increased incidence of crime.

Figure 3 suggests that the number of provincial court offenders has risen in northern Labrador, perhaps to a new higher level from 2006 through 2009. Of those individuals 18 years of age and older, the 18 to 24 age group exhibited the highest number of offenders. This matches the incidence at the provincial level where the 18 to 24 age group also had the highest number of offenders. Consequently, proactive intervention in the formative years, and targeted career counselling, training and employment initiatives might offer a means reverse this indicator of social stress.

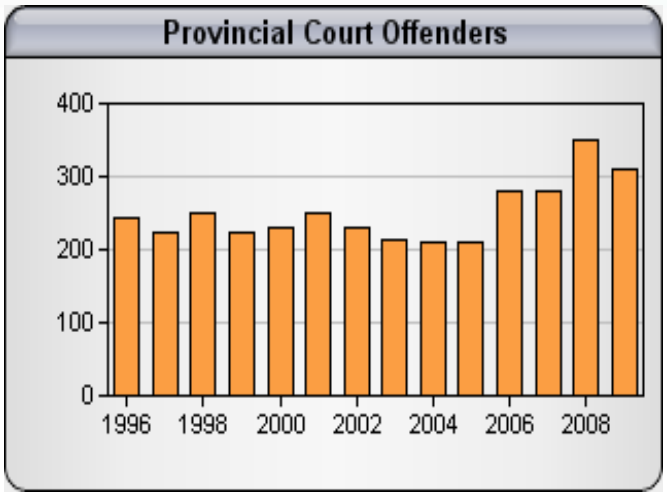

Figure 3. Provincial Court Offenders Northern Labrador
Source: Newfoundland Statistics Agency

Employment Indicators

Figure 4 reveals that in northern Labrador the employment rate for the entire year 2005 for those between 18 and 64 years of age was 80.3%. The provincial employment rate for the same period was 76.7%. The employment rate is the percentage of the labor force (i.e. the number of people 18-64 years of age that are employed or looking for work) that is employed, and is an economic indicator that economists examine to help understand the state of the economy. Because of the high number of residents under the age of 18 in the region relative to the adult "working" population, thehigh employment rate provides a confounding signal; that is, a false indicator of overall family and community well being in Nunatsiavut. It is not

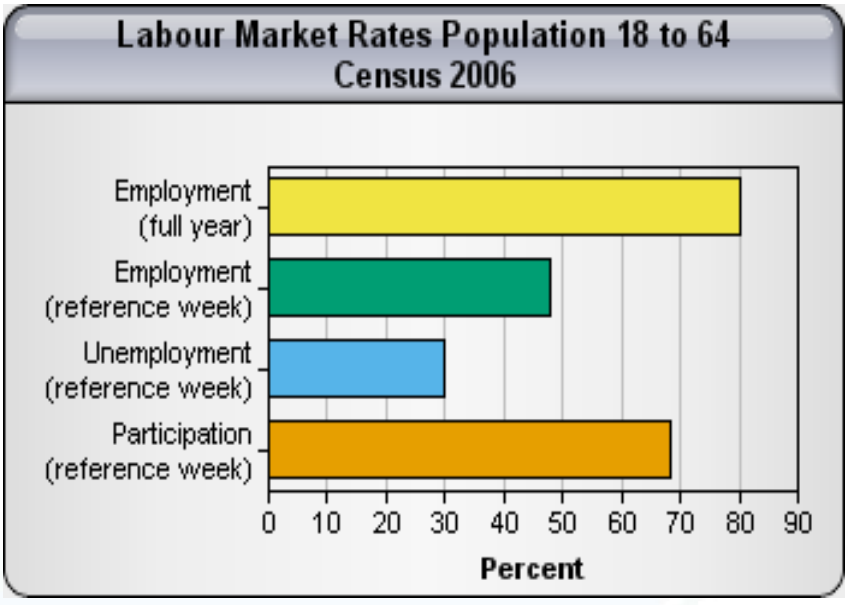

Figure 4. Labour Market Rates Northern Labrador.
Source: Newfoundland Statistics Agency

until employment rate is contrasted to gross per capita income for the region, for example, that a clearer picture of family and community well being is provided.

The participation rate (i.e. the total number of people of labour-force age (18 years and over)) during the reference week[1] of the 2006 Census was 67.0%. The provincial participation rate for the same period was 72.0%. Participation rate is the percentage of working-age persons in an economy who:

- Are employed
- Are unemployed but looking for a job

People in those age groups who are not counted as participating in the labour force are typically students, homemakers, and persons under the age of 64 who are retired.

Occupation Types by Gender in Northern Labrador

Figure 5 provides a description of the various occupation categories within the Inukshuk Development Region reporting area. For the purpose of this report, the primary industries (e.g. mining, fishing, agriculture) and Processing and Manufacturing (e.g. seafood processing) sectors are the principal areas of interest.

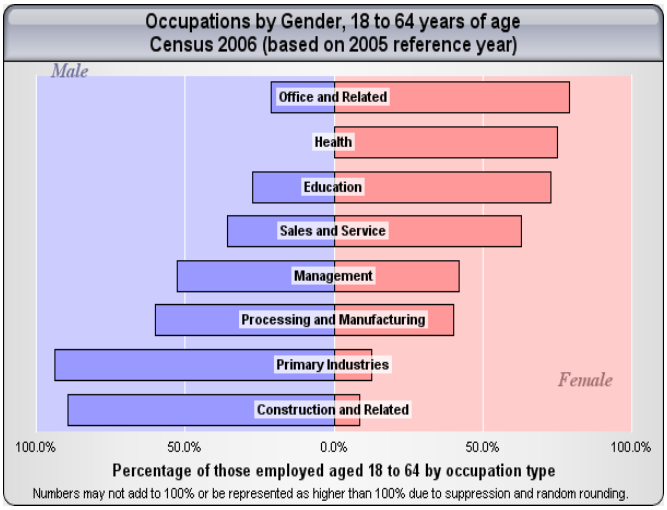

Figure 5. Occupation by Gender in Northern Labrador.
Source: Newfoundland Statistics Agency

The fish processing sector has historically had a higher percentage of female workers compared to the fish harvesting sector. The higher percentage of females in this industry sector in Nunatsiavut corroborates this longstanding observation.

Table 1 provides the number of individuals in Northern Labrador who reported the Primary Industries and Manufacturing and Processing sectors as their place of employment in 2006.

1 The reference week is the week running Sunday to Saturday prior to Census Day, which was Tuesday May 18th, 2006. Because the seasonal operations of fish harvesting and seafood processing typically do not begin until later in the spring in northern Labrador, the participation rate is naturally lower in the reference week than it would be for the island portion of the province where all fishing operations are basically active around May 1 each year.

Table 1. Primary Industry and Processing and Manufacturing Workers in Northern Labrador

Worker Type and Occupation - Census 2006*	Male	Female	Total
All Occupations	740	715	1455
Primary Industries			
Fishers	45	0	55
Loggers	10	0	10
Other	25	0	25
Processing and Manufacturing			
Fish plant workers inc. Labourers	50	45	95
Total fishers and Plantworkers	95	45	150
Fishing/Processing as % of All	13%	6%	10%

Source: Newfoundland Statistics Agency

* Note: Numbers subjected to random rounding and suppression to prevent identification of individuals where reported numbers are small. For example, a community may have 2 people who reported fish processing as their occupation, and this would enable personal information to be deduced from other statistical data. Hence, this number would be rounded up to 5 to disguise the data,

Table 2 provides a further breakdown of fishery workers by community that contribute to the totals for the Primary Industries and Processing and Manufacturing sectors in Nunatsiavut, as reported for the 2006 Census year. Those familiar with fishing and processing operations in the identified communities will immediately recognize that the numbers are too low or too high for the given worker type or community, and will understand that the statistics gathering agencies have masked the data to be non-identifying for privacy regions. Nonetheless, these numbers can be considered reasonable representation on a year over year basis.

Table 2 Fishery Workers by Community in Nunatsiavut. Source: Newfoundland Statistics Agency

Number of Fishing Industry Workers as Reported in Census 2006			
	Harvesters	Plant Workers	Total
Nain	10	50	60
Hopedale	10	0	10
Makkovik	25	30	55
Postville	10	10	20
Rigolet	10	10	20
	65	100	165

Figure 6 illustrates another long running observation in the fisheries sector. As would be expected in a seasonal industry, and where the off-season is protracted in the north, fishing and fish plant work provide the lowest number of weeks of employment for all occupation types in Nunatsiavut. Harvesters, processors and governments have been frustrated by the perennial challenge of extending the shoulder seasons. Industry attempts at diversifying operations, and government programs (i.e. early and recent fishery development programs such as the Resource Short Plant Program, NIFDA, etc) aimed at finding new species, innovative harvesting and processing methods to achieve year round operations have not achieved desired results.

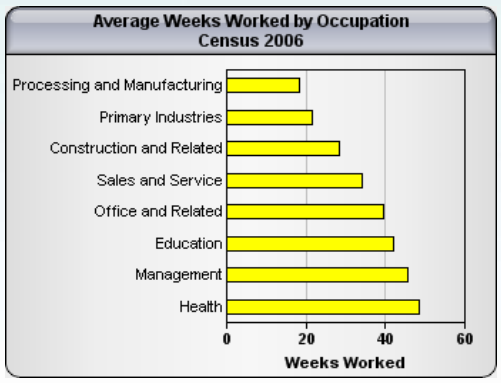

Figure 6. Average Weeks Worked by Occupation in Northern Labrador.
Source: Newfoundland Statistics Agency

The Average Weeks Worked in the fishery sector reported in Table 3 on the page 12 for each of the communities in Nunatsiavut generally supports the historical observation on the bulk of fishing activity occurring on the north coast of Labrador. Harvesting and processing operations have been largely based out of Nain and Makkovik, with less activity in Nain in recent years. Makkovik is the centre of all crab operations, whereas Nain relied to a greater extent during the reporting period on landings of char and scallop by local harvesters, and intermittent supplies of turbot from deepwater and nearshore harvesting operations. By comparison, and per common knowledge, fishing and nominal processing operations in the communities of Rigolet, Postville and Hopedale are now negligible.

Table 3. Average Weeks Worked in the Fishery Sector by Community

Average Weeks Worked By Occupation Census 2006		
	Harvesters	Plant Workers
Nain	18.3	12.7
Hopedale	n/a	n/a
Makkovik	14.5	14.2
Postville	n/a	n/a
Rigolet	n/a	n/a

The data in Table 3 reflects reports from all fishing and processing operations, which would include offshore shrimp and turbot harvesting, as well as inshore fisheries for crab, char, scallop and other miscellaneous species during the census period. Of note is the absence of activity in Rigolet, Postville, and Hopedale. This is largely due to the diminished role the fishery is now playing in these communities relative to other sources of employment, and suppression of data by the reporting agencies where the numbers are small.

Income Statistics

Gross and After Tax Personal Income Per Capita

Figure 7 shows gross income for 1993 to 2007 for every man, woman, and child (i.e. gross personal income per capita) in Northern Labrador; in 2007 it was $16,700. For the province, gross personal income per capita was $24,900. This statistic is calculated by taking the total of all sources of income in the aggregate (that is, all labour income, plus income from pension plans, employment insurance, family allowances, dividends, and interest) and dividing by total population.

Income people receive through various social programs (i.e. family allowance, CPP, Old Age Pension, Employment Insurance, Income Support) is commonly referred in total as transfer payments/sources.

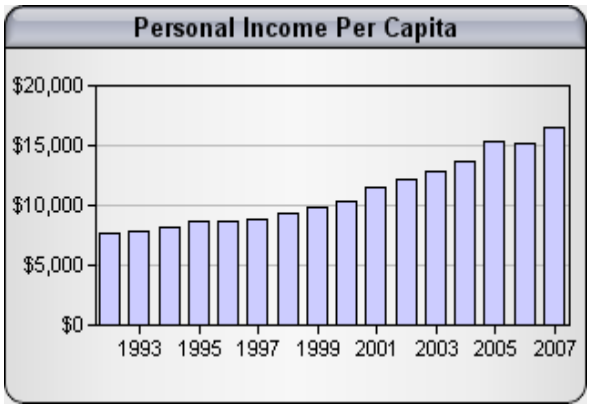

Figure 7. Per Capita Income - Northern Labrador, 2007

Source: Newfoundland Statistics Agency

Figure 8 provides the ratio of transfer payment to earned income from employment or other investment sources for Nunatsiavut. In 2007 transfer payments made up 21.4% of income, and market (i.e. income from labour, investments, etc) comprised 78.6% of income. A positive note is the significant reduction in the incidence of Income Support (45% in 1993 to below 20% in 2010) and Employment insurance (just below 60% in 1992 to about 40% in 2009) in Northern Labrador.

Figure 8. Major Sources of Income - Northern Labrador, 2007

Source: Newfoundland Statistics Agency

Gross Income per capita is an important statistic, and one frequently used for comparing economic well-being across regions and nations; it is a standard of living measure. An increasing trend in this indicator does not guarantee a high quality of life; a region that is not generating enough income is hampered in what it can do on the environmental and social fronts. Hence, while gross personal income per capita in Nunatsiavut has been increasing year over year between 1992 and 2007, it is important to examine this statistic in conjunction with other indicators such as inflation and the market basket index (i.e. cost of living in northern communities). Also, it should be noted that even though a region's total income may rise, as population increases there may not be a corresponding improvement in the income level of the average citizen. In Northern Labrador, the high proportion of young people, and by extension, larger family size, (i.e. with fewer individuals in the labour force) has an impact on standard of living. The income of the primary wage earner(s) in a family in Nunatsiavut may be near the provincial average, but when expressed on a per capita basis for a region where a significant portion of the population not working, it can provide a glimpse of challenges being faced by families and communities. So, what this implies is the standard of living in Nunatsiavut is below that for the remainder of the province.

After tax personal income per capita in 2007, adjusted for inflation, was $11,400 for Northern Labrador. The after tax personal income per capita for the province was $16,400. This is an important economic indicator because it speaks to the real disposable income in households. Personal disposable income is the amount left over after payment of personal direct taxes, including income taxes, contributions to social insurance plans (such as the Canada Pension Plan contributions and Employment Insurance premiums) and other municipal taxes and fees. It is a measure of the funds that a person has left to spend on goods and services and personal savings for investments.

Earnings from Employment

In 2007, 1,640 individuals reported earnings from employment in tax records, averaging $25,600 gross income from employment. In 1999, 1,530 individuals reported earnings from employment in tax records, averaging $16,000 in gross income from employment. For the province 276,780 individuals reported earnings from employment in tax records in 2007, averaging $31,200 gross income from employment. The disparity between employment and income levels between northern Labrador and the remainder of the province is again quite pronounced.

Employment Insurance

Like other seasonal industry workers, fishing industry participants in Nunatsiavut have come to rely on Employment Insurance as a significant contributor to personal income. Tables 4 and 5 which were developed from Tax Filer Data from the Canada Revenue Agency give a snapshot of total Employment Insurance utilization in the two main fishing communities in Nunatsiavut, Makkovik and Nain. It is necessary for the reader to recognize again that random rounding and data suppression has been applied to prevent identification of individuals.

Table 4. Employment Insurance Fishing and Plant Worker Claims in Makkovik 2005 to 2010, Source: CRA Tax Filer Data.

Employment Insurance Fishing Claims in Makkovik 2005 to 2010												
	2005		2006		2007		2008		2009		2010	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Total Claims	70	45	65	40	70	40	70	40	70	35	70	40
Fishing Claims	20		15		15		10		10		10	
Plant Worker Claims	15		20		25		25		20		15	
Average Benefits ($ 000's)	6,900		7,800		8,500		8,300		9,500		8,600	
Ave. Weekly Benefit ($)	305		325		320		325		330		325	

Table 5. Employment Insurance Fishing and Plant Worker Claims in Nain 2005 to 2010, Source CRA Tax Filer Data.

Employment Insurance Fishing Claims in Nain 2005 to 2010												
	2005		2006		2007		2008		2009		2010	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Total Claims	130	55	125	55	95	45	105	45	105	35	110	35
Fishing Claims	10		10		10		10		10		n/a	
Plant Worker Claims	15		20		25		25		20		15	
Average Benefits ($ 000's)	8,500		8,700		8,300		8,200		9,200		10,500	
Ave.Weekly Benefit ($)	340		340		330		345		360		365	

Figures 9 through 12 provide a retrospective of Employment Insurance utilization by fish harvesters and plant workers in the two communities for the period 1993 to 2010. In Makkovik the number of EI beneficiaries from the harvesting and processing sectors has annually been in the 30 – 40 range, and in Nain the numbers have ranged between 25-35 individuals.

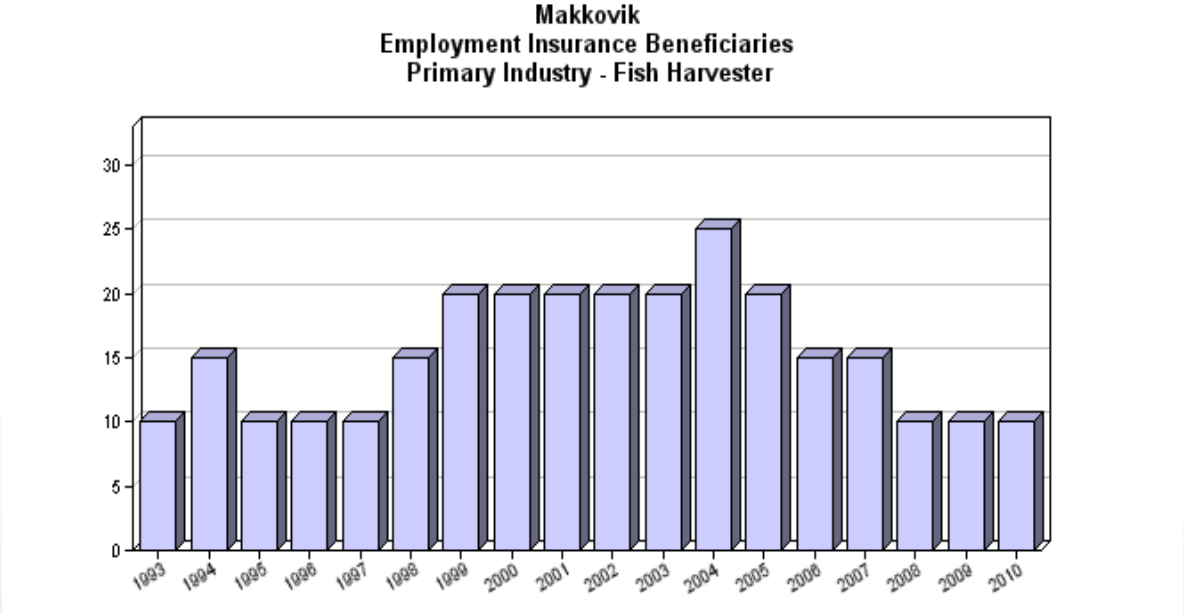

Figure 9. Employment Insurance Beneficiaries, Makkovik 1993-2010: Fish Harvesters

Source: Newfoundland Statistics Agency

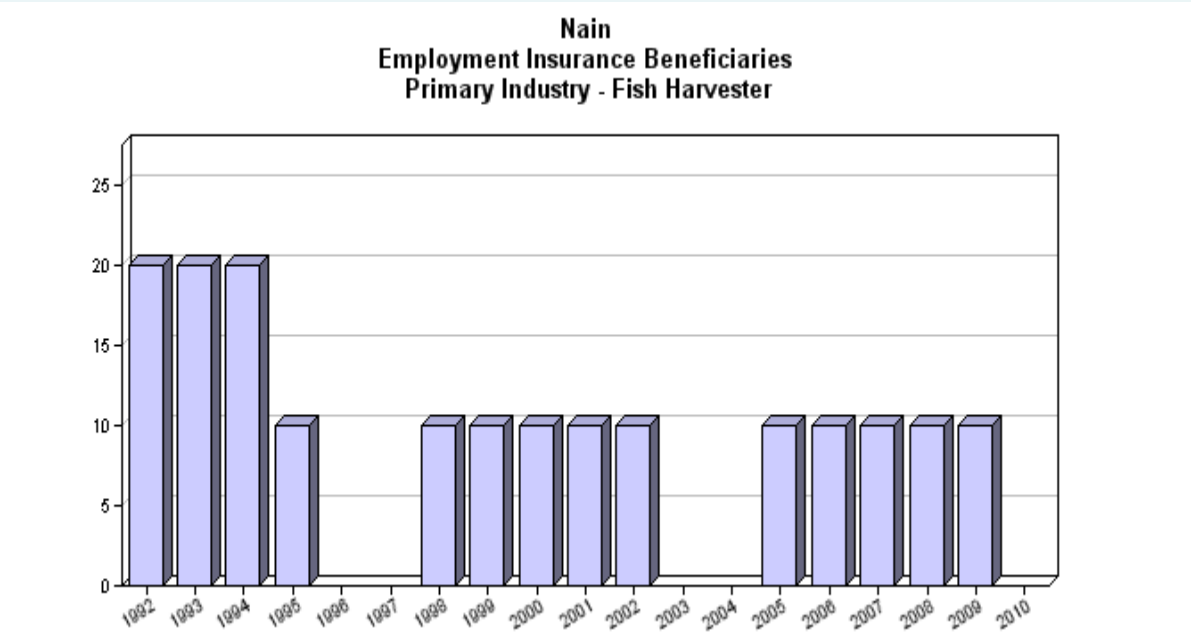

Figure 10. Employment Insurance Beneficiaries, Nain 1992 -2010: Fish Harvesters
Source: Newfoundland Statistics Agency

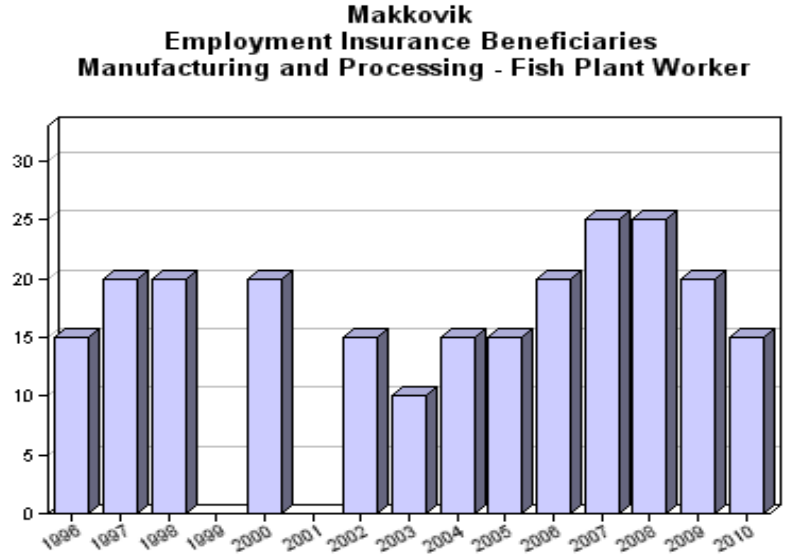

Figure 11. Employment Insurance Beneficiaries Makkovik, 1996-2010: Fish Plant Workers. Source: Newfoundland Statistics Agency

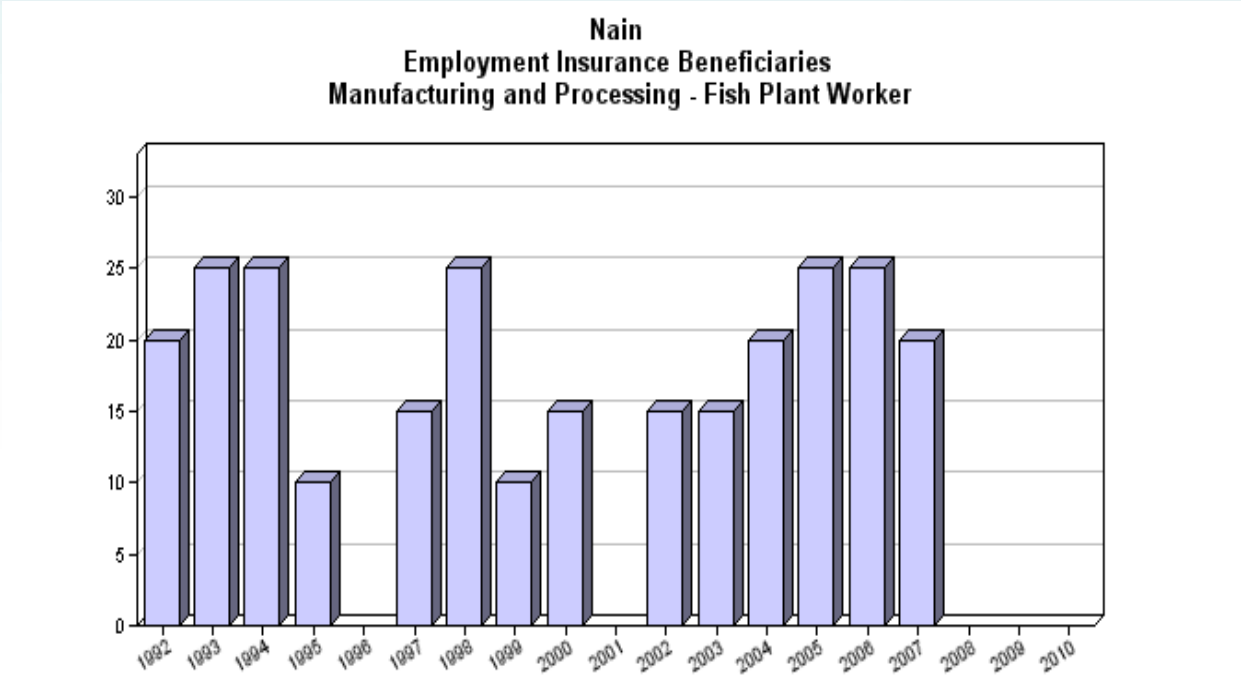

Figure 12. Employment Insurance Beneficiaries Nain, 1992 – 2010: Fish Plant Workers
Source: Newfoundland Statistics Agency

Resource Prospects and Fishery Performance Since The 2010 Report

Snow Crab Resource Prospects – NAFO Divisions 2H and 2J

The following section provides a synopsis of the snow crab resource status in northern Labrador, and describes the prospects over the next several years. During the 2 years that have elapsed since the preparation of the earlier referenced 2010 report on the Nunatsiavut Snow Crab fishery the depressed state of the snow crab resource in Division 2H has persisted. That report was released just prior to the biannual research survey that was due in the area during fall/winter of 2010. Fishery participants and resource managers were awaiting the results of the survey to determine whether the resource condition was as severe as the fishery dependent data were indicating in 2009. At the time catch rates were declining, there was no sign of molting/soft-shell crab, and landings were down.

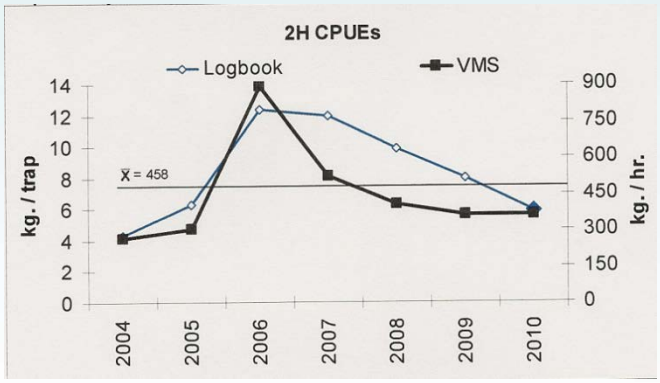

Figure 13. Catch Per Unit Effort, NAFO 2H, 2004 -2010. Source: DFO

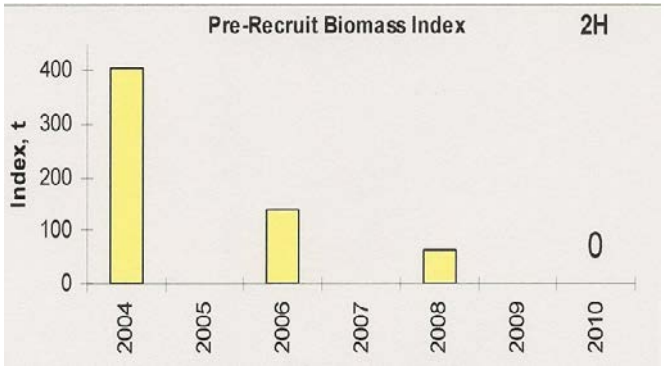

Figure 14. Pre-recruit Biomass Index, NAFO 2H 2004 – 2010. Source: DFO

The information from the subsequent survey now corroborates the fishery dependent results in revealing a depressed resource condition. Harvesters should now be experiencing a fishery where catch rates start at a "relatively" high level at the opening of the fishing season, but drop off quickly thereafter as commercial sized animals are removed. The fishery is now taking the standing biomass that becomes available each season from the residual recruitment. The absence of pre-recruit males in the 2H trawl survey in 2010 is striking in that there was not a single animal caught, and considering the Campelen trawl is efficient at catching very tiny crabs under 25mms carapace width. In the continued absence of pre-recruit males, snow crab resource prospects are going to remain depressed for an extended period.

Nunatsiavut harvesters have experienced reduced catch rates and quotas have not been fully taken in the past three years. The economic impact of this on harvesters, plant operations and processing workers is obvious; reduced earnings and revenues, less employment and reduced employment insurance benefits. Figures 15 & 16 provide the graphic representation of the survey data from 2010 for NAFO Division 2H. The next survey will not occur until fall 2012.

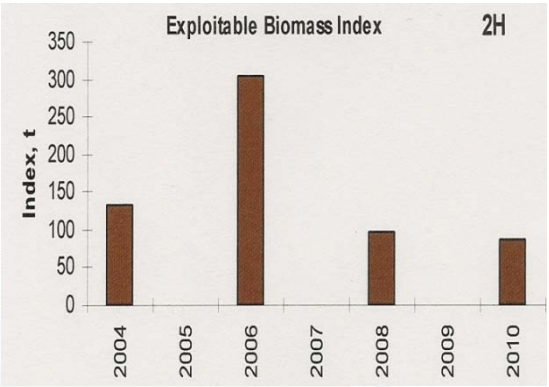

Figure 15 2H Exploitable Biomass, 2004-2010

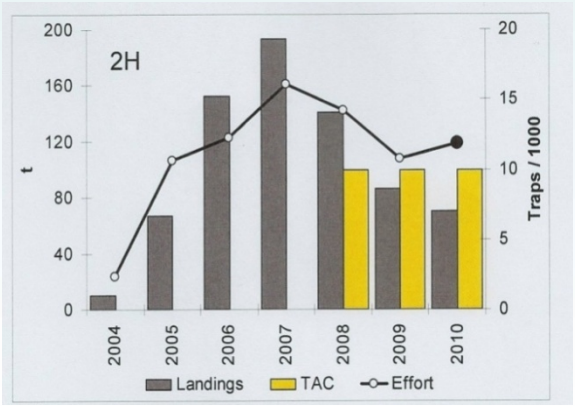

Figure 16. Landings, TAC and CPUE in NAFO 2H, 2004-2010. Source: DFO

In 2J , where the Nunatsiavut snow crab allocations in CFA 2 north of 54⁰40'north is harvested, and where the habitat and fishing grounds are more conducive to snow crab production, the resource prospects look largely unchanged, and harvesters can expect continuing low catch rates and below average recruitment to the fishery. In 2J Landings increased by 60% from 1,500 t in 2005 to 2,400 t in 2008. They decreased by14% to 2,100 t in 2010. Effort increased by 27% from 2009 and changed little in 2010. Catch per unit Effort increased from 2004-2007 and changed little until it decreased sharply in 2010. Recruitment has recently declined and is expected to remain low in the short term. Further conservation measures may be required to protect available pre-recruits which can support the fishery in coming years.

The summary of this information is that resource prospects for snow crab in Nunatsiavut fishing areas is poor for at least the medium term (i.e.5 years). This has been somewhat offset by a surge in market price from an average of $1.35 per pound in 2010 to $2.15 in 2011.

Fishery Performance

Table 6 provides an update on information provided in the 2010 document. The impact of the declining resource status is manifested not only in the quota reductions implemented in 2011, but also through the inability of harvesters to take the available quota in the traditional area in 2J and the exploratory areas in 2H. The quota available to the Nunatsiavut government actually peaked at 700t (catch 692) in 1999, after the rapid expansion of the fishery that occurred in that year based on very positive scientific advice. The fishery has not recovered to those levels, and it would be prudent to base future economic and harvesting forecasts on conservative levels, more in line with quotas and catches observed through the past 5 years.

Table 6 Nunatsiavut Snow Crab Quotas and Landings, 2000-2011

Nunatsiavut Government Communal Snow Crab Quotas 2000 - 2011				
YEAR	**ITEM**	**QUOTA (t)**	**LANDINGS**	**% TAKEN**
2000	2GHJ north of 54° 40' N	450	446	99
	2GHJ Exploratory (2GHJx)	0	47	0
	2GH Exploratory (2GHx)	0	6	0
	TOTAL	**450**	**499**	**111**
2001	2GHJ north of 54° 40' N	450	478	106
	2GHJ Exploratory (2GHJx)	0	11	0
	2GHJ north of 54° 40' N in 1B & 1C (2GHJx	0	109	0
	TOTAL	**450**	**598**	**133**
2002	north of 54° 40' N LIA in 1A & 1B (2GHJx)	375	373	99
	north of 54° 40' N LIA Exploratory in 1C(2G	0	12	0
	north 54° 40' N Torngat in 1A & 1B (2GHJ)	75	65	86
	north 54° 40' N Torngat Exploratory (2GHJx	40	29	72
	TOTAL	**490**	**478**	**98**
2003	north of 54° 40' N (2GHJ)	450	273	61
	north of 54° 40' N - LIA Exploratory (2GHJX	0	60	0
	TOTAL	**450**	**333**	**74**
2004	north of 54° 40' N (2GHJ)	270	269	100
	north of 54° 40' N - LIA Exploratory (2GHJX	0	42	0
	TOTAL	**270**	**311**	**115**
2005	north of 54° 40' N (2GHJ)	216	175	81
	north of 54° 40' N - LIA Exploratory (2GHJX	0	28	0
	TOTAL	**216**	**203**	**94**
2006	north of 54° 40' N (2GHJ)	216	324	150
	north of 54° 40' N - Exploratory (2GHJX)	0	0	0
	TOTAL	**216**	**324**	**150**
2007	2H Exploratory (2GHJ)	0	193	0
	2J north of 54° 40' N (2GHJ)	238	312	131
	2J north of 54° 40' N - Exploratory (2GHJX)	0	0	0
	TOTAL	**238**	**505**	**212**
2008	2H south of 55° 50' N (2GHJ)	100	95	95
	2H north of 55° 50' N Exploratory (2GHJx)	0	52	0
	2J north of 54° 40' N (2GHJ)	362	354	98
	TOTAL	**462**	**501**	**108**
2009	2H south of 55° 50' N (2GHJ)	100	86	86
	2H north of 55° 50' N Exploratory (2GHJx)	0	0	0
	2J north of 54° 40' N (2GHJ)	362	324	89
	TOTAL	**462**	**410**	**89**
2010	2H south of 55° 50' N (2GHJ)	100	88	**88**
	2H north of 55° 50' N Exploratory (2GHJx)	0	18	0
	2J north of 54° 40' N (2GHJ)	362	348	96
	TOTAL	**462**	**436**	**94**
2011	2H south of 55° 50' N (2GHJ)	70	33	47
	2H north of 55° 50' N Exploratory (2GHJx)	0	40	0
	2J north of 54° 40' N (2GHJ)	362	299	83
	TOTAL	**432**	**373**	**86**

Source: DFO

Torngat Fish Producers Cooperative Society Ltd. Snow Crab Production History 1997 to 2011

Table 7 provides raw material and production figures at Torngat Fish Producer´s processing facility in Makkovik from 1997 to the end of the 2011 fishery.

Table 7 Raw Material Supply and Production at the Makkovik Snow Crab Processing Facility, 1997-2011

TORNGAT FISH PRODUCERS CO-OPERATIVE Snow Crab Production History				
	TFPC & NG Quota		Landings	Production
Year	Tonnes		lbs	lbs
1997	100		242,229	125,740
1998	500		753,526	489,500
1999	700		1,575,978	1,024,950
2000	490		1,095,149	711,440
2001	590		1,608,438	1,018,974
2002	590		1,093,360	680,028
2003	590		733,078	442,009
2004	370		696,498	457,498
2005	226		435,228	288,409
2006	316		691,891	414,725
2007	344		1,164,537	757,559
2008	562		1,002,989	655,815
2009	562		962,165	679,647
2010	462		962,870	637,316
2011	432		823,114	552,600

Source: Torngat Joint Fish Producers Cooperative Society

Resource Allocation and Fishery Development

This section of the document is intended to provide a brief overview of the allocation and sub-allocation processed utilized by Fisheries and Oceans Canada (DFO) and the Nunatsiavut Government (NG), respectively, for allocations provided to Nunatsiavut and administered on behalf of land claim beneficiaries. There are basically 3 major species/fisheries that nearshore and offshore interests in Nunatsiavut now rely upon, and for which significant allocations are held or fishing opportunities have been provided**;** snow crab, northern shrimp, and turbot. Other local fisheries for char, scallop and other emerging fisheries will not be discussed herein.

Each year, subject to conservation, Fisheries and Oceans Canada provides allocations to the Nunatsiavut Government (or to Nunatsiavut entities), which under provisions of the Labrador Inuit Land Claims Agreement the NG has the authority to sub-allocate (through permits) to land claim beneficiaries. The available quotas are not distributed in equal amounts to each fisher. Instead, and understandably, those harvesters having a history of performance and commitment in the fishery, who either own their own enterprise, or are displaying initiative to develop a fishing enterprise, are accorded priority allocation. Hence, one fisher may hold more quota than his counterpart from the same community under this merit based system.

For some time now allocations have been provided to a core group of Nunatsiavut fishers who from year to year express and maintain an interest in pursuing a livelihood in the fishery. This number has varied over the years but, by and large, a core group of 6-9 fishers have benefitted through sub-allocation of Nunatsiavut quotas for the 3 main fisheries. For the detailed analyses of the snow crab fishery that will be presented, 8 harvesters (without vessels) will be assumed to be participating in the fishery, with each receiving an equal share of the resource. Such is not the case in practice, but this allows a reasonable approximation. Otherwise, a detailed analysis or individual audits/descriptions of the individual permit holders and the various arrangements and conditions attached to their operations would be required. This is not possible within the purview of this exercise. Providing a case study of one of these beneficiaries, given the small number of harvesters (and there being only one processing facility), would present identifying information and jeopardize an individual's right to privacy.

And, while the core group of fishers generally receive most or all the fishing opportunities, the Nunatsiavut Government reserves the right to provide allocations for other beneficiaries. For example, at the direction of the Nunatsiavut Government a permit holder may be obliged to make provision for another beneficiary (a crew share) in his vessel arrangement. The Nunatsiavut Government is continuing to develop criteria, guiding principles, and policies to deal with the evolving fishery and nuances to ensure that opportunities are allocated fairly, with performance based objectives being a key component. It is envisaged that an over-arching policy would not only set targets and commitments for fishers, but also ensure the Nunatsiavut fleet and fishery is developed and supported in a timely and cogent manner.

The Nunatsiavut government sub-allocates all its snow crab allocations to "inshore" fishers/beneficiaries, and those individuals without a vessel are authorized by Fisheries and Oceans Canada to enter into a vessel lease arrangement with a southern harvester (i.e. Newfoundland and Labrador 2J3KL based) to catch their quota . It is left to the permit holder to negotiate a good harvesting agreement.

A 510mt (now 1,260t) northern shrimp quota in SFA 5 that was provided for the benefit of inshore fishers in 1997 by DFO is also allocated to interested inshore fishers who are able to arrange harvesting agreements. If the allocations are not harvested fully near the end of the season each season, the Nunatsiavut government seeks approval to have the residual quota harvested by an offshore vessel.

The harvesting of turbot is addressed differently because Nunatsiavut does not possess inshore turbot allocations immediately adjacent to the Zone in 2+3K. The NG does possess 3 groundfish licences that make it eligible to participate in the 2+3K under laws and policy of general application. However, given the disadvantageous position[2] of Nunatsiavut harvesters in the 2+3K turbot fishery, DFO has endeavoured to provide improved fishing opportunities in this fishery. Under a management approach that has been adjusted and evolved over the past several years, DFO permits land claim beneficiaries to access the 2+3K competitive turbot quota through the 3 licences. DFO and the Nunatsiavut Government canvas the community to determine if there are any harvesters interested in participating in turbot harvesting operations for the coming season, and through this process a number of beneficiaries are authorized to enter into lease/harvesting arrangement with southern based vessel owners. DFO has also authorized other harvesting arrangements in its effort to increase local turbot landings, but these are not relevant to this exercise.

In summary, the core group of Nunatsiavut fishers and a number of other beneficiaries are provided access to the three different fisheries/resources that can be utilized to develop fishing enterprises. It is the expressed and overt objective of the Nunatsiavut Government, Fisheries and Oceans Canada, and the Department of Fisheries and Aquaculture to put in place the necessary supports for these fishers to build enterprises, engage in technology transfer, and generate revenue that will lead to further development of the Nunatsiavut fishery. Flowing from the proceeds of this development will be increased service and support activities, and multiplier effects as crew wages and vessel servicing functions generate spin-off businesses in equipment repair, provisioning, gear and fuel supply and consumer spending within the region.

The analyses that follow will attempt to address questions surrounding the value chain in the Nunatsiavut snow crab fishery, specifically where value is realized or lost through the harvesting and processing operations, and from this infer whether present practices and approaches are effective in achieving what is undeniably a collective willingness and interest, but perhaps loosely defined objectives to develop the Nunatsiavut fishery.

2 Generally, minimal groundfish harvesting history, no suitable vessels, and seasonality induced disadvantages in the competitive fishery. The details of the challenges in the turbot fishery are described in an earlier document prepared for the Torngat Joint Fisheries Board. The NG does possess offshore quotas in NAFO 0B, but these are for all purposes inaccessible by inshore fishers/vessels, and have been harvested under different arrangements over the years, which are described in an earlier report on Turbot prepared for the TJFB.

The Analyses

These analyses are prefaced with a note of caution to the reader: The analyses provide an approximation of the snow crab harvesting and processing sector activity in Nunatsiavut. They are pro forma exercises, implying that calculations and formulations are based on reasonable assumptions and best available information; allocations are equally distributed and that harvesting and processing operations are what would be expected for a standard harvesting or processing operation in Newfoundland and Labrador. To be fair, it must be remembered that each harvesting and processing enterprise has its own unique operating conditions, and cost profile. For example, a new 65 foot vessel equipped with a 675hp engine for towing shrimp trawls and a crew of 5 will have a different cost profile than an older 250hp 45' vessel with a crew of 4 fishing only crab and groundfish. Similarly, operating a snow cab processing operation in Makkovik has different cost and transactional implications than a similar sized plant on the Avalon Peninsula or even southern Labrador.

Snow Crab Harvesting

The purpose of the foregoing preamble is to assign some valuation on the compensation scheme negotiated between Nunatsiavut quota holder and the leased vessel owner. Because the lease arrangements are privy to the parties involved and the individual vessel costing is not known, it is possible to provide only what might be a reasonable estimate of the compensation provisions.

A typical large inshore multi-species vessel owner/operator in Newfoundland and Labrador would assess the viability of his operation through assessing multiple variables; principal among these are individual quota(s), anticipated catch rate in the various fisheries and fishery performance, negotiated price, access to and estimated catch level in any remaining competitive fisheries, fuel expense, insurance, crew wages, provisions, cost of bait, fishing gear replacement, repairs and maintenance, insurance, loans, and scheduling (i.e. what is the maximum operating season and time/timing for each fishery). All these inputs go into an assessment of the operating costs and likely profitability of the enterprise. Clearly, a fisherman operating a 45'- 65' vessel, with its crew complement and multiple species capability is operating a small business. Literally hundreds of thousands of dollars are passing through the enterprise from the "cod end to the market" and back each season, and each day is filled with decisions and considerations around the enterprise operation.

Fishermen use different mental and practical models to aggregate the information, to budget their revenue and expenses, and come to some conclusion on whether it is going to be a make or break season. In an annual fishing plan the vessel owner lays out operations for the season, usually by estimating a series of trips, to which anticipated revenues and expenses are allocated. Successful harvesters have grown their enterprises and managed their operations by keeping tuned to the markets, the immediate and long-term resource outlook, and through careful monitoring of the identified variables.

Other items demanding the time and energy of the vessel owner are what economists categorize as transactional activities, which include keeping abreast of the competition (i.e. intelligence gathering on what other fishermen are saying/doing) , arranging licences and a good crew, upgrading skills and equipment, attending science and management meetings,

staying in contact with the union and processor to determine what is happening to markets and anticipated pricing for the coming season, dealing with banks, coordinating the procurement of supplies, and various other permits and fees (observer, DMP, quota costs). Finding the best deals and getting the best information, staying in touch with what is going on takes time, effort and money; so-called transactional costs to the harvester.

The matter of crew pay on a vessel is determined by the skipper. There are numerous anecdotal accounts of generous and tight-fisted skippers. On offshore vessels crew member pay is based on a settlement provided after the catch is sold, and for a typical shrimp or groundfish operation the salary expense generally ranges from 22% to 28% of the catch value (less fuel cost, food, oil and lubricants, and often a list of other consumables during the trip). On inshore vessels engaged in the snow crab fishery, individual crew shares have been known to range anywhere from 6% to 12% of the catch value. The settlement is usually based on the union negotiated price at time of landing. Bonus payments[3] may or may not be shared with the crew. The non-payment of bonus money to crew has been a sore point in the fishery for many years.

Under Nunatsiavut's current fishery development approach many of the designated fishers would not be exposed to the identified demands and activities involved in operating a modern fishing platform. To what extent technology transfer (i.e. learning by doing/mentoring) is occurring is undocumented. Harvesting skills are undoubtedly being gained, but to what extent are vessel operation and enterprise management skills being developed? It is not the task of this paper to address this question. Rather, it is to examine the economic consequences of the current harvesting approach in terms of value and benefits forgone by the participants.

As stated earlier, the Nunatsiavut snow crab fishery has been prosecuted through vessel leasing arrangements and many years have elapsed since the lease arrangements were put in place. The Nunatsiavut Government as quota owner, per provisions of the Labrador Inuit Land Claims Agreement, has opted to sub-allocate these communally held quotas to a core group of fishers (8 plus one additional crew per designate is the assumed number for the purpose of this report) who fish the traditional crab grounds in 2J north of 54° 40' north and in 2H. From time to time a number of other beneficiaries have been provided permits for the exploratory crab fishing zone north of 55° 20' north. The consultant is not aware of any previous audits or performance reviews of the financial results of these designate fishers either individually or in aggregate.

There were 9 fishers engaged in the 2011 fishery. These license holders have utilized southern vessels (2J based predominately) to harvest the allocations under individually negotiated venture agreements. A lease arrangement can be generally described as a risk free undertaking for the Nunatsiavut quota holder. The negotiation of the terms and conditions of the agreements and compensation mechanisms are the responsibility of the individual harvester. It is a condition of the DFO authorization of these lease agreements

3 over the history of the snow crab fishery there have been anecdotal accounts of bonus or side payments ranging from as little as $0.10 for <35' operators to over $1.00+ per pound over the union negotiated price for full-time licence holders in 2J, 3K and 3L.

that the designate (quota holder) must be on the boat at all times while the quota is being harvested.

The designate serves on the vessel as crew (and participates in the harvesting while on a trip), but the relationship is different because the crew is the quota owner. To what extent the boat owner pays for fuel, bait and provisions while harvesting the quota is privy to the parties in the lease arrangement. It can be assumed that if such expenses are borne by the vessel owner they are recouped on sale of the catch and through the terms of the negotiated agreement. Of considerable significance is the individual permit holder's ability to negotiate a good deal. One fisher may have the experience and savvy to negotiate a 20-25% royalty fee, yet another who is not so skilled or seasoned may feel satisfied in achieving 10-15%. A fisher who holds more quota may feel satisfied with a lower royalty rate, while the fisher with a small quota will want to ensure he extracts every possible benefit. Conversely, a large quota means multiple trips and will be more attractive to the vessel operator then a small quota with few trips, particularly if trips are split or interrupted by weather.

The boat owner naturally looks at the cost of the harvesting operation and offers the Nunatsiavut fishermen either a fixed value (i.e. cents/pound) for the quota or a percentage amount of the landed value. It stands to reason that the harvester wants to mitigate risk; hence percentage of landed value can be assumed the preferred basis of settlement in the event that quota is not landed or the cost per trip varies considerably. For this reason, a percentage of landed value has been applied in the pro forma calculations provided in Table 8.

The table outlines the gross income for the Nunatsiavut harvester under three different royalty scenarios; 10%, 15% and 20% of the landed value. The middle value (i.e. 15%) would tend to reflect a balancing of the relative negotiating ability of the various fishers. The ability or lack thereof to negotiate a good agreement is not point of this exercise. What is at the heart of the matter and evident from the following analysis is that somewhere in the order of 80% to 90% of the landed value of the snow crab catch is lost to outside vessels and crews each year, whether a good or bad deal was negotiated.

A simple multiplication of the average price per pound by the annual landings over the 1999 to 2011 period shows there has been approximately $21million in crab harvested and landed in Nunatsiavut, but only $2.1 to $4.3 million of this value accrued to the region. Approximately $16 to $18 million was lost to the region over the past decade. Column 6 of table 8 reveals what the gross income per designate would be in each year since 1999. By 20ll each designate would now have realized over $ 2.6 million dollars in gross income from snow crab alone, plus any income earned from other fisheries such as northern shrimp, and turbot. In addition each fisher would have been eligible to receive maximum fish harvester employment insurance benefits[4] based on these amounts. It is clear that significant opportunity and wealth has been forgone through lease arrangements from this initial assessment.

4 Fisher EI is based on value of the catch and settlements

Table 8 Nunatsiavut Snow Crab - A Pro Forma Analysis of Gross Income per Designate Using 3 Different Royalty Rates

Year	Quota (t)	Landings (t)	Average Price Per Pound	Landed Value	Gross Income per designate (100% of landed value retained)*	Gross Inome @ 10% Royalty	Gross Income @ 15% Royalty	Gross Income @ 20% Royalty
1999	**700**	**672**	$1.55	$2,296,311	$287,039	$28,704	$43,056	$57,408
2000	**450**	**499**	$2.19	$2,409,209	$301,151	$30,115	$45,173	$60,230
2001	**450**	**598**	$1.75	$2,307,114	$288,389	$28,839	$43,258	$57,678
2002	**490**	**478**	$1.75	$1,844,148	$230,518	$23,052	$34,578	$46,104
2003	**450**	**333**	$2.00	$1,468,264	$183,533	$18,353	$27,530	$36,707
2004	**270**	**311**	$2.45	$1,679,795	$209,974	$20,997	$31,496	$41,995
2005	**216**	**203**	$1.45	$648,924	$81,116	$8,112	$12,167	$16,223
2006	**216**	**324**	$0.97	$692,862	$86,608	$8,661	$12,991	$17,322
2007	**238**	**505**	$1.60	$1,781,317	$222,665	$22,266	$33,400	$44,533
2008	**462**	**501**	$1.54	$1,700,937	$212,617	$21,262	$31,893	$42,523
2009	**462**	**410**	$1.40	$1,265,440	$158,180	$15,818	$23,727	$31,636
2010	**462**	**436**	$1.35	$1,297,628	$162,203	$16,220	$24,331	$32,441
2011	**432**	**373**	$2.40	$1,973,558	$246,695	$24,669	$37,004	$49,339

It is necessary to qualify these numbers by noting that this table provides the gross income per participant at each royalty level. It must also be noted that in the early years the quota was also harvested using different arrangements. It is also necessary to recall from the earlier information in Section 1 of this document that gross income and real disposable income are significantly different. From these gross amounts subtract deductions for income tax, EI contributions, CPP and any other fees and surcharges, and deductions for crew[5]. It is a requirement under the permit that each designate includes one crew member. The fisher also has to travel to and from the deployment point and absorb any transaction costs related to arranging a lease and harvesting the various allocations. So, at the end of the day perhaps 40 - 50% of the gross amounts identified above represent real disposable income.

For reasons provided above and others it would be more prudent to examine more recent snow crab fishery results, the 5-year period 2007 to 2011. It is common knowledge that there is one bona fide and active local vessel. There were 9 active fishers in 2011, so dropping the lone enterprise will enable a reasonable examination of the results for the lease arrangements.

In 2011 the snow crab price reached $2.40, a level not observed since 1995. At this price there was opportunity for the beneficiary and crew to actually obtain a 30% royalty fee from the lease holder. Hence, in this iteration the analysis includes three royalty scenarios that reflect what the vessel owner might be agreeable to pay in a declining resource environment; 10%, 20% and 30. The 10% royalty rate likely provides a worst case scenario for the beneficiary, 20% is likely the average royalty, and 30% the best case outcome and almost assured for the 2011 season.

Table 9 on page 28 requires little explanation. It shows the stark economic realities of maintaining the lease arrangements in the Nunatsiavut fishery over the past 5 years. From 2007 to 2011 approximately $8.0 million of snow crab (landed value at the wharf) has been

5 Nunatsiavut designates are expected to take one crew per as a condition of their permit for the fishery, and generally try to obtain a 5% share of the settlement for this individual.

harvested, with some $7.22 million to $5.61 million of this value accruing to vessel owners from outside Nunatsiavut. Naturally, a portion of the identified value has to be immediately discounted as obligatory expenses and fees (e.g. financing, licences, DMP and observer fees, and insurance) that do not benefit the community regardless of whether the boats are local or from elsewhere. Yet, it is not difficult to surmise the impact of the residual revenue loss in the communities in Nunatsiavut. The forgone wages, spending on various consumer goods, and service and support to the enterprise by local businesses is the significant downside of ongoing lease arrangements.

Table 9 A Pro Forma Analysis Landed Value loss under Vessel Lease Arrangements for the 5 Year Period 2007-2011

Year	Total Landed Value	Landed Value Loss Under Lease Arrangements		
		at 10% Royalty	at 20% Royalty	at 30% Royalty
2007	$1,781,317	$1,603,185	$1,425,053	$1,246,922
2008	$1,700,937	$1,530,843	$1,360,750	$1,190,656
2009	$1,265,440	$1,138,896	$1,012,352	$885,808
2010	$1,297,628	$1,167,865	$1,038,102	$908,339
2011	$1,973,558	$1,776,202	$1,578,846	$1,381,491
Total	$8,018,880	$7,216,992	$6,415,104	$5,613,216

* 8 Designates used for this calculation

The permit holders operating under this regime are enjoying an essentially risk free operation, and the loss of benefits to the community is enormous. In the current environment of depressed resources and few fishing opportunities, and limited financial sector interest in investing in the fishery, leasing arrangements may be a disincentive to developing a fleet. Designates have no financial risk, and are not burdened by the responsibility of owning a large vessel. This may be in part the present reality, but it is common knowledge that the designate harvesters are also frustrated by the lack of progress in fleet development. And an argument could be raised to the effect that they do not own the quotas and, consequently, are limited both by the quota amount and lack of authority to obtain financing.

Other Fisheries

Turbot

Tables 10 and 11 on page 30 provide some history of inshore turbot pricing, purchases, and production at the Torngat processing operations in Nain and Makkovik. There has been no turbot activity at Nain for the past couple of seasons, but there has been almost continuous history of turbot production at Makkovik since the mid 1980s. It has been an important resource for the plant and plant workers. Arranging vessels and the management of this fishery for the past several years has been challenging for beneficiaries and the fish plant,

but it has provided raw material and valuable hours and weeks of work for the employees at the Makkovik processing facility.

Turbot landings at the Makkovik plant were up in 2011, the result of increased activity by local and Newfoundland based fishers. Production was approximately 128,000 pounds, which corresponds to about 140,000 -150,000 pounds of raw material taken during the 2011 local fishery (NG, Pers. Comm., Oct, 2011)

Three beneficiaries operated under licences held by the Nunatsiavut Government, and a group of Newfoundland based fishers also fished for a period under the Nunatsiavut licences. These fishers did not necessarily have to carry beneficiaries as crew, but their landings were credited to the Nunatsiavut licences. The effect of this activity was to build some turbot fishing history for Nunatsiavut, and to provide raw material for the Makkovik plant. Total landings in 2011 were 277, 153lbs. This increase in landings provided a couple of weeks of additional employment for a small number of plant workers in Makkovik in 2011, compared to landings of only 70,000 pounds in 2010.

Typical royalty rates for turbot harvesting are in the order of 11-15% of the landed value for frozen at sea H&G turbot, nearer to 15% if the turbot is landed from hook and line vessels (i.e larger fish, better quality). In 2011 typical frozen at sea 1-2kg (H&G) turbot was returning about $CAD 5,200 to $6,000 per tonne. Trawler caught and gillnetted green (i.e. fresh, round) turbot tends to fetch lower prices, due to the nature of these fisheries[6]. At a landed price of $1.60 the Nunatsiavut beneficiaries realized a good return in 2011. At this price, beneficiaries would have been in the position to negotiate at least 25% to 30% of this price as a royalty rate. Availability of southern based vessels is likely again in 2012, as these enterprises seek alternative fishing opportunities brought about by northern shrimp quota reductions in SFA 6 & 7.

Table 10 Inshore Turbot Production, 2007 - 2011

Torngat Fish Co-op, Inshore Turbot Price and Production

	Purchase	Production
Year	Price	Kgs
2007	$0.71	111,365
2008	$0.75	193,982
2009	$0.76	152,889
2010	$0.76	29,928
2011	$1.60	57,766

6 Dragger and gillnet caught fish are generally smaller, plus gillnet caught fish are often subject to chafing and bruising, and if not landed relatively promptly the quality degrades. Hence, inshore/gillnet caught fish generally command a lower market price.

Table 10 provides the purchase price and production of turbot by Torngat Fish Producers for the 2007 to 2011 period. The jump in price of almost a dollar a pound from 2010 was a boon for all concerned. The 150,000 pounds of raw material attributed to beneficiary fishing activity had a landed value of $240,000, and assuming an equal split of the proceeds and average royalty rate of 30% each beneficiary would have received gross pay of $24,000. The positive gains from the fishery and the additional employment created at Torngat Fish Producers plant in 2011 is offset by the fact that the bulk of value of their harvesting, $216,000, accumulated to outside vessel owners.

Table 11 Inshore Turbot Purchases by Torngat Fish Producers, 1981-2011

TORNGAT FISH PRODUCERS CO-OPERATIVE Inshore Turbot Purchase History NAFO AREA 2			
Year	Lbs Makkovik	Lbs Nain	Company Total
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	303,570	0	303,570
1986	0	0	0
1987	0	0	0
1988	460,695	0	460,695
1989	362,869	0	362,869
1990	361,584	0	361,584
1991	99,320	0	99,320
1992	389,601	0	389,601
1993	1,152,864	0	1,152,864
1994	760,199	0	760,199
1995	1,405,062	499,258	1,904,320
1996	1,956,537	0	1,956,537
1997	1,357,042	0	1,357,042
1998	1,520,504	0	1,520,504
1999	195,928	0	195,928
2000	493,490	0	493,490
2001	493,710	0	493,710
2002	30,579	0	30,579
2003	0	0	0
2004	118,991	0	118,991
2005	174,634	0	174,634
2006	547,920	0	547,920
2007	262,995	0	262,995
2008	448,652	0	448,652
2009	324,835	34,674	359,509
2010	70,319	0	70,319
2011	277,153	0	277,153

Source: Torngat Fish Producers Cooperative Society Ltd.

Northern Shrimp

In 1997 Fisheries and Oceans Canada allocated 510t of northern shrimp in SFA 5 for the benefit of inshore fishers in Nunatsiavut (this amount was increased to 1,260t in 2003). Each year since 1997 the Nunatsiavut Government has made the communal quota available for interested beneficiaries to enter into harvesting agreements with licensed fishers to harvest a portion of the available quota. The amount provided to beneficiaries varies, as described earlier. In 2011 beneficiaries received between 125t and 180t. Response to this harvesting opportunity has been nominal since its inception, as have catches in most years. However, in

2011 there was significant increase in activity, which is believed to have been brought about by the availability of southern platforms trying to offset significant shrimp quota reductions in SFAs 6&7. Typically less than a few hundred tonnes have been taken under inshore lease arrangements over the past decade, and late in the season the Nunatsiavut Government requests a transfer of the residual for harvesting by offshore vessels. Until recently increased utilization of these quotas by inshore fishers was considered unlikely because shrimp prices have been so low as to make it unattractive for southern based vessel owners to partner with beneficiaries. As well, southern fishers had their own large quotas/caps to catch. The deteriorating resource condition to the south has now changed this perception. A total of nine Nunatsiavut harvesters were active this year, and as can be seen in Table 12 landings increased significantly compared to 2007 through 2010.

Table 12 Northern Shrimp Landings, Nunatsiavut <65'

Nunatsiavut <65" Shrimp Catches in SFA5	
Year	**Landings (t)**
2007	21
2008	94
2009	0
2010	380
2011	1193

Source: DFO

In 2011, the inshore northern shrimp price averaged around $0.63 per pound, which is up about $0.10 over the previous two seasons, but within the long term range for the fishery. If a beneficiary is provided 15% to 20% of the landed value of a trip as a royalty, little if any profit is realized by the venture partner (unless they are permitted to land excessively large loads). For example, if a beneficiary harvests 100t (4 trips @55,000 pounds) and is fortunate to get a 15% royalty, the gross income for the trip is approximately $5,200.00 (from the total landed value per trip of $34,650). The beneficiary receives a reasonable return for his time but the boat owner has little to show for the effort after expenses, in terms of contribution to an enterprise. Consequently, inshore northern shrimp harvesting has not proven to be a lucrative opportunity. A negative aspect of the inshore northern shrimp fishery is that there is no local processing for Nunatsiavut or service and supply opportunities for the local business community. Inshore shrimp catches are landed in Charlottetown, the closest plant, or to ports further south on the Island. Hence, not only is most of the inshore shrimp value lost in the harvesting, but there is absolutely no value returned to the community through local processing, or benefit to the local supply and service sector; not that inshore shrimp processing is being suggested here, because numerous commissioned reports have outlined the perils of this sector of the industry.

The revenue generated from the entirety of the Northern Shrimp quotas held by the Nunatsiavut Government and affiliated agencies has contributed greatly to the Inuit government, fish and other businesses and local communities. The numerous Labrador Inuit employed on the offshore vessels since the 1970s have enjoyed considerable benefits. Northern Shrimp can continue to play a lead role in general economic, community and fleet

development. A primary policy question for consideration is how and under what model are the benefits to be utilized?

Applying a Pro Forma Analysis on the Viability of a 65' Enterprise

It could be soundly argued that the current structure is working well. Not owning an inshore vessel might be viewed as a prudent course during what is perennially a tough existence in the Newfoundland and Labrador fishery, and particularly the tumultuous decade just passed with declining quotas and weak pricing. Similarly, the demands and challenges of managing and operating a $20-25 million modern factory freezer trawler under trying market circumstances, declining quotas and increasing fuel prices is a daunting undertaking. Yet, not fully utilizing the quotas precludes the development of capacity in the Inuit communities and shore based infrastructure, the development of management expertise, supply and service employment, and home-grown small business development related to logistical and technical support to a vessel(s). An approach might be to use the shrimp resource or royalties from the "inshore" communal allocations to contribute to the purchase of inshore vessels, or as leverage to acquire other quotas (i.e. turbot, crab).

To examine the potential of a stand-alone inshore fishing platform a pro forma analysis is offered to outline the various variables that need to be considered and included in any business and operational plan. There are many different scenarios and "tweaks" that can be applied in such a model, principle among these are catch rate, market price, and crewing rates. Every individual weights or adjusts these variables differently to suit their respective fishing plan and financing requirements. This being said, when it comes to operating a viable fishing enterprise the investor wants to err to the conservative, and avoid overly optimistic forecasting of fish prices and catch rates. The following model assumes:

1. The vessel, gear and quotas are provided to the Nunatsiavut Beneficiary. Hence, there are no long-term liability and interest charges. A 65' steel vessel with a crew of four is considered the minimum requirement for marine conditions, catching efficiency, and crew comfort in 2GHJ.

2. The vessel is valued at $1 million (gear at $600K) and operates out of Makkovik where it is able to avail of plant and municipal services and support.

3. The fishing plan excludes seals. This would require the vessel to be berthed in La Scie, Fogo or other Island based port through the winter in order to reach the "front". This fishery brings with it a set of risks and extra costs, and current market concerns pre it as an opportunity.

4. Current year fuel prices are assumed, and fuel consumption is averaged across all fisheries rather than on a per fishery basis (i.e. shrimp trawling consumes huge volumes of fuel relative to snow crab and turbot fishing).

5. Above average prices for snow crab, shrimp, and turbot are assumed.

6. Catch rates applied reflect those currently experienced in recent fisheries for the region, and the crew's ability to handle, re-deploy gear, and stow catch. Snow crab catch rate comes from DFO logbook data for 2011.

7. A 4-month fishing plan is presented, broken down roughly into typical weekly fishing trips for the various clude species, and reflecting respective trip limits and handling capacity of the processor, timing of the fisheries (season openings and environmental conditions). Northern Labrador has a very narrow seasonal window of operations and four months of operations is the best that can be assumed under ideal conditions. Fall (commencing September 1) becomes "windy", and more sea "jogging" days and fewer fishing days are available to return the catch.

8. A skipper and "boat share" are omitted from the crewing cost assumptions. 8% of gross is the assumed individual crew rate (including travel and provisions). Typically, individual crew shares are variable between 5-12% depending on the crew's relationship to the vessel owner (i.e. family, tenure, skill, role and efficiency).

9. Miscellaneous operating includes: wharfage, shore power, ropes, moorings, charts, winter berthing/storage, shipping parts, specialty trade work, and other consumables.

10. Management and Professional fees includes: all transactions relating to banking, accounting, lines of credit, invoicing, Tax preparation, licensing, TC inspections and legal documentation, attending related meetings, etc.

Pro Forma 2012 Fishing Plan and Income Statement for Nunatsiavut Boat 1														
Fishing Operations	Trip Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Species Fished		**Snow Crab**	**Snow Crab**	**Snow Crab**	**Snow Crab**	**Snow Crab**	**Turbot**	**Turbot**	**Shrimp**	**Shrimp**	**Shrimp**	**Shrimp**	**Shrimp**	
Time of Year		**June 22 - 29**	**Jul 1 - 7**	**July 9 - 16**	**July 18 - 25**	**Jul 26 - Aug 1**	**Aug 3 - 10**	**Aug 12 - 22**	**Aug 12 - 17**	**Aug 18 - 24**	**Aug 26 - Sep 2**	**Sep 4 -11**	**Sep 13 - 18**	
# Sea Days		7	7	7	7	7	7	10	6	6	8	8	6	86
# Fishing Days		5	5	5	5	5	5	8	4	4	5	5	3	59
Total Catch (mt)		20	20	20	20	20	20	30	30	25	30	30	20	285
Ave catch per fishing day		4.0	4.0	4.0	4.0	4.0	4.0	3.8	7.5	6.3	6.0	6.0	6.7	
Yield		100%	100%	100%	100%	100%	75%	75%	100%	100%	100%	100%	100%	
Vessel Production (mt)		20	20	20	20	20	15	22.5	30	25	30	30	20	273
Ave. $CAD/MT		3,858	3,748	3,307	3,307	3,307	4,409	4,409	1,323	1,389	1,433	1,543	1,543	
Gross Sales		77,161	74,956	66,138	66,138	66,138	66,138	99,207	39,683	34,722	42,990	46,297	30,864	710,432
Variable Expenses	***Assumptions***													0
Royalties/Quota Cost		0	0	0	0	0	0	0	0	0	0	0	0	0
Crew Costs (Incl. Travel/prov)	crew of 4 @8%	24,692	23,986	21,164	21,164	21,164	21,164	31,746	12,698	11,111	13,757	14,815	9,877	227,338
Fuel & Lubricants	Ave 1200 L/day @$0.85	7,140	7,140	7,140	7,140	7,140	7,140	10,200	6,120	6,120	8,160	8,160	6,120	87,720
Fishing Gear	120K over 2 years	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
Bait	@.70/lb	3,086	3,086	3,086	3,086	3,086	0	0	0	0	0	0	0	15,432
Management & Professional Fees	@5% per trip	3,858	3,748	3,307	3,307	3,307	3,307	4,960	1,984	1,736	2,149	2,315	1,543	27,806
Miscellaneous operating	$30K per year	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	30,000
Communication, Bank & Legal Fees	1000/trip	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Repairs & Maintenance	30K per season	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	50,000
Total Variable Expenses		51,443	50,627	47,364	47,364	47,364	44,278	59,573	33,469	31,634	36,733	37,956	30,206	510,296
Gross Margin		25,718	24,329	18,774	18,774	18,774	21,860	39,634	6,213	3,088	6,257	8,340	658	200,136
Fixed Expenses														
Insurance	30K	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	30,000
Interest on LTD														0
Depreciation	1.0M @15 years	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	66,667
Interest on Shareholder Loan														0
Provision for refit/replacement	60K/year	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	60,000
Total Fixed Expenses		13,056	13,056	13,056	13,056	13,056	13,056	13,056	13,056	13,056	13,056	13,056	13,056	182,778
Income (loss) Before Tax		12,663	11,274	5,718	5,718	5,718	8,805	26,578	-6,842	-9,967	-6,799	-4,715	-12,398	17,359
Income Taxes		-	-	-	-	-	-	-	-	-	-	-	-	2,864
Net Income (Loss) from Operations		-	-	-	-	-	-	-	-	-	-	-	-	14,494

The assumptions to the model can be adjusted by the individual to reflect their experience, yet this version offers a reasonably robust assessment of the input parameters. A notable point is that the assumed prices for product used in this iteration are tending to recent highs (Crab @$1.75/lb, Turbot @ $2.00/lb, and shrimp averaging $0.65/lb). There are few who would guarantee such prices will hold over the medium term and long run. Note also that turbot is harvested in a competitive fishery, and Labrador boats can't pursue this fishery until later in the year when the quota is nearly exhausted. There is no skipper/owner share (wages) included, and is it reasonable to expect the Nunatsiavut Government to provide community quotas at no cost to the harvester in the long run? The enterprise is generating little cash flow and retained earnings, and a catastrophic event (i.e. engine failure or loss of a shrimp trawl, an even an extended period of heavy ice) would cripple the enterprise. The numbers speak for themselves, investing in a new or existing 65' enterprise is a risky venture.

On the one hand it seems clear that the current policy approach of providing "gratis" quotas and royalty shares is not delivering in terms of developing a self-sufficient harvesting sector in Nunatsiavut that can contribute to the local economy. There has been no appreciable fleet development and the present approach has to be viewed for what it appears to have become, an *ex gratia* (i.e. out of goodwill) payment to a select group of LIA beneficiaries. Unfortunately, this is not only detrimental to fleet development, but also to the aspirations of the truly committed fish harvesters, and the young people in the communities who may be seeking employment opportunities in the fishery.

After more than a decade of disbursing allocations of snow crab, shrimp, and turbot, and with only one Nunatsiavut based vessel and crew currently operating, the results suggest refocusing rather than retrenching fishery development objectives. Nunatsiavut possesses a package of valuable fishery resources, and potential to access more through a variety of alternatives. A cogent plan with specific objectives, timelines, investment commitments and performance monitoring is needed if the fishery is to provide meaningful economic benefits to individuals and the broader community.

A strong local economy and community satisfaction levels are dependent on strong industries and local participation. Shipping out resource revenues and employment opportunities in the fishery is not the way to build strong communities or achieve achieve social well being.

The community as a whole would be well served to look at the allocations and ponder a series of questions:

1. If a fleet development plan/annual fishing plan were to be developed around these inshore allocations, what configuration of vessel(s) could be sustained for the benefit of the community in the areas of harvesting, processing, and shore based supply and service?

2. What financing options can these allocations generate?

3. Can some of the allocations be traded, sold, auctioned to the highest bidder on an annual or multi-year basis to leverage or secure other fishing opportunities that will benefit the community?

4. If proceeds from royalty charters are allocated to a fleet development fund, is there opportunity to seek government(s) to partner/cost share in the purchase of quotas and/or licence acquisitions to develop the local economy and fishing communities?

5. Are requests for additional quota being hampered by the lack of action/success in developing current allocations into tangible results for the region?

6. Are designate fishers ready for bare boat charters, and would this be possible?

Processing

The following analysis outlines the expected costs, revenues, and attendant labour inputs a typical snow crab operation would anticipate assuming a 600mt raw material supply. It is a high level synopsis of the potential benefits of processing and marketing snow crab products, from an industry standard perspective. It is meant to provide information for internal evaluation and review. The intent is to understand the costs associated with raw material, labour and consumables associated with the processing and marketing of snow crab products, using standards consistent within the industry. It is also intended to project potential returns on the sale of finished products using the 2011 market environment. The

analysis also provides an estimate of the workforce required to process an anticipated 600MT snow crab allocation based on standards for processing plants with similar quantities of raw material, and projects the person hours of employment said allocation would provide.

In summary, it is a general analysis of the potential for increased benefits associated with the all inclusive processing and marketing of snow crab finished product, from an industry standard perspective. It should not be viewed as a complete comprehensive review. A more detailed audit of the presently existing facilities and infrastructure would be required to provide an all encompassing report. The analysis does not account for any capital expenditures or investments that would be required to retrofit or upgrade the presently existing facilities to attain returns consistent with industry standards, if applicable. This report also does not account for any nuances that may exist to harvesting, processing or shipping in remote northern regions that may not be encountered in other facilities operating in regions from an industry standard perspective.

Processing Capacity and Employment Level

There are numerous companies throughout Newfoundland and Labrador, as well Atlantic Canada in general, engaged in the processing and marketing of snow crab products. These processing facilities range from extremely large operations processing in excess of 5-6 million lb of raw material per season, to the more moderately sized operations processing 1-2 million lb of raw material per season. Each of these facilities is equipped with processing machinery and equipment on the scale required to accommodate the anticipated quantity of raw material.

From an industry standard perspective, operations processing 1-2 million lb of raw material are generally equipped to accommodate 35,000lb – 45,000lb of raw material on a per shift basis. With an anticipated annual allocation of 600MT of live snow crab, it would be reasonable to expect the facilities of Torngat Fish Producers Cooperative Society Limited at Makkovik to be able to process 40,000lb of raw material on an average per shift basis. Given this assumption, the 600MT allocation of live snow crab would translate into 6 weeks of employment for approximately 54 people. In other words, from an industry standard perspective, it is reasonable to expect to create approximately 15,500 person hours of employment from an allocation of 600MT of snow crab.

Determination of Sales Revenue

Table 13 provides the revenues and expenses associated with production and sale of the finished products expected from a 600mt quota. These figures were determined by projecting a finished product pack mix consistent with other facilities processing snow crab within Newfoundland & Labrador. Using a standard yield of 64.5% on producing cooked, brine frozen sections, an average USD sales price derived from the 2011 market environment for each finished product pack, and an average exchange rate for the 2011 selling season of 1USD = 0.96CDN, the calculation generates an average blended sales price of CDN 5.1763/lb of finished product. See Appendices A & D for details on pack mix, associated revenues, and consumables.

Table 13: Contribution Analysis Summary - Snow Crab		
	$/lb Finished Product	*Total $*
Revenue		
CDN sales	5.1763	4,416,333.73
Less: Sales Commission	0.0000	0.00
Freight	0.0000	0.00
Finance Charges	0.0200	17063.60
Off-site Storage	0.0100	8531.80
Net Revenue	***5.1463***	***4,390,738.33***
Expenses		
Raw Material	3.5758	3,050,840.12
Labour	0.2234	190,635.71
Salary - Management/Staff		
Consumables	0.0935	79,772.35
	3.8928	***3,321,248.18***
Contribution to OH & Profit	***1.2535***	***1,069,490.15***

Determination of Labour Cost

Using workforce numbers from facilities processing a comparable quantity of raw material, the employment positions required to process this quantity of crab, and the resultant labour cost per lb of finished product are shown in calculations provided in Appendix B. Using an average employee wage rate of $11.50/hr, an employee benefit rate of 15.25% (inclusive of CPP/EI/WC/Vac. Pay) and a payroll tax rate of 2%, the resultant labour cost is determined to be CDN 0.2234/lb of finished product.

Determination of Raw Material Cost

The total raw material cost has been determined using a fisherman settlement price of $2.15/lb only (see Appendix C), as per the 2011 FFAW/ASP negotiated minimum price agreement. It does not include any bonuses or premiums that other companies in the industry may have paid above and beyond this minimum negotiated price. The calculation to determine total raw material cost accounts for Worker's Compensation benefit rates, Employment Insurance benefit rates and Dockside Grading rates that are consistent within the industry. This determination also assumes that the cost of any bait is paid 100% by fishermen and it assumes that live snow crab are landed directly at the processing facility thus eliminating any resultant costs associated with offloading vessels at remote sites and transporting of raw material by truck. Through the above noted assumptions, a total raw material cost was determined to be CDN 3.5758/lb of finished product.

Summary of Snow Crab Harvesting and Processing Analyses

It would be reasonable to expect permit holders have now acquired sufficient technology transfer to prosecute the fisheries they participate in through lease arrangements. Yet, a detailed financial analysis is not required to deduce that current allocations of snow crab (and other species) designates are provided each year are not sufficient for them to make the jump to financing and operating a large inshore fishing enterprise of a size and configuration to provide safe and efficient harvesting in the north. Designates have communicated their frustration overtly in various gatherings over the years. Conducting an assessment of the resource package needed and attendant costs in running a longliner is not a difficult exercise, and could be completed for the benefit of all interested parties using the supplied model. In conclusion, it is in harvesting that the greatest value is lost by the individuals and the community, and in harvesting that participants have the least control.

Northern Shrimp is now the centre piece of a suite of fishery allocations held by the Nunatsiavut Government on behalf of the land claim beneficiaries. When these quotas are combined with other resource holdings (i.e. turbot, crab), the aggregate constitute a diversified and attractive package that can support a community and a specific number of fishing enterprises. The sub-allocation of valuable resources to a number of designates who utilize them in lease arrangements provides short-term infusions of cash, but even on cursory examination, as fashioned here, sufficient revenue is not generated to support the development of a modest fishing enterprise for each participant. More success may be enjoyed from utilizing all allocations as a block, from which sufficient allocations can be drawn to support a fleet configuration that optimizes returns to the community and the greatest number of individuals. This is not a difficult exercise, and various models could be applied to generate a fleet development program which would bring all benefits (harvesting, processing, management, logistics, service and support) into the community.

The examination of the processing operations for Nunatsiavut should be approached with the view that where value is lost from seasonal operations, such occurrences can be corrected. The labour inputs and other production related variables (excluding raw material costs), and how successful or not management is at extracting the greatest return from the raw material and market, are within the purview of the management team. If there are

weaknesses in processes after snow crab enters the plant that lead to revenue loss, these can be mitigated through quality assurance and control, and regular monitoring and audit of operations. In short, factors affecting production costs are entirely within the control of the plant operator to address.

The plant is assumed to have minimal influence on vessel operations and the manner in which the Nunatsiavut fishery is currently prosecuted, although there have been improvements in scheduling of landings over the past several seasons.

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Appendices

Appendix A: Pack Mix & Sales Revenue
Appendix B: Employment and Labour Cost
Appendix C: Raw material Cost
Appendix D: Consumables Cost

Appendix A
Contribution Analysis - Snow Crab
Pack Mix & Sales Revenue

Projected Finished Product	*% Mix*	*Finished Product (kg)*	*Finished Product (lb)*	*Sales Price (USD/lb FOB plant)*	*Total $ (USD FOB Plant)*	*Total $ (CDN FOB Plant)*	*CDN/lb Finished Product*
3-5oz USA cooked/brine frozen sections (30lb)	10	38,700	85,318	5.1000	435,121.9020	417,717.0259	4.8960
5-8oz USA cooked/brine frozen sections (30lb)	75	290,250	639,885	5.4500	3,487,374.0675	3,347,879.1048	5.2320
8-10oz USA cooked/brine frozen sections (30lb)	8	30,960	68,254	5.8500	399,288.3336	383,316.8003	5.6160
10oz+ USA cooked/brine frozen sections (30lb)	4	15,480	34,127	6.1000	208,175.9688	199,848.9300	5.8560
4oz+ Japanese cooked/brine frozen sections (30lb)							
Broken (for meat extraction)	3	11,610	25,595	2.7500	70,387.3665	67,571.8718	2.6400
Total	***100***	***387,000***	***853,180***	***5.3920***	***4,600,347.6384***	***4,416,333.7329***	***5.1763***

Assumptions:

Based on total of 600MT raw material weight

Standard 64.5% yield on cooked/brine frozen sections

2011 average sales price levels

2011 average exchange rate of 1 USD = 0.96 CDN

Appendix B: Contribution Analysis - Snow Crab
Employment #'s & Labour Cost

Departments	Average #	Average hr/week	Total hr/week	Total $/week	CDN/lb Finished Product
Butchering					
Butchers	9	48	432	5824.98	0.0372
Support/Service	1	48	48	647.22	0.0041
Cleaning/Grading					
Washing	1	48	48	647.22	0.0041
Grading	1	48	48	647.22	0.0041
Debarnacle	2	48	96	1294.44	0.0083
Support/Service	1	48	48	647.22	0.0041
Packing					
Packers	12	48	576	7766.64	0.0497
Weighing	1	48	48	647.22	0.0041
Support/Service	1	48	48	647.22	0.0041
Cooking					
Loading/unloading cooker & cooler	2	48	96	1294.44	0.0083
Freezing/Mastering					
Final weight	2	48	96	1294.44	0.0083
Unloading freezer/glaze	2	48	96	1294.44	0.0083
Making cartons/inserting poly	2	48	96	1294.44	0.0083
Mastering/Labelling/Palletizing	4	48	192	2588.88	0.0166
Forklift/Cold Storage	1	48	48	647.22	0.0041
Receiving/Shipping					
Offloading/icing vessels	5	48	240	3236.1	0.0207
Forklift	1	48	48	647.22	0.0041
Unloading & Loading containers	2	48	96	1294.44	0.0083
Offal	1	48	48	647.22	0.0041
Clean-up					
Plant/equipment cleaning	3	48	144	1941.66	0.0124
Total	***54***	***48***	***2592***	***34,949.88***	***0.2234***

Assumptions

Based on production of 110MT raw material per week

Employee benefit rate of 15.25% (CPP/EI/WC/Vac. Pay)

Payroll tax rate of 2%

Average employee wage rate of $11.50/hr

Appendix C: Contribution Analysis - Snow Crab
Raw Material Cost

Raw Material Costs	$/lb Raw Material	Total $	CDN/lb Finished Product
Settlement price	2.1500	2,843,934.0000	3.3333
Benefits	0.1264	167,223.3192	0.1960
Dockside Grading	0.0150	19,841.4000	0.0233
Bait			
Ice	0.0150	19,841.4000	0.0233
Trucking			
Offloading-remote site			
Total	***2.3064***	***3,050,840.1192***	***3.5758***

Assumptions:

Settlement price based on 2011 negotiated minimum price only

Benefits rate includes W.C. @ 3.88% and E.I. @ 2.00%

Cost of bait is fully paid by fishermen

All crab is landed directly at processing facility dock

Appendix D: Contribution Analysis - Snow Crab
Consumable Cost

Item	***CDN/lb Finished Product***
Packaging	0.0650
Poly liners/Poly bags	0.0050
Salt	0.0025
Pallet wrap	0.0010
Pallets	0.0050
Labels	0.0050
Cleaning supplies	0.0100
	0.0935