DIGBY NECK/ISLANDS ECONOMIC PROFILE

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ECONOMIC PROFILE

1. BACKGROUND

Many parts of rural Nova Scotia are facing changing economic conditions. There has been a decline of the fishery, challenges in the fish processing sector, lack of economic growth, aging population and deteriorating service infrastructure. These circumstances have been complicated by two general population trends: increasing migration to urban areas and a low birth rate. Rural areas are now hard-pressed to retain youth and rejuvenate stagnating economies. Digby Neck/Islands in most respects faces these same challenges. A socio-economic profile of Digby Neck/Islands follows.

2. DIGBY NECK/ISLANDS

The Digby Neck/Islands includes a 30 km long narrow peninsula jutting into the Bay of Fundy in southwestern Nova Scotia and two islands (Long Island and Brier Island) that are connected by vehicle ferries adjacent to the Neck.

The Neck never exceeds 5 km in width and is bounded on the north by the Bay of Fundy and south by St. Mary's Bay. The Digby Neck/Islands are a sub-area of Digby County. This part of the county is highly dependent on the fishing industry as a source of economic activity. General population and labour force indicators for Digby Neck/Islands and Digby County are summarized in Table 1.

Table 1
Selected Demographic Characteristics Digby Neck/Islands and Digby County
1991-2001

	Digby Neck/Islands	Digby County
Population 1991	2,240	21,250
Population 1996	2,075	20,500
Population 2001	1,890	19,545
Population % Change 1991-2001	-15.6%	-8.0%
Unemployment Rate 1996	18.7%	18.0%
Participation Rate 1996	54.7%	57.0%
Unemployment Rate 2001	14.4%	13.0%
Participation Rate 2001	56.5%	58.0%

Source: Community Counts[1].

This table shows that the population in Digby Neck/Islands has declined over the 10-year period 1991 to 2001 by 15.6% - a rate almost two times that of Digby County as a whole. The unemployment rate is a relatively high 14.4% in 2001. This is an improvement over 1996 when the rate was almost 19%. The 14.4% rate in 2001 was about 30% higher than the overall provincial rate of 10.9% for the same year.

1 All data sourced in this section comes from Nova Scotia Community Counts webpage maintained by the Nova Scotia Department of Finance. Data is modeled from Statistics Canada Census of Population 1992, 1996 and 2001. Some data presented are derived from the census short form (100% of the population) and other data is derived from the long form (20% of the population).

To provide additional context, Table 2 shows changes in population for seven most western counties in Nova Scotia. As can be seen, Digby County has experienced the second greatest decline in over-all population during the ten-year period 1991-2001. Only Queens County had a higher rate at 9.3% versus the Digby County rate of -8.0%.

Table 2
Population of the Seven Western Counties
1991-2001

	1991	2001	% Change
Digby	21,250	19,545	-8.0
Yarmouth	27,890	26,840	-3.8
Shelburne	17,340	16,230	-6.4
Annapolis	23,635	21,775	-7.9
Queens	12,925	11,725	-9.3
Lunenburg	47,635	47,595	-.1
Kings	56,315	58,870	4.5

3. POPULATION

Digby Neck/Islands, not unlike other coastal regions of Nova Scotia, has an aging population and a net-out migration. Table 3 shows that overall, the area is losing population, particularly in the prime working ages of 15-39 (a 37.7% decline over 10 years).

Table 3
Digby Neck/Islands Population Change by Age Groups, 1991-2001

	1991 Census Total	1996 Census Total	2001 Census Total	% Change 1991-2001
Total Reporting	2,240	2,075	1,890	-15.6
Males	1,135	1,060	965	-15.0
Females	1,115	1,105	930	-16.0
0-4 yrs	185	115	100	-45.9
5-9 yrs	145	150	120	-17.2
10-14 yrs	145	130	140	-3.4
0-14 Subtotal	**475**	**395**	**360**	**-24.3**
15-19 yrs	155	150	110	-29.0
20-24 yrs	175	110	65	-62.9
25-29	155	140	90	-41.9
30-34	190	140	125	-34.2
35-39	175	165	140	-20.0
15-39 Subtotal	**850**	**705**	**530**	**-37.7**
40-44 yrs	165	170	160	-3.0
45-49 yrs	105	150	155	47.6
50-54 yrs	85	100	155	82.4
55-59	95	85	110	15.8
40-59 Subtotal	**450**	**505**	**580**	**28.8**
60-64 yrs	110	95	80	-27.3
65-69 yrs	100	110	80	-20.0
70-74 yrs	135	80	90	-33.3
75+ yrs	145	185	200	37.9
60+ Subtotal	**490**	**470**	**450**	**-8.2**

The table also shows that the number of children under 15 years of age has dropped 24%. There has actually been significant growth in the 40-59 (+28.8%) year bracket as those who have been gainfully employed have moved to the higher age cohorts. The rate of population decline for those over 60 has been 8.2%. Out migration by younger people obviously accounts for the drop in population on the Digby Neck/Islands. These younger people who are the prime age for starting families simply have not had sufficient employment opportunities and have moved away from the area to seek better opportunities elsewhere.

The population decline of youth and young adults has to be of particular concern as this latter group is the prime working age and is generally viewed as the driving force in an economy. These trends are not expected to change without a fundamental change in economic opportunities for the area.

4. LABOUR FORCE

Labour force trends observed on Digby Neck/Islands reflect shifts in the overall economic circumstances of the area. Overall, the number of people employed who live on Digby Neck/Islands dropped by almost 10% between 1991 and 2001. Over the same period, the unemployment rate jumped from 12.0% in 1991 to 18.7% in 1996 and then down to 14.4% in 2001. The decline of the ground fishery likely explains the change in 1996 with some rebound occurring due to improved shellfish landings by 2001.

The number employed at the county level from 1991-2001 dropped 3.8%, compared to almost 10% noted above for Digby Neck/Islands. Unemployment for Digby County was 13% in 2001, down from 18% in 1996.

Table 4
Key Labour Force Statistics
Digby Neck/Islands and Digby County, 1991-2001

	Digby Neck/Islands				Digby County			
	1991	**1996**	**2001**	**% Change**	**1991**	**1996**	**2001**	**%Change**
Total in the labour force	920	910	870	-5.4	10,215	9,540	9,335	-8.6
Employed	825	750	745	-9.7	8,435	7,815	8,115	-3.8
Unemployed	110	170	125	13.6	1,780	1,720	1,215	-31.7
Participation rate	51.1	54.7	56.5	10.6	59.4	57.0	58.0	-2.4
Unemployment rate	12.0	18.7	14.4	20.0	17.4	18.0	13.0	-25.3
Males:								
Total in the labour force	555	525	490	-11.7	5,855	5,425	5,030	-13.8
Employed	500	470	425	-15.0	4,935	4,570	4,420	-10.4
Unemployed	45	55	65	44.4	900	850	605	-32.8
Participation rate	60.3	63.3	62.8	4.1	68.5	66.5	64.2	-6.3
Unemployment rate	8.1	10.5	13.3	64.2	15.4	15.7	12.0	-22.1
Females:								
Total in the labour force	365	380	365	0	4,380	4,115	4,300	-1.8
Employed	320	270	310	-3.1	3,500	3,245	3,695	5.6
Unemployed	75	105	50	-33.3	875	865	610	-30.3
Participation rate	41.0	45.5	48.3	17.8	50.5	48.0	520	3.0
Unemployment rate	20.5	27.6	13.7	-33.2	20.0	21.0	14.2	-29.0

Source: Community Counts.

Reviewing the data on a male/female basis shows a couple of interesting features. The unemployment rate for males on Digby Neck/Islands increased from 8.1% in 1991 to 13.3% in 2001, a 64.2% jump. This compared to a drop of the male unemployment rate from 15.4% to 12.0% (22.1%) for Digby County as a whole. The change in the unemployment rate for females was quite similar between the two areas.

The participation rate is also viewed as an indicator of an economy's overall strength. Nova Scotia's participation rate in 2001 was in the 61% range (The higher the percentage, the stronger the economy). Digby Neck/Islands' participation rate was 56.5% in 2001 and Digby County's was 58.8%. With fewer employment opportunities available, a smaller proportion of the working age population is drawn into the labour force, thus the lower participation rate.

The lower participation rate is also an indicator that the effective unemployment rate in an economy is higher than official statistics indicate. This is the discouraged worker effect where a certain proportion of the population has given up looking for work and thus have not joined the labour force.

5. EMPLOYMENT

The key economic sector on Digby Neck/Islands is the fishery. This would include both primary sector activity and the fish processing sector. Table 5-A shows labour force by industry data for 1991 and 1996. Table 5-A shows the labour force for 2001 with slightly different industry categories used.

The table does show a 23% decline from 1991-1996 in fishery sector employment[2], down from 600 in 1991 to 460 in 1996. This is in keeping with the decline in that industry attributable to the groundfish fishery. In 2001, the primary fishing industry is not shown, however given the dominance of the fishing industry in earlier years, it is safe to assume that the fishery accounts for virtually all primary sector labour force. In 2001 there appears to have been a bit of a rebound in employment by about 30-40 positions. In the processing sector, there has been a further decline in labour force activity dropping from 190 to 130. A more complete profile of the fishery follows in a later section.

[2] We are assuming that all of labour force activity reported in the manufacturing industry is attributable to fish processing. We are aware of no other significant processing activity taking place in Digby Neck/Islands.

Table 5 Labour Force by Industry Digby Neck, 1991 - 1996				
	1991 Census		1996 Census	
Industries	#	%	#	%
All industries	910	100.0	885	100.0
Agricultural and related service	0	0	0	0
Fishing and trapping	295	32.4	270	30.5
Logging and forestry	10	1.1	0	0.0
Mining (including milling), quarrying and oil well	0	0.0	0	0.0
Manufacturing	305	33.5	190	21.5
Construction	0	0	20	2.3
Transportation and storage	25	2.7	40	4.5
Communication and other utility	10	1.1	10	1.1
Wholesale trade	10	1.1	75	8.5
Retail trade	90	9.9	80	9.0
Finance and insurance	20	2.2	0	0.0
Real estate operator and insurance agent	0	0	10	1.1
Business services	0	0	10	1.1
Government services	40	4.4	10	1.1
Educational services	35	3.8	10	1.1
Health and social services	20	2.2	30	3.4
Accommodation, food and beverage services	10	1.1	40	4.5
Other services	10	1.1	65	7.3
Industry – non-applicable	10	1.1	30	3.4

Table 5-A Labour Force by Industry Digby Neck, 2001[3]		
	#	%
All industries	860	100
Agricultural, forestry, fishing and hunting	310	36
Mining and oil and gas extraction	0	0
Utilities	0	0
Construction	10	1.2
Manufacturing	130	15.1
Wholesale trade	40	4.7
Retail trade	75	8.7
Transportation and warehousing	40	4.7
Information and cultural industries	0	0
Finance and Insurance	10	1.2
Real estate and rental and leasing	10	1.2
Professional, scientific and technical services	0	0
Management of companies and enterprises	0	0
Administrative and support, waste management and remediation services	20	2.3
Educational services	25	2.9
Health care and social assistance	50	5.8
Arts, entertainment and recreation	10	1.2
Accommodation and food services	90	10.5
Other services (except public administration)	35	41
Public administration	20	2.3
Industry – Non applicable	15	1.7

[3] Note 2001 data presented using different industry breakdown.

Retail trade is the next most important sector at about 9-10% of the total in each year. Wholesale trade also showed up as an important industry in 1996 at 8.5% but dropped back to about 5.0% in 2001. The tourism sector (accommodation and food services) showed significant growth from 1.1% in 1991 to 4.5% in 1996 to 10.5% in 2001. The Digby Neck/Islands tourism sector is profiled in more detail in a later section.

6. HOUSING CHARACTERISTICS

Another indicator of community economic health is new house construction and related developments. These can signal a rising population, an expanding economy and increased consumer confidence. The Census data on housing shows the number of occupied dwellings on Digby Neck/Islands actually decreased from 841 in 1991 to 790 in 2001. The table below also shows the age of the housing stock by period of construction, pre-1946 accounted for over 50% of the total stock in 2001 with less than 20% built post 1980. This compares with the province as a whole where only 22% of the housing stock was built prior to 1946 and 31% was built post-1980.

Table 6
Households Occupied Dwellings
Digby Neck, 1991-2001

	1991 Census Total		1996 Census Total		2001 Census Total		% Change 1991-2001
	#	%	#	%	#	%	
Total occupied dwellings	840	100.0	825	100.0	790	100.0	-6.0
Type of Occupancy							
Owned	735	87.5	705	85.5	670	84.8	-8.8
Average major monthly payments ($)	364	n/a	414	n/a	442	n/a	21.4
Rented	110	13.1	110	13.3	110	13.9	0.0
Average gross monthly rent ($)	281	n/a	316	n/a	407	n/a	44.8
Band housing	0	0	0	0	0	0	n/a
Type of Dwelling							
Single detached houses	795	94.6	775	93.9	735	93.0	-7.5
Semi-detached/row/duplex	15	1.8	30	3.6	15	1.9	0.0
Apartments	15	1.8	0	0	20	2.5	33.3
Movable dwellings	15	1.8	0	0	5	0.6	-66.7
Average value of dwellings ($)	46,849	n/a	53,967	n/a	76,166	n/a	62.6
Dwellings Requiring Maintenance							
Regular Maintenance only	440	52.4	375	45.5	360	45.6	-18.2
Minor repairs	265	31.5	275	33.3	265	33.5	0.0
Major repairs	130	15.5	165	20.0	150	19.0	15.4
Period of Construction							
Before 1946	510	60.7	475	57.6	440	55.7	-13.7
1946-1960	80	9.5	80	9.7	90	11.4	12.5
1961-1970	40	4.8	70	8.5	25	3.2	-37.5
1971-1980	100	11.9	120	14.5	60	7.6	-40.0
1981-1990	95	11.3	60	7.3	110	13.9	15.8
1991-1995	n/a	n/a	10	1.2	0	0	n/a
1996-2001	n/a	n/a	n/a	n/a	25	3.2	n/a

7. EDUCATION

Education attainment levels show the potential an area has to diversify its economy. The table below shows attainment levels for the province as a whole, Digby County and Digby Neck/Islands. It is interesting to note that 50.7% of residents on Digby Neck/Islands have less than High School, as compared to the province where 32% have that level of education. Having said that, there are a number of residents that do have college certificates or university degrees – almost 400 people.

Table 7
Educational Attainment, 2001 – Digby Neck/Islands Compared With Digby County and Nova Scotia

	Nova Scotia		Digby County		Digby Neck/ Islands	
	#	%	#	%	#	%
Total Reporting	670,930	100	14,965	100	1,410	100
Less than High School	212,670	31.7	7,105	46.9	715	50.7
Less than Grade 9	63,640	9.5	2,785	18.6	260	18.4
Without secondary school graduation certificate	149,030	22.2	4,230	28.3	455	32.3
High school graduation certificate	65,435	9.8	1,460	9.8	190	13.5
Some post-secondary education						
College	27,160	4.0	480	3.2	50	3.5
University	35,710	5.3	395	2.6	60	4.3
Post-secondary certificates or diploma						
College	209,395	31.2	3,995	26.7	325	23.0
University	17,965	2.7	415	2.8	25	1.8
University degree – bachelor's or higher	102,590	15.3	1,215	8.1	45	3.2

8. IMPACT ANALYSIS

Context

Many of the indicators examined in this profile show the economy of Digby Neck/Islands is, at best, stagnant and arguably in decline.

- Population has dropped.
- The number employed has dropped.
- The number of dwellings occupied has dropped.
- Very few new housing units are being added to the housing stock.

Through the various processes carried out for community consultation, there has been concern expressed that development and operation of the quarry will cause real estate values to decline.

We believe that generally, the quarry project will act as an economic stimulant for the area. The number of jobs created and wages paid are documented in Section IV of this report. These jobs and income will be incremental to the economy and should encourage a generally more robust real estate market. Many of those who gain employment at the quarry will be from the local area and could earn higher incomes than what they do currently. Others who acquire jobs at the quarry, who are not currently residents of the area, may choose to live close to the quarry site, and these people may choose to purchase or build a house. We expect overall, the impact to real estate values will be positive in terms of higher prices. However, we do expect the properties in close enough proximity to the quarry site where blasting can be heard or felt, could experience a drop in value.

Mitigation Measure

No mitigation is expected to be necessary for properties located outside the area where blasting is audible.

Mitigation should be considered for property owners within area of blasting sound impacts. Base line appraisals should be undertaken so future impacts on prices can be documented. Compensation for lost value can be negotiated.

Monitoring

The proponent should form a community real estate impact committee. This committee would have representatives of the company, community and local real estate professionals. This group would oversee appraisals that are done to assess impact on real estate values.

II

DIGBY NECK/ISLANDS FISHERY

1. BACKGROUND

Without question, the fishery represents the mainstay of the economy on Digby Neck/Islands. Although the fishery is not as dominant as it once was, it still accounts for the largest source of employment both for fish harvesters and fish processing workers.

2. IMPORTANT PORTS AND NUMBER OF VESSELS

The Department of Fisheries and Oceans maintains databases that serve to describe the modern day fishery as it operates on a port-by-port basis on Digby Neck and Islands. Their database assembles data for 13 different ports on the Neck and Islands.

In 2005, there were 132 registered vessels active in the fishery. The table below shows the number of vessels by port and length class.

Table 8
Vessel Summary by Home Port and Length Class – 2005

	Vessels			
Community Name	**1-34.9 ft**	**35-44.9 ft**	**45-64.9 ft**	**Total**
Centreville	1	5		6
East Ferry	2	5	2	9
Freeport	2	21	1	24
Gulliver's Cove		1		1
Little River	4	14	3	21
Sandy Cove	1	7	1	9
Sea Wall	1			1
Tiddville		1		1
Tiverton	4	19	3	26
Westport	3	17	3	23
Whale Cove	3	4		7
East Sandy Cove		1		1
West Sandy Cove	3			3
Total	**24**	**95**	**13**	**132**

The dominant vessel class length is the 35-44.9 ft category with 95 vessels accounting for 72% of the Neck and Islands fishing fleet. There are 13 vessels registered in the 45-64.9 ft class. The top four main homeports are:

- Freeport 24
- Little River 21
- Tiverton 26
- Westport 23

These ports account for 94 of 132 vessels on Digby Neck/Islands.

3. LICENSED FISHERS

The following table shows the number of licensed fishers by homeport in 2005.

Table 9
Number of Licensed Fishers by Homeport-Core and Non-Core - 2005

	Core	Non-Core	Total
Centreville	5	12	17
East Ferry	7	5	12
Freeport	20	42	62
Gulliver's Cove	1	2	3
Little River	16	31	47
Sandy Cove	7	33	40
Sea Wall	0	1	1
Tiddville	1	0	1
Tiverton	18	27	45
Westport	18	49	67
Whale Cove	8	3	11
East Sandy Cove	1	1	2
West Sandy Cove	1	0	1
Total	**103**	**206**	**309**

* A core fisherman is a person who holds two or more key fishing licences or one vessel based licence and has earned $25,000 or more from their fishing enterprise for two or more years.

In total on Digby Neck/Islands, there are 309 licensed fishers comprised of 103 core fishers and 206 non-core. As with the concentration of fishers, four ports of Freeport, Little River, Tiverton and Westport account for 71% of licensed fishers. The fishers in the ports on Digby Neck/Islands hold a wide variety of specie licences.

The main specie licences include:

- Alewives/Gaspereau
- Groundfish
- Clams
- Herring
- Herring/mackerel
- Lobster
- Mackerel
- Sea Scallop
- Marine Plants
- Sea Urchins
- Eel
- Shark
- Squid
- Swordfish
- Oysters
- Seal Skins
- Shrimp
- Marine Worm

Licence types include:

- Bait (variety of species)
- Non-vessel (clams)
- Fixed year groundfish
- Lobster (Category A)
- Mobile (groundfish)
- Scallop (recreational)
- Herring (vessel-based)
- Mackerel (vessel-based)
- Squid
- Swordfish
- Herring fixed gear
- Sea scallop (vessel-based)
- Crab rock (exploratory)
- Seal skin predator

4. VALUE OF FISH LANDINGS

Despite the wide variety of licenses held in recent years, the fishing industry has been dominated in terms of value by the lobster fishery.

Over the period 1998 – 2004, the value of all fish species landed on Digby Nick/Islands increased from $14.8 million to $22.9 million (55% increase). Table 10 shows detailed value of landings for all species over the five-year period 1998 – 2004. Major species landed included cod, haddock, pollock, scallop and lobster.

Table 10
Digby Neck/Islands by Species 1998 - 2004
($ 000)

Name of Species	Species Code	1998	1999	2000	2001	2002	2003	2004
Cod	100	1,205.2	1148.3	1,159.4	967.8	716.9	764.0	815.1
Haddock	110	1,251.4	1,505.3	1,800.8	1,483.9	1,281.9	1,492.9	683.4
Redfish	120	88.0	91.4	303.6	225.2	82.2	6.5	14.6
Halibut	130	94.6	83.2	64.4	131.0	141.0	148.3	215.1
American Plaice	140	0.2	10.6	33.2	6.2	1.4	0.0	0.0
Yellowtail	141	3.0	7.9	10.5	0.0	0.2	0.0	0.0
Greysole/Witch	142	19.2	16.5	13.6	4.6	14.1	12.4	12.0
Winter Flounder	143	84.0	57.5	76.4	83.3	41.9	40.4	34.8
Greenland Halibut/Turbot	144	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flounder, Unspecified	149	19.6	39.9	74.3	26.7	11.5	0.0	0.3
Skate	160	0.0	0.0	0.0	0.4	0.0	0.1	0.0
Dogfish	161	15.6	126.6	286.7	396.6	300.8	52.3	159.5
Pollock	170	806.3	607.1	249.3	241.7	192.9	234.3	143.6
White Hake	171	92.3	47.0	121.9	98.9	96.0	106.3	111.5
Silver Hake	172	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Cusk	173	4.1	1.3	2.2	4.2	2.8	5.6	3.4
Catfish	174	7.5	6.9	6.6	1.5	0.4	0.4	0.7
Monkfish	177	17.6	17.6	24.7	6.9	2.0	2.8	3.9
Red Hake	180	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sculpin	181	2.0	1.0	9.0	6.2	8.8	7.5	6.8
Tilefish	190	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Groundfish, Unspecified	199	2.3	1.9	1.2	1.1	0.0	0.2	0.0
Herring	200	31.2	29.8	2.4	151.1	101.3	34.4	38.0
Mackerel	250	0.0	0.2	0.0	0.3	0.6	0.0	0.0
Eel	352	0.0	0.0	0.1	0.1	0.0	0.0	0.2
Shad	355	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Sturgen	359	3.5	0.0	0.0	0.0	0.0	0.0	0.0
Shark, Porbeagle/Mackerel	369	2.5	0.0	0.0	0.7	0.0	0.2	0.4
Shark, Blue	372	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Shark, Mako	375	0.2	0.0	0.0	0.3	0.2	0.0	0.5
Shark, Unspecified	379	1.6	1.7	1.0	0.2	1.2	0.3	0.0
Clams, Bar	600	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Clams, Soft Shell	601	0.0	0.1	276.0	0.0	629.0	16.6	5.6
Quahaugs	602	0.0	0.0	12.1	0.0	15.0	402.1	451.1
Clams, Littleneck	605	0.0	0.0	0.0	0.0	695.4	0.0	0.0
Scallop, Sea	612	762.2	1,080.6	615.9	715.7	636.2	463.2	732.8
Sea Urchins	650	120.3	526.2	604.4	551.3	398.8	366.7	196.0
Lobster	700	10,115.1	14,935.4	15,522.4	18,003.1	19,528.1	22,462.9	19,262.0
Crab, Jonah	703	38.9	11.6	98.0	195.0	249.6	144.2	50.9
Crab, Rock	704	12.0	17.4	15.2	64.3	73.5	33.7	16.5
Crab, Snow	705	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Crab, Unspecified	707	4.9	3.2	27.6	2.8	1.6	0.0	0.0
Dulse	900	0.0	0.0	1.8	3.1	0.0	0.0	0.0
Rockweed	906	13.0	31.1	0.0	7.3	0.0	0.0	0.0
Livers, Unspecified	944	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Other							0.0	0.0
	Overall Total	**14,828.3**	**20,407.4**	**21,415.5**	**23,381.5**	**25,225.3**	**26,798.4**	**22,958.8**

Source: DFO

Table 11 is a summary table, which uses the detailed data from the table above to show changes in the relative importance of various species types between 1998 and 2004. Much of the increase in value over this time period can be attributed directly to lobster where the value of landings increased from $10.1 million in 1998 to $19.2 million in 2004 (an increase of 90%). Lobster accounted for 68.2% of all landings in 1998, increasing to 83.9% by 2004. With the decline in groundfish landings, the fishery on Digby Neck/Islands has clearly become dependant on a single species – lobster. There is some promise that groundfish stocks, notably haddock, are recovering on Georges Bank and may present opportunities for the fishing industry. Other highlights from this table show that groundfish are the second most valuable species landed on Digby Neck/Islands. Groundfish landings over this period declined in value from $3.7 million to $2.2 million. The species percent share also dropped from 25.0% in 1998 to 9.6% in 2004. Other shellfish, including scallops, clams, crab and sea urchins have increased in value, going from $0.9 million to $1.4 million in 2004.

Table 11
Relative Value of Fish Landings on Digby Neck/Islands by Major Species Category
1998 vs. 2002

	1998		2004	
	$000	**% of Total**	**$000**	**% of Total**
Total Groundfish	3,713.0	25	2,204.7	9.6
Total Other Finfish	39.0	0.3	39.2	.2
Lobster	10,115.1	68.2	19,262.0	83.9
Total Other Shellfish	948.1	6.4	1,452.9	6.3
Total Other	13.1	0.1	0.0	.0
TOTAL	**14,828.3**	**100.0**	**22,958.8**	**100.0**

Table 12 shows the volume and value of lobster landings in Lobster Fishery Area (LFA) 34 as a whole compared with landings on Digby Neck/Islands. In terms of value, Digby Neck/Islands accounts for between 6.8 and 8.6% of total value for LFA 34 over the period 1998 – 2004.

Table 12
Lobster Landings LFA 34 Compared with Landings on Digy Neck/Islands – 1998 - 2004

	LFA 34		Digby Neck/Islands		
	Tonnes	**Value ($)**	**Tonnes**	**Value ($)**	**% of LFA 34 Values**
1998	11,360	149,446	757	10,115	6.8
1999	14,599	201,644	1,082	14,935	7.4
2000	14,431	192,790	1,176	15,522	8.1
2001	18,940	242,768	1,406	18,003	7.4
2002	17,577	252,786	1,352	19,528	7.7
2003	17,879	266,638	1,494	22,463	8.4
2004	16,465	224,298	1,423	19,262	8.6

5. FISH PROCESSING AND AQUACULTURE

There are a number of fish processors and aquaculture operations located on Digby Neck/Islands. The following summary table is based on information compiled by Elgin Consulting and Research. Statistics are sourced to Nova Scotia Department of Agriculture and Fisheries unless otherwise noted.

Table 13
Fish Processors and Aquaculture Operations located on Digby Neck/Islands

Name	Employment	Notes
D.B. Kenney Fisheries Ltd.	211	Market: U.S.A. 9 boats
Di-anna Aqua Inc./Cooke Aquaculture	7	Market: Canada / U.S.A.
Scotia Fisheries Limited	11	Market: Canada Annual Sales Volume: \$1-5 million Premises burned in December 2003
Gidney Fisheries		Market: Canada / U.S.A.
Ocean Trawlers Ltd.	283[4]	Market: Canada / U.S.A.
R & R Finfish Development Ltd.		Market: Canada / U.S.A. Destroyed by fishing boat during a storm. Will not reopen.
Courtnakyle Fisheries Ltd.		Market: Canada / U.S.A. Annual Sales Volume: Under \$1 million
Admiral Sea Farms	3	

6. QUARRY IMPACTS ON FISHING INDUSTRY

Context

Given the scale of economic activity associated with the fishery on Digby Neck/Islands, industry concerns must be recognized. Through the community liaison committee process and the panel review of guidelines, several issues are apparent.

The perception is that the development and operation of the quarry will have a detrimental affect on the marine environment thus impacting fish stocks. Also, that the construction and operation of the marine terminal will limit fishers access to fishing grounds.

There is also concern that there could be labour market impacts where processing plant workers or fishing vessel crew will seek jobs at the quarry.

[4] As reported by Fred Trask at Scoping Sessions, definition of what is included in this number is unknown.

Impact Analysis

Fish Stock Impacts:

We understand based on the environmental impact work completed by the proponent that impacts of the quarry on the marine environment will be benign. This being the case we see no impact on local fish stock.

Loss of Access:

Construction of the marine terminal and vessel activity at the terminal will have a localized impact in that there will be some loss of accessible lobster grounds and some loss of location where gear can be dropped as buoys could be damaged by vessel movements. This loss of access will not be significant.

We understand that herring fishery activity takes place closer to the coastline than where the cargo vessels will be docking, thus no impact should occur to this fishery during the operations phase.

It is possible that there will be some labour market impacts on the fishing industry. Many fishing enterprises are currently reporting challenges to hiring sufficient workers. We believe overall, labour market impacts will be minimal and short term. The establishment of the quarry and its associated positive economic impact should lead to an increase in new household formation on Digby Neck/Islands. These new households could in fact increase the size of the labour pool available to the fishing industry.

Monitoring

Proponent should maintain the fishing industry liaison committee so that issues arising from any adverse interaction between the quarry operation and fishing industry activities can be dealt with in a cooperative manner.

Mitigation

Any loss of lobster grounds due to construction activity should be replaced by artificial habitat. Fishers losing gear due to vessel movements should be compensated.

III

DIGBY NECK/ISLANDS TOURISM INDUSTRY

1. BACKGROUND

Digby Neck is described in the Doers and Dreamers as one of Nova Scotia's most spectacular natural regions. It is comprised of a narrow ribbon of land between the waters of the Bay of Fundy and St. Mary's Bay, and two islands – Long Island and Brier Island.

Virtually all visitors to the area travel by road along Route 217 and then across the two short vehicle ferries to the islands. From the Town of Digby to the end of Brier Island, the Neck and Island protrude into the Bay of Fundy.

2. TOURISM ASSETS

According to local tourism brochures, the Bay of Fundy is central to what is primarily a natural tourism product base. The EcoTour Map co-published in 1999 by the Western Valley Development Authority, the Digby Neck and Islands Ecotourism Committee, the Digby Neck Community Development Association, Tiverton Board of Trade and the Nova Scotia Department of Economic Development and Tourism noted the following:

- **Marine Life:** The Bay of Fundy's rich ecosystem contains a wide range of species including marine mammals such as minke, finback, humpback and right whales, dolphins, porpoises, seals, as well as many species of groundfish, pelagic, and shellfish. The Bay's tides, the highest in the world, reveal an amazing variety of intertidal life in pools along its shoreline.
- **Geology:** The unique landforms of Digby Neck and Islands are the result of a ridge of basalt that is cut across by four parallel faults, occurring at Grand Passage, Petite Passage, Sandy Cove, and Gulliver's Cove. Dramatic columnar formations, the best examples being the Balancing Rock, Dartmouth Point, and Green Head, can be found along the shore at many locations. In the upper St. Mary's Bay a red sandstone outcropping forms picturesque cliffs where fossils from the Jurassic-Triassic periods have been found.
- **Bird Life:** Because of their ideal location as a staging point for migratory birds, Digby Neck and Islands offer many fine opportunities for the birdwatcher. Brier Island, long known as one of the prime birding spots of Atlantic Canada, boasts a great variety of shorebirds in the fall. Later in the fall, diverse species of hawks, harriers, and ospreys are common. Other select bird watching areas are wetlands along Digby Neck and Long Island, and the ferry crossings between both islands. Whale watching provides the chance to see a wide variety of seabirds such as puffins and shearwaters.
- **Land Ecology:** The many trails and paths that crisscross the Neck and Islands offer the hiker opportunities to appreciate many interesting and rare plants and wildflowers. Wetland areas are home to bog plants such as skunk cabbage, pitcher plant, orchids and rare coastal plants. Woodland trails through the spruce forest are brimming with wood sorrel, bunch berry and starflower.

- **History and Culture:** The fishing grounds of the area have supported an active fishery from the earliest Mi'kmaq settlements until the present. The groundfish, lobster and herring fisheries provide the foundation of the local economy. The area is home to many well-known stories, such as the legend of Jerome, and has been the setting for a number of books, including the children's classic Fog Magic. In recent years, the scenery of the area has been used for the production of movies. Brier Island is the boyhood home of Joshua Slocum (1844-1909), the first person to sail around the world alone.
- **Digby Neck and Islands:** A special place to appreciate nature's beauty and variety. Its unique combination of rich land and marine ecosystems, together with its traditional way of life, makes Digby Neck and Islands a perfect setting for visitors interested in hiking, whale watching, birding, beachcombing, or simply enjoying the breathtaking scenery.

3. TOURISM BUSINESSES

There are a number of tourism businesses located on Digby Neck and Islands. These are the prime beneficiaries of the expenditures made by tourists.

Elgin Consulting and Research has compiled a list of various businesses. These are set out below.

Accommodations and Restaurants
- Graham's Pioneer Retreat – Centreville
- Olde Village Inn – Sandy Cove
- Rambling Rowes – East Ferry
- Direct Descendants Guest House – Tiverton
- Fisherman's Needle – Bear Cove
- Seacliff Bed & Breakfast – Tiverton (operated by two family members)
- Ruggles Guest House – Central Grove
- Tiny Tattler – Central Grove
- Freeport House Bed & Breakfast – Freeport
- Sunset Over the Bay – Freeport
- Brier Island Lodge – Westport
- Dock & Doze – Westport
- Mariner Restaurant – Sandy Cove
- Petite Passage – East Ferry
- Ferry Take-Out Seaside Lunch – Tiverton
- Lavinia's Catch – Freeport

Adventure Tour Operators
- Brier Island Whale & Seabird – Westport
- Freeport Whale & Seabird – Freeport
- Mariner Cruises – Westport
- Basin Charters – Digby
- Bay to Bay Adventures – Little River
- Cetacean Boat Tours – Westport
- Digby Neck Whale Watch – East Ferry
- Ocean Explorations – Tiverton
- Petite Passage Whale Watch – East Ferry
- Pirates Cove - Tiverton

Craft/Gifts/Galleries
- Spruce Grove Arts & Crafts – Centreville
- Brambles & Roses Gifts – Freeport
- Gallery by the Sea – Tiverton
- Ice House Gift Shop – Westport
- Well House Curios – Central Grove
- Smart Ideas Crafts & Gifts – Freeport
- The Olde Lamplighter Gift Shop – Westport

Groceries/Convenience Stores
- Wilson's on the Neck – Centreville
- Sandy Cove Grocery – Sandy Cove
- Little River Trading Company – Little River
- Gibson's Landing – Tiverton
- Ossingers Groceries – Sears & Nova Scotia Liquor Commission – Central Grove
- Straight from the Hearth – Freeport
- R. E Robicheau Ltd. – Westport

Campgrounds
- Whale Cove – Whale Cove
- Freeport Campground – Freeport
- Moby Dick – Central Grove

At the time of the Elgin survey, there were 7 grocery/convenience stores, 7 craft/gift/gallery establishments, 17 accommodations and restaurants, 3 campgrounds and 10 adventure tour operators. Most of these businesses are operated seasonally and many are primarily operated on an owner-operator basis.

In total, there are 84 rooms available. The Brier Island Lodge accounts for almost 50% with 40 rooms the next largest establishment is the Olde Village Inn, at Sandy Cove with 13 rooms. No other accommodation businesses were reported as offering more than three rooms.

4. SCALE OF TOURISM INDUSTRY

Identifying the scale of a tourism industry and the number of visitors is a challenge. In this section, we assess available information and conclude with an estimate of the economic impact associated with this sector.

Our starting point was to review a Concept Plan and Feasibility Assessment for a Bay of Fundy Discovery Centre. This document was prepared by consultants for the Western Valley Development Authority (WVDA) in May 2002. The analysis contained in this report is the most comprehensive assessment of the potential for the tourism industry on Digby Neck/Islands completed to date.

The document examines the following:

- The existing tourism product.
- The whale-watching market.
- Overall visitation.

The document also provides a projection in total tourism visitation to the area through to 2012.

The concept assessed was developed in response to efforts to amalgamate tourism products related to the Bay of Fundy. The final report for the Bay of Fundy Product Club identified the need for three interpretive centres that would focus on various aspects of the Bay of Fundy. Since the Digby area was cited as a good location for a centre, the WVDA and other government partners commissioned a concept and feasibility study for a centre to be located on Digby Neck and Islands.

The study states “in general, there is currently very little tourism product in the Digby Neck and Islands area”. They go on to identify the following as the main tourism products:

- Balancing Rock.
- Islands Museum and Visitor Information Centre (3,547 visitors signed guestbook 2001, 70% from outside province).

Whale watching is considered to be the number one tourism activity. As part of this research, the consultants compiled the following whale-watching statistics:

Year	Statistics
1997	15,453
1998	17,516
1999	19,917
2000	19,048
2001	21,834

They do also note that some businesses had closed and their tours were not included and that 56% of the tours took place from Brier Island and 30% from the Petit Passage area.

The study also notes that researcher Eric Hoyte estimates that 140,000 people took whale-watching tours in Nova Scotia and New Brunswick, spending a total of $3.6 million. This suggests the Digby Neck and Islands area accounts for 15% (21,834 of 140,000) of the total Maritime market. This would translate into about $562,000 in tourism expenditures related to whale watching on Digby Neck and Islands in 2001. This is about $25/whale watcher. We understand about $40/whale watcher is a more realistic estimate for 2005. If, in 2005, there were the same number of whale watchers as in 2001, total expenditures would be in the order of $875,000.

Our attempts to compile more current whale watching data has not been successful.

Another source of information about visitors to the Digby Neck/Island area is the 2000 Nova Scotia Visitor Traffic Flow Report[5]. It provides estimates of community traffic flow by trip purpose. This report provides estimates for Brier Island and is based on exit surveys conducted at the Cobequid Pass, the ferry (Digby and Yarmouth) terminals and the airports. The data represented below is for non-residents of Nova Scotia.

Table 14
Visitor Traffic

2000[6]	Brier Island	Digby
Party pass-throughs	1,700	57,600
Party stops	1,300	5,200
Party visits	13,000	23,700
Overnight party trips	2,400	27,800
Total party trips	18,400	114,300
Parties	18,100	94,200
Party nights	5,100	57,500
Capture rate	91%	50%

5 A report on the 2004 season was released by the Provincial Department of Tourism, Culture and Heritage in November 2005. This data was not as comprehensive for Brier Island as the 2000 data. We have not altered the analysis to reflect the 2004 data release.

6 **DEFINITIONS**

Party Pass Throughs: Represents the number of non-resident party trips passing through or by a specific community without stopping.
Party Stops: Represents the number of non-resident party trips involving a stop of less than one-half hour in a specific community.
Party Visits: Represents the number of non-resident party trips involving a stop one-half hour or more, but not overnight, in a specific community.
Overnight Party Trips: Represents the number of non-resident party trips involving a stop of one or more nights in a specific community.
Total Party Trips: Represents the sum of party pass throughs, party stops, party visits and overnight party trips for a specific community.
Parties: Represents the total number of unique, non-resident parties passing through, stopping, visiting or staying overnight in a specific community.
Party Nights: Represents the total number of nights stayed by non-resident parties in a specific community.
Capture Rate: Percent of total party trips through a community that involved a stop, a visit or an overnight stay.

The exit survey for 2000 also breaks down the visits to Brier Island by trip, purpose and region of origin. Extracted data includes:

Table 15 Visits by Trip, Purpose and Region		
	Brier Island	
	Total Party Trips	Party Nights
Trip Purpose		
Business	200	0
Pleasure (purchased accommodation)	13,700	2,500
Visiting friends & relatives	4,200	2,500
Other	400	0
Region of Origin		
Atlantic Canada	1,600	1,200
Other Canada	6,400	1,500
International	10,400	2,400

Another source of data that serves as an indicator of the scale of tourism visitation to Digby Neck/Islands is accommodation data as assembled by the Nova Scotia Department of Tourism, Culture and Heritage. This data is summarized below for Digby Neck/Islands and Digby County.

Table 16 Accommodation Data			
Rooms Sold	Digby Neck/Islands	Digby County	Digby Neck as % of Digby County
2000	5,115	79,362	6.9%
2001	4,931	77,002	6.4%
2002	5,697	78,059	7.3%
2003	5,363	74,856	7.2%
2004	5,629	76,484	7.3%

What is notable about the data in table 15 is that there is a 50:50 split in party nights between those staying with friends and relatives and those who stayed in purchased accommodation. This suggests that of the total 5,115 room nights sold in 2000, about 50% were occupied by non-residents of Nova Scotia, (2,500 as taken from exit survey) and the other 50% would be Nova Scotians.

The third source of tourist visitor information available for the year 2001 is the number of passengers taking the two ferries that operate on Digby Neck/Islands.

We have developed our own estimate of visitation to Digby Neck/Islands by using data for Petit Passage Ferry, 2002 – 2004.

Table 17 Estimate of Visitors to Digby Neck/Islands Based on Average Ferry Traffic – 2002 - 2004			
	Total Vehicles	**Resident Vehicles**	**Visitor Vehicles**
January	3,792	3,792	0
February	3,760	3,760	0
March	4,408	4,408	0
April	4,928	4,928	0
May	5,820	4,500	1,320
June	7,123	4,500	2,623
July	9,789	4,500	5.289
August	11,027	4,500	6,527
September	7,917	4,500	3,417
October	6,043	4.500	1,543
November	4,769	4,769	0
December	4,812	4,812	0
Total	**74,188**	**53,469**	**20,719**
Average Jan-Apr and Nov/Dec	4,411 Say 4,500		
Total			2.1 people/party **43,509**

Our key assumption is that based on traffic flow in January to April and in November and December, when virtually no tourists would be visiting the area, regular local traffic would result in approximately 4,500 vehicle crossings per typical month.

To estimate the number of visitor vehicles we simply subtract the typical resident traffic from the total to derive a monthly estimate for visitors. We then total the month visiting vehicles for the year and multiply the total by an average of 2.1 occupants per vehicle. Total number of visitors is 43,509.

Based on this we estimate that on an annual basis, using the ferry traffic as a proxy, that approximately 43,000 people visit Digby Neck/Island as tourists in a typical tourism season. We believe this estimate would fall within ± 25% on any given year.

The Visitor Information Centre Statistics as published by the Evangeline Trail Tourism Association shows the following for the Visitor Information Centre at Tiverton:

Year	**Statistics**
1999	4,994
2000	3,698
2001	4,388
2002	14,268
2003	2,946
2004	2,606

This data would only capture those who stop at the Visitor Centre. At best, it could serve as an indicator of scale activity and general trends. The data shows an anomalous year in 2002 when the number visiting the centre increased three-fold from 4,388 to 14,268 and then dropped to the lowest level of 2,946 reported over the five years 1999-2003. It dropped again to 2,606 in 2004. The dramatic change reported in 2002 is not supported by rooms sold data presented earlier where sales were up 15% over the same time period.

5. ESTIMATED TOURISM ECONOMIC IMPACT

The Department of Tourism, Culture and Heritage estimates the economic impact attributable to tourism in the province each year. In the table below, total tourism revenue for the province in 2004 was $1.3 billion. The province also estimates these impacts on a sub-provincial basis. Their estimate of total tourism revenue for the Annapolis Valley in 2004 is $170.8 million.

We have used this data to estimate an order of magnitude for economic impact of tourism for both Digby County and Digby Neck and Islands.

We have used the number of room nights sold as the basis of our estimates as accommodations represent the greatest portion of expenditures by tourists. Therefore, we believe this is a reasonable proxy on which to estimate expenditures at the county and local region. Using this approach, the results are shown below. For Digby County, $42 million in expenditures take place and for Digby Neck/Islands, $3.1 million. Digby Neck/Islands would account for 7.4% of all tourism expenditures in Digby County. A total payroll of approximately $1.2 million would be paid to 80 sector workers for an average annual salary of $15,000.

Table 18
Economic Impact Attributable to Tourism - 2004

	Province of Nova Scotia	Annapolis Valley	Digby County(1)	Digby Neck/ Islands(2)
Tourism Revenue (000,000)	$1,314.0	$170.8	$42.0	$3.1
Payroll (Direct and Indirect) (000,000)	$513.6	$66.8	$16.5	$1.2*
Employment (Direct and Indirect)	33,900	4,400	1,086	80*
Room Nights Sold	2,569,600	309,900	76,484	5,629

Note 1: Digby County impacts are assumed to be 24.7% of the Annapolis Valley impacts based on ratio of the room nights sold.
Note 2: Digby Neck/Islands impacts are assumed to be 7.4% of the Digby County impact based on ratio of room nights sold.
* Overstated due to limited indirect impacts. Also note that this estimate is lower than that shown earlier in Table 5-A. The accommodations and food section as defined by the census would include non-tourism sector activity. The up-shot is that while difference estimates can be made, the accuracy of my estimate could vary by $\pm$ 25%. There is no perfect set of data for this industry and estimates should be reviewed as orders of magnitude.

6. QUARRY IMPACTS ON TOURISM INDUSTRY

Context

There is much concern among industry participants that the construction and operation of the quarry will have a detrimental impact on the tourism industry on Digby Neck/Islands.

These concerns include:

- The development of the quarry will threaten the environment in such a way that the future of eco-tourism, as well as other tourism activities will be threatened.
- New jobs that are created at the quarry will pay higher wages and attract employees away from existing tourism-based enterprises.

Impact Analysis

Marine Based Tourism:

Whale watching and seabird cruises are important elements of the Digby Neck and Islands eco-tourism industry. Operators offer daily cruises during the summer months. Investigation by Bay to Bay Adventure Ltd. in 2002 suggests there is little whale activity in the area of coastline adjacent to White's Point.

Whale and seabird cruise operators take tourists to where whales are most frequent. Since there is little to no cruise activity in area of the proposed quarry, we do not believe there will be adverse impacts to the aspect of the tourism industry as a result of either constructing or operating the quarry.

There is also little recreational boating such as kayaking, sailing or pleasure cruising in the area of the proposed quarry site, thus there will be no significant adverse impacts to the recreational boating sector. Sailing vessels transiting the coastline to facilities in Digby will simply set course a little further offshore to avoid the terminal operations. No loss of marine based tourism business can be attributed to this development.

Motor Vehicle Based Tourism:

Highway 217 is the "Digby Neck and Islands Scenic Drive" from Digby to Brier Island. Views of the Bay of Fundy are not present from Highway 217. The site of the quarry lies to the west of the Digby Neck ridge and will not be visible to traveling tourists who use the highway.

Therefore, we do not believe negative impacts will materialize.

Other Impacts:

Generally, those employed in the tourism industry are not as well paid as those who will be working at the quarry. It is possible that people who currently work in the tourism industry may apply for a job at the quarry enticed by the better wage rate and the full time nature of the jobs. We expect the total transfer of jobs to be minimal as most jobs at the quarry will require a different skill set than those related to tourism. It is also possible that the tourism industry will actually benefit from the quarry as quarry employees who formerly lived outside the area establish new households on Digby Neck. It is possible that spouses of quarry workers and their teenaged children may join the tourism industry work force.

Monitoring

Whale and seabird cruise companies' activities should be monitored and if there is any change in travel patterns to close proximity to the quarry site then special measures should be taken to advise operators of scheduled cargo vessel activities.

Mitigation

No mitigation is anticipated, as quarry will not be in view from the whale watching cruises or from the highway. Labour market disruption will not be significant.

IV

ECONOMIC IMPACT OF THE WHITES POINT QUARRY

1. BACKGROUND

Bilcon of Nova Scotia proposes to establish a rock quarry at Whites Point on Digby Neck. The proposed quarry is expected to have a production life of 50 years. The quarry covers 380 acres and contains an estimated 100 million tonnes of high-quality basalt.

2. SUMMARY OF IMPACTS

The construction of facilities required for the quarry will result in a total impact of 45 person-years[7] of employment in Digby County and an additional 180 person-years in the rest of Nova Scotia. On an annual basis, the quarry will provide 43.5 person-years of employment in Digby County for operations and an additional 39.1 person-years in the rest of Nova Scotia.

3. METHODOLOGY

The analysis utilizes the EcoTec Economic Impact Model. This state of the art model is a privatized version of the Statistics Canada Interprovincial Input-Output Model. Input Output analysis simulates how various sectors of the economy interact through the purchase or supply of goods and services. The model provides a means to estimate economic changes that result from new economic activity. The establishment of the quarry at Whites Point is assumed to be the economic change in this case.

Economic impacts have been estimated for both construction activity as well as for annual operation. The impacts are estimated for both direct impacts and spin-offs attributable to the expenditures made to develop and operate the new facility. Direct impact is defined to include those expenditures made by Bilcon and its resulting economic impact. Spin-off impacts, often referred to as the multiplier effect, include both indirect and induced impacts. Indirect impacts are those gained by firms supplying goods and services to support Bilcon's activities. Induced impacts are those attributable to income and employment generated by consumer spending at the direct and indirect impact stages.

Information was provided by Bilcon of Nova Scotia on proposed construction and operating costs.

Impacts are summarized for Digby County, the rest of Nova Scotia and total Nova Scotia.

[7] A person-year of employment is assumed to be one year of employment for a person working approximately 2,000 hours.

4. CONSTRUCTION IMPACTS

The quarry construction impacts are based on an estimated capital expenditure of $40.6 million.

The estimated detailed capital expenditures are as follows:

- Purchase of various pieces of mobile equipment – $7.5 million.
- Plant infrastructure required to produce 2 million tonnes of aggregate products per year – $14.0 million.
- A marine terminal with conveyor loading system – $19.1 million.
- Total capital cost – $40.6 million.

Construction Employment Impacts

The total construction employment impact in Nova Scotia amounts to 225.5 person-years of employment including all direct and spin-off impacts. Forty-five of these person-years will be attributable to Digby County. A person-year of employment means one person is employed full-time for one year. Direct construction employment is estimated at 150 person-years for Nova Scotia. Spin-off employment amounts to 76 person-years. Table 19 provides the breakdown for Digby County, rest of Nova Scotia and total Nova Scotia for both direct and spin-off impacts.

Table 19
Quarry Construction
Direct, Spin-off and Total Employment
(Person-Years)

	Digby	Rest of Nova Scotia	Nova Scotia
Direct	38.5	111.0	149.5
Spin-off	6.6	69.4	76.0
Total	**45.1**	**180.4**	**225.5**

Construction GDP Impacts

Gross Domestic Product is an important measure of economic activity, it includes income for households (gross wages and salaries plus supplementary labour income), private sector income (gross profits plus depreciation) and government indirect tax (less subsidies) revenues. The total construction GDP impact for the province of Nova Scotia is $14.5 million. The direct GDP accruing due to the construction activities amounts to $8.8 million. Spin-off GDP is $5.8 million. Table 20 provides detail for Digby County, the rest of Nova Scotia, as well as total Nova Scotia.

Table 20
Quarry Construction
Direct, Spin-off and Total GDP
($ millions))

	Digby	Rest of Nova Scotia	Nova Scotia
Direct	$1.88	$6.89	$8.77
Spin-off	.54	5.22	5.76
Total	**$2.42**	**$12.11**	**$14.53**

Construction Federal and Provincial Tax Returns

The construction activity attributable to the development of the quarry will also generate tax revenue for the federal and provincial governments. Table 20 sets out the estimate of tax revenue by impacts occurring in Digby County and for the province of Nova Scotia as a whole. Total federal tax revenue for both direct and spin-off will be almost $2 million. Provincial tax revenue will be $1.6 million.

Table 21
Estimate of Federal and Provincial Tax Revenue
($ millions)

	Digby	Rest of Nova Scotia	Nova Scotia
Federal Government			
Direct	$0.22	$.079	$1.01
Spin-off	.09	.84	.93
Total	**$0.31**	**$1.63**	**$1.94**
Provincial Government			
Direct	$0.18	$0.56	$0.74
Spin-off	.09	.75	.84
Total	**$0.27**	**$1.31**	**$1.58**

5. QUARRY OPERATION IMPACTS

For this analysis, we have included the operational impacts for the first full year of operation. We used information provided by Bilcon based on their operational plans. In this analysis, all impacts associated with operating the new quarry are considered incremental to the economy. It is assumed that these annual operating impacts will be very similar for each of the 50 years of the quarry's operating life.

The quarry is assumed to operate with two shifts.

Total Operating Direct Expenditures

On an annual basis Bilcon will spend approximately $20 million to operate the quarry facility. The detailed direct expenditures used in the input output model on an annual basis are set out below.

- Wages and salary – $1.13 million
- Shipping – $13.0 million
- Electricity – $1.6 million
- Blasting – $1.5 million
- Fuel – $.74 million
- Municipal taxes – $.40 million
- Repair and maintenance – $.98 million
- Environmental monitoring – $.20 million
- Total – $19.6 million

Operations Employment Impact

The total employment impact on an annual basis, including direct and spin-off, is 51.8 person-years of employment in Digby County and for Nova Scotia as a whole it will be 91.0 person-years of impact. Direct employment is estimated at 43 person-years in Digby County with spin-off employment at 8.8 person-years. Over the 50-year life of the project, total employment in Nova Scotia including direct and spin-off will be 4,550 person-years

Table 22
Quarry Operations Annual and 50-year Life
Direct, Spin-off and Total Employment
(Person-Years)

	Digby		Rest of Nova Scotia		Nova Scotia	
	Annual	**50 Years**	**Annual**	**50 Years**	**Annual**	**50 Years**
Direct	43.0	2,150	4.0	200	47.0	2,350
Spin-off	8.8	440	35.2	1,760	44.0	2,200
Total	**51.8**	**2,590**	**39.2**	**1,960**	**91.0**	**4,550**

Operations GDP Impact

The GDP impact associated with operations is estimated to be $6.3 million in Nova Scotia (Table 23). The direct GDP accruing due to the operation of the quarry amounts to $2.2 million. Spin-off GDP adds a further $4.0 million to the provincial economy. Over 50-year life of the project, total GDP impact will be $315.50 million.

Table 23
Quarry Operations GDP Impact Annual and 50-year Life
Direct, Spin-off and Total GDP
($ millions)

	Digby		Rest of Nova Scotia		Nova Scotia	
	Annual ($)	**50 Years ($)**	**Annual ($)**	**50 Years ($)**	**Annual ($)**	**50 Years ($)**
Direct	1.99	99.6	.25	12.50	2.24	112.00
Spin-off	.65	32.5	3.42	171.00	4.07	203.50
Total	**2.64**	**132.1**	**3.67**	**183.50**	**6.31**	**315.50**

Operations Federal and Provincial Tax Revenue

The operation of the quarry will also generate tax revenue for the municipal, provincial and federal governments. Annual municipal taxes payable in Digby County will be $400,000 as noted above. This would be a significant increase in the Digby municipality commercial tax revenue. Table 24 shows the breakdown by direct and spin-off for the other two levels of government. Total federal taxes attributable to the quarry on an annual basis will be about $1.0 million and provincial taxes about $.8 million. Over the 50-year life of the project, federal taxes will be about $50 million and provincial taxes will be about $40 million.

Table 24
Estimate of Annual Federal and Provincial Tax Revenue
($ millions)

	Digby	Rest of Nova Scotia	Nova Scotia
Federal Government			
Direct	$0.40	$0.03	$0.43
Spin-off	.15	.42	.57
Total	**$0.55**	**$0.45**	**$1.00**
Provincial Government			
Direct	$0.34	$0.02	$0.36
Spin-off	.14	.33	.47
Total	**$0.48**	**$0.35**	**$0.83**

APPENDIX A: COMMUNITY CASE STUDIES

Strait of Canso, Nova Scotia
Hantsport, Nova Scotia
Sechelt, British Columbia

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I.
Strait of Canso, Nova Scotia

1. SITUATION

Martin Marietta operates a major aggregate quarry at Cape Porcupine near the Canso Causeway in the Strait of Canso. This quarry exports a significant volume of product on an annual basis to the United States. The ocean-going vessels are similar to those proposed to be used at White's Point. This operation is of interest to the White's Point proponent due to its prominent location and its visibility to tourists. The marine aspect is also of interest due to the interaction between the marine shipping activity and the lobster fishery.

- The Strait of Canso Superport is 20 km long and can handle vessels up to 500,000 dwt. It is central to North America and international shipping routes.
- In 2004, total cargo handled at all facilities 24.8 million tonnes making it the second largest cargo port in Canada.

2. TOURISM

The Canso Causeway provides the only road access to Cape Breton Island. The vast majority of visitors access the Island by crossing the Causeway. Cape Breton Island is a world-renowned tourism destination. Conde Neste Traveller, a National Geographic magazine, recently recognized it as second place in the world as a travel destination.

The Cape Breton "Tourism Road Map" Destination Development Plan prepared for the Cape Breton Growth Fund Corporation in March 2003 is the most comprehensive document available on the tourism industry on Cape Breton Island.

Their market analysis shows:

- 1 million person-trips take place annually in Cape Breton.
- Majority 2/3 are by Nova Scotians.
- Visitors from mainland Nova Scotia are their largest market.
- Cape Breton 25%
- Other NS 41%
- New England 5%
- Ontario 8%
- Other US 11%
- Other Atlantic 6%
- Other 4%
- Port Hastings (where the Causeway enters Cape Breton) has the highest visitor traffic flow – 430,000 person trips.
- Behind visiting friends and relatives, sightseeing is the number one activity visitors participate in – 36%.

To assess the impact the quarry operation at Cape Porcupine has on the tourism industry, we consulted with the manager of the Nova Scotia Visitor Centre located just across the Causeway on the Cape Breton side. This centre is the busiest in Nova Scotia. Visitors to the Centre have a direct view of the quarry located about 2 km across the Strait.

We understand that the quarry operation does generate a number of questions from visitors. Although quantitative data is not kept, the manager estimated that on a typical busy day with 2,000 visitors, approximately 40 might ask a question about the quarry. The nature of the questions vary greatly. About half would concern just general curiosity about the operation, where the product goes, etc. The other half could concern questions related to the environment.

Tourists also show genuine concern when dust levels are high and a cloud of dust is visible moving down the Strait. Calls by staff to the operation are usually heeded and dust levels are brought under control.

The Visitor Centre also monitors the blasting schedule so they can post warnings to visitors that they are not experiencing an earthquake. The manager has not heard anyone express a view that the quarry operation has ruined their opinion of Cape Breton and will deter them from making a return visit.

3. FISHERY

To assess the interaction between the fishing industry and the shipping activity, we consulted with the Lobster Fishing Area 29 representative. The number one concern of lobster fishermen in the area relates to the issue of ballast water discharge by the various ocean going cargo vessels that use the Strait. Fishermen are of the firm belief that significant volumes of ballast water are released in the Strait area, counter to Transport Canada guidelines. They have grave concerns for invasive species.

Most of the shipping activity is not in conflict with the setting of lobster gear. The vessels operate in clearly defined shipping lanes where fishermen do not set gear.

During a recent expansion to shipping facilities at the quarry, fishermen participated on a joint committee to review the potential impact of the project on fishing activity. The company did replace lost lobster fishing habitat on a 2 to 1 basis by dropping concrete lobster houses in areas that previously did not provide suitable lobster habitat. These lobster houses create an artificial reef effect. The fishing industry felt that even though they participated on the joint committee that the process was treated as a formality as work had begun on the quarry facilities before the committee had completed their discussions.

II.
Hantsport, Nova Scotia

1. SITUATION

Fundy Gypsum currently ships about 1.5 million tonnes of gypsum out of the small port of Hantsport on an annual basis. Hantsport is located in the Minas Basin and vessels transit through the Bay of Fundy to reach the berthing facility. Vessels must arrive in Hantsport just prior to high tide, load within three hours, and depart. The port facilities and storage area for gypsum are located virtually in the downtown. Gypsum arrives at the port via train. It is stored in a storage shed dockside and then is loaded via a new loading system reputed to be the fastest system in North America.

We reviewed operations in Hantsport from three perspectives. The impact the cargo handling has on property values, the interaction between the community and the company, and the impact the operation has on the tourism industry.

2. PROPERTY VALUE

When residential property is in close proximity to industrial-zoned land, often property values are lower. We spoke with a local real estate agent and chief town administrator to discuss the impact the gypsum handling facility has on real estate prices in Hantsport. Both agreed that the highest value property in the town is in the area immediately adjacent to the shipping facility. The riverfront properties are on Avon Street. Some very prominent Nova Scotians live in this neighborhood. Vessels arrive and load in the port 3-4 days per week. The presence or absence of the loading facility and associated vessel activity were felt to have no discernable impact on property values.

3. INTERACTION BETWEEN COMPANY AND TOWN

Fundy Gypsum was described by the town CAO as a good corporate citizen of the community of Hantsport.

Although there is no formal structure to deal with citizen complaints about noise or dust, the company and town do openly communicate when situations arise. The town CAO would normally contact a company representative and in most situations, remedial action is taken to the satisfaction of all involved. The CAO did note that at times, he must remind citizens that they purchased property in an area adjacent to industrial zoned land and that certain activities will take place that would not happen had the citizen purchased property in a more residential area.

Recently, plans have been made by the town to build a park and recreational facilities next to the gypsum loading terminal. Fundy Gypsum has committed to undertake the land preparation phase of the project at their expense using their heavy equipment. The company is also active in providing sponsorships for local sports teams and contributing to other fundraising activities. The marine facility employs 14 people, several of whom reside in the town.

4. TOURISM

Hantsport is one of several picturesque small towns that lie in the Annapolis Valley. It is said to be steeped in history of wooden ships and iron men. It actively promotes visits to the Churchill House where the history of ship building is chronicled. Also prominent in its tourism literature is a visit to the community wharf. To quote "one of nature's most extraordinary spectacles the rise and fall of the world's highest tides. These tides lift fishing boats and tug boats alike skyward at high tide, and then ever so gently sets them on the ocean floor at tide's ebb. Hantsport is set to be, this fall, the home of North America's fastest ship loading facility. With every freighter that arrives, 40,000 tonnes of raw gypsum must be loaded and the boat departed within three hours, at full tide." – (Written just prior to completion of new facility).

Another positive tourism/mining industry interaction relates to the rail service in the area. The local railline is owned by Windsor Hantsport Rail Company. Much of its business relates to providing rail service from the gypsum mines to Hantsport. Up until two years ago, this rail line offered tourists a special trip on a rail car to tour from Windsor to Grand Pre Park. Unfortunately service had to discontinue not because of a lack of customers, but due to equipment problems that were too expensive to fix.

III.
Sechelt, British Columbia

1. SITUATION

Construction Aggregates operates a 1,000-acre pit on the Sechelt peninsula located about 30 miles northwest of Vancouver. Sechelt is home to the largest open pit mine and gravel mine operation in North America. Opened by Construction Aggregates Ltd. (CAL) in 1989, the mine is located on the Sechelt Indian Band lands and now has an expected 40-year life span.

The community of Sechelt is home to about 8,000 residents and is located at about the mid point of the Sunshine Coast peninsula.

At full capacity, the quarry produces about 6.6 million tonne per year, and ships somewhere between one million and three million tonnes per year to the US. The Sechelt Nation receives about $3 million per year in royalties.

We have reviewed Sechelt's experience as host to major quarry operations in terms of the company's interaction with the community, its impact on the tourism industry and its impact on property values.

2. INTERACTION BETWEEN COMPANY AND TOWN

Are they viewed as a positive corporate citizen? Based on our interviews, Construction Aggregates Ltd. (CAL) is viewed as a positive corporate citizen of the community. About ten years ago, there were problems with dust and noise from the conveyor belt that led to considerable community unrest. CAL's response was to set up a Citizen Advisory Committee and to establish a 24-hour help line where problems could be reported. The company implemented a watering system to dampen the dust and altered their hours of operation. The Advisory Committee was disbanded at the members' initiative because they had nothing to do after the changes.

3. TOURISM

Since the early 1890s, visitors have come to the Sunshine Coast for holidays, creating Sechelt's early reputation as a tourism destination that continues to this day. Surrounded by ocean, Sechelt provides access to the Strait of Georgia and Sechelt Inlet, gateway to the popular sailing destinations of Jervis Inlet and Princess Louisa Inlet. The local mountains provide numerous opportunities for hiking, mountain biking and backcountry snowsport activities.

The aggregate marine loading facility operates in an area where there is both recreational and some fishing vessel activity.

The Sechelt Nation has a small marina that is currently used by some of the Band's fishing boats and is available for recreational boaters to use. It does not get heavy use because there are no services. The Sechelt area currently has a Marine Access program aimed at re-connecting with the waterfront to increase its attractiveness and use for recreational and tourist purposes. Two projects are in their initial stages, both within a few hundred meters of the marine loading facility. One project is the creation of a waterfront park that will have a focus on children. The other project is to expand the current marina to a 125-slip marina to attract permanent and transient boaters. Attracting small pocket cruise ships to this facility is part of the thinking. There is heavy cruising traffic on the Georgia Strait off Sechelt that currently passes by without stopping because of the lack of adequate marina facilities. Another proposed project is to install a floating wharf off the concrete wharf for day traffic. The concrete wharf is not functional now other than for pedestrians.

A local tourism consultant provided the following comments related to impact of the quarry operation on the tourism industry. Noise is noticeable at times and could be a factor, but it is mainly in the background. The noise from the quarry operation is much less of an issue than the engine roar associated with the take-off of float planes (two companies) that start about 7:30 AM when bed breakfast clients apparently wish to be sleeping. Her view was that the Sunshine Coast is still a resource-based community and the gravel operation is part of the mix. She does not see it as a deterrent to further tourism development and in fact would like the company to develop a tour package for visitors so that the gravel operation could serve as a tourism asset.

4. PROPERTY VALUE

We asked local real estate agents whether housing prices or land values were lower or higher in close proximity to the quarry site or terminal facilities? According to these agents, proximity to the mine site does have a negative impact on property value[1]. Given a choice, people will prefer to neither see nor hear the Sechelt operation. There is a low rumbling sound in the day time[2]. The exception is during the occasional night operation, when sound can be audible up to several kilometers from the site if there are no other ambient sounds such as road noise, wind or waves crashing on the shore. For the most part, the operations sounds are background noise that are masked by other common daily noises. Also when there is an east wind, dust from the operation settles on houses located on the west side of Sechelt Inlet. In the current hot real estate market, buyers have been less discriminating in their location choice because of a limited supply of available houses. There is still new construction occurring on undeveloped land within the sight and sound radius.

1 One agent cited an example of piece of waterfront property that she recently sold, basically for the land. The existing structure was a tear down or heavy duty renovation. In her view, the property sold for about $100,000 less than it would have otherwise because it looked directly at the mine site. She also noted that properties close to another mine site that is being redeveloped are meeting strong buyer resistance, both because of proximity (noise and dust) and the uncertainty about what will ultimately take place.

2 You have to listen carefully to hear it; it's not a foreground noise.

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