

**Newfoundland  
and Labrador  
Refinery Project**



**Response to Comments on  
Component Study**

**SOCIO-ECONOMIC COMPONENT STUDY  
ADDENDUM**

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**Newfoundland And Labrador Refinery Project EIS**  
**Socio-Economic Component Study**  
**Response To Comments**

**FISHERIES AND AQUACULTURE**

The DFA has one comment with respect to the Socio-Economic Component Study. The DFA believes the Baseline Document (i.e., Canning and Pitt Associates, Inc. April 2007) should be placed as an appendix in the component study as was done with much of the other Baseline Documentation. By doing so the information contained in the component study can be adequately reviewed by the DFA and the public, and compared for accuracy and consistency in the EIS.

**NLRC Response:**

*The Commercial Fisheries and Aquaculture baseline document (Canning and Pitt Associates, April 2007) is provided as an appendix to this addendum and should now be considered Appendix G in the Socio-Economic Component Study. Please note that the Canning and Pitt baseline report was also provided as an appendix (Appendix C) in the NLRC Project Registration (dated October 16, 2006).*

## **HUMAN RESOURCES LABOUR & EMPLOYMENT**

The Department acknowledges that the proponent has successfully identified the socio-economic issues for this project. The Department offers the following comments for the proponent's consideration.

### **Specific Technical Deficiencies, Concerns, Issues and Suggestions:**

#### *Competition for Labour*

- CS – 1-1. As outlined in the Socio-economic component study (Section 1.1 Socio-Economic Setting), there are a number of proposed projects taking place in the study area that could potentially all draw on the already strained local labour force. These projects would include:
  - Hebron (Offshore)
  - Voisey's Bay Nickel Processing Plant (Long Harbour)
  - Liquid Natural Gas (Grassy Point)
  - Increased activity at Kiewit Offshore Services (Marysville Shipyard)
  - NFLD Refinery (Southern head)
  - Construction of a long term care centre (Clarenville 5 yr. construction phase, \$46.6 million)
  - Clarenville Events Centre (Fall 2008).

Given the large amount of proposed activity in the region, the proponent should be cognizant of the labour environment they are in so that they recruit labour to their project without negatively affecting other projects in the area.

#### **NLRC Response:**

*Measures will be taken to ensure successful recruitment of labour for this particular project. EIS Volume 4 (Section 4.3) outlines mitigation measures to ensure availability of labour. NLRC was also required to consider cumulative effects of other projects that had been registered in the provincial or federal assessment process, such as the Voisey's Bay Nickel Processing Plant and the LNG transshipment terminal at Grassy Point: at this point in time, Hebron is not a registered project.*

- CS – 2-8. There have also been concerns voiced regarding the negative implications of labour competition on local businesses. For example, there are concerns that local businesses will not be able to offer the wage levels of their competitors and will lose out unless special provisions are made for them. Local businesses are therefore interested in having preferred status for site operations which is in keeping with a first consideration of local provincial workers to complete project-related requirements. The proponent should consider the development of a clear communications strategy with local establishments.

#### **NLRC Response:**

*NLRC has been, and will continue to be, committed to an open exchange of information with local businesses and communities in the Project Area. Steps*

*will be taken to ensure a forum with NLRC by which local businesses can make their concerns known and solutions can be decided upon.*

**Specific Editorial Points and Errors:**

- In Glossary of Terms, project-specific impacts should be followed by “potential effects to the area”, not “affects.”

**NLRC Response:**

*This ‘typo’ has been corrected. The definition for ‘Project-Specific Impacts’ on Page viii should now read as follows:*

*“Project-Specific Impacts – Potential effects to the area or the people of the area that are a direct result of the Project.”*

- CS 3-1 and CS 3-15 – it is stated that almost 47 percent of the provincial population is located in rural area (the highest rate in Canada) but no reference or data source is supplied to support this statistic. This should be referenced similar to what is done in other sections (e.g., provincial demography). CS-3-20 – under the section related to “provincial income”, it is stated that income levels are low relative to Canadian averages. No data source is provided for this reference.

**NLRC Response:**

*On Page 3-1 paragraph two, please add the following reference: “HRLE, Avalon, 2007.”*

*This reference also applies to the first sentence of the last paragraph on Page 3-15, as well as the last sentence of the third paragraph on Page 3-20.*

- CS – 1-1. The proponent notes that there are ‘two initiatives’ in place by the province to address the availability of skilled labour to meet anticipated future project demands.
  - ‘two initiatives’ should be changed to ‘several initiatives’
  - The Skills Task Force should also be listed amongst these initiatives

**NLRC Response:**

*On Page 1-2, the last sentence of paragraph two should be replaced to read as follows:*

*“This has raised concerns regarding the availability of skilled labour to meet anticipated future project demands. This concern is being addressed by the Province through several initiatives including: the Skills Task Force; “The Strengthening Partnerships Project” which provides information on regional*

*labour markets in the Province; and “The Identifying Skills Gaps in the Labour Market” initiative which identifies labour supply and demand imbalances and provides information about current and future job opportunities (website: [www.gov.nl.ca](http://www.gov.nl.ca) accessed on Mar 20, 2007). ”*

**Additional Comments:***Attracting and Retaining Skilled workers*

- (pg. 3-3) The 2007 Avalon Peninsula Regional Report does mention that the occupations of out-migrants are in demand in other provinces and that could pose a competitive labour supply pressure in the future. However, it does not make mention to these out-migrants previously working at ERCO or the Bull Arm Fabrication Facility.

**NLRC Response:**

*On Page 3-3, the last sentence of paragraph two should be replaced to read as follows:*

*“Many of those who have out-migrated are skilled workers from the Isthmus area of the Province (Department of Human Resources, Labour and Employment, 2007). From anecdotal evidence, some of these workers were previously employed at ERCO or the Bull Arm Fabrication Facility.”*

- (Table 3-2, Table 3-4, Table 3-5) The department recommends that the proponent should make use of year-to-date numbers rather than month-to-month. These month-to-month numbers are not seasonally adjusted and are not as accurate when displaying trends in data.

**NLRC Response:**

*The dates referenced in this comment represent the release date of the data, and not the value of the parameter for a particular month. For example, in Table 3-2, “Population, February, 2007” indicates that the population data provided was released in February 2007; not the population value for that specific month.*

- (Table 3-7) Employment Insurance (EI) and Social Assistance (SA) data represented in this table is based on 2001 numbers. Currently, the 2005 and 2006 numbers are available. The Department recommends that the proponent updates this table.

**NLRC Response:**

On Page 3-21, Table 3-7 should be replaced with the table provided below:

**Table 3-7      Community Incomes**

|   | Sunnyside | Arnold's Cove | Swift Current | North Harbour | Clarenville | Marystow | Southern Harbour | Come By Chance | Placentia | Little Harbour East |
|---|-----------|---------------|---------------|---------------|-------------|----------|------------------|----------------|-----------|---------------------|
| Personal Income per capita, 2004,\$     | 22,700    | 21,500        | 23,000        | 19,900        | 22,000      | 20,600   | 19,200           | 20,900         | 17,000    | 19,000              |
| Average Couple Income, 2004,\$          | 66,500    | 64,700        | 65,000        | 42,700        | 52,200      | 57,500   | 68,800           | 51,800         | 55,800    | 43,300              |
| Median Incomes, 2004, All, \$           | 42,800    | 42,400        | 43,800        | 34,400        | 28,400      | 40,300   | 42,100           | 44,000         | NA        | 15,600              |
| Employment Insurance Incidence, 2004, % | 48.1      | 62.3          | 39.3          | 50.0          | 31.1        | 34.7     | 71.4             | 43.5           | 45.7      | 68.8                |
| Social Assist. Incidence, 2004, %       | 10.6      | 5.5           | 5.6           | 3.7           | 10.2        | 16.0     | 4.5              | 6.3            | 13.8      | 3.6                 |

**Notes:**

No income "Income by Source" data available for Garden Cove

**Source:**

Community Accounts, Income Accounts, Government of Newfoundland and Labrador (2004),  
Statistic Canada, Community profiles, 2001

## **EASTERN HEALTH**

- The proponent's commitment to transparency and its commitment to equal opportunity principles is acknowledged.

### **NLRC Response:**

*Acknowledged.*

- The proponent's mitigation measures regarding illegal camping and use of land is acknowledged and accepted.

### **NLRC Response:**

*Acknowledged.*

### *Health Status*

- The study does a good job in establishing baseline health data on the health status of the local population and in determining potential impacts from future operations of NLRC.

### **NLRC Response:**

*NLRC will take under advisement the idea of repeating the Health Study in 2009 as part of the ongoing monitoring program.*

*\* Please note: Additional Eastern Health comments pertaining to the EIS (Volume 4: Socio-Economic) are addressed in a separate document (Responses to Comments on the EIS).*

**WILDLIFE DIVISION**

Overall, the component study is acceptable.

- Page 3-63,64 Section 3.5.6.2 Hunters indicate their preferred area(s) for hunting on their application for a big game license. The draw is conducted electronically and the Division does not assign licenses based on someone's area of residence but based on their identified preference for a hunting area.

**NLRC Response:**

*On page 3-63 of the Socio-Economic Component Study, please replace the third paragraph with the following text, to read as follows:*

*“Large Game (Moose and Caribou) hunting is a popular activity in the Study Area. Hunters indicate their preferred area(s) for hunting on their application for a big game license. The draw is conducted electronically, with efforts taken to ensure hunters receive licenses based on their identified preference for a hunting area. Hunting takes place annually from September to December with licenses usually issued for one animal.”*

- Caribou hunting occurs on Merasheen Island and in the Middle Ridge Caribou management area which encompassed a large area from Clarenville to the Hwy 360 south of the Trans-Canada. The Caribou Management Areas 73 and 74 on the Burin Peninsula are closed to caribou hunting.

**NLRC Response:**

*On page 3-63, the first and second sentences of the fourth paragraph now reads as follows:*

*“Moose hunting takes place throughout the Study Area and caribou hunting occurs on Merasheen Island and in the Middle Ridge Caribou management area which encompasses a large area from Clarenville to the Hwy 360 south of the Trans-Canada. Caribou Management areas 73 and 74 on the Burin Peninsula are closed to caribou hunting.”*

- Table D-7. The caribou quota for 64 (Middle Ridge) was 550: less 650 from 2005.

**NLRC Response:**

*In Table D-7 of Appendix D: Infrastructure and Services, the number of ‘Licenses (2006)’ for caribou on Middle Ridge should now read “550: 650 less than 2005.”*

*Also on Page 6-63, please replace the last paragraph with the following text, to read as follows:*

*“There is no licensing requirement to fish trout in lakes and streams that are not scheduled for salmon in Newfoundland and Labrador, however, the Province has*

*one of the highest resident participation rates for the activity in Canada (Jacques Whitford Limited, 2007).*

- Unless documentation trends can be clearly established using data additional to what has been presented in the component study, the Wildlife Division does not agree with the final statement in this section and would like to see it removed. Recreational hunting and fishing remains a key activity for residents of Newfoundland and Labrador.

**NLRC Response:**

*After reviewing this statement and taking the Wildlife Division's comments into consideration, we have revised the concluding statement on Page 3-64 of the Socio-Economic Component Study.*

*On Page 3-64, the second last paragraph should now read:*

*"In general, recreational hunting and fishing remains a key activity for residents of Newfoundland and Labrador. "*

- Page 3-73 Section 3.73. The Middle Ridge Caribou herd is estimated at 8000-9000 animals as of 2006.

**NLRC Response:**

*Revisions made as requested. The first paragraph on Page 3-73 should refer to the Middle Ridge Caribou herd (vs. the Middle Range Caribou Herd).*

**DEPARTMENT OF EDUCATION**

As discussed here are our comments after a review of the component study for the NL Refinery Project:

- p.3-28 There are 26 private training institutions currently operating in the Province, not 32 as indicated in the report.

**NLRC Response:**

*Revisions made as requested. The last sentence of paragraph two on Page 3-28 should now read:*

*“There are 26 private training institutions located throughout the Province that are licensed by the Department of Education.”*

- p.3-29 College of the North Atlantic has annual enrolment of approximately 10,000 students. The report cites enrolment of 20,000. (I believe the figure in the report may have been obtained from our website – which should be updated.)

**NLRC Response:**

*Revisions to CNA enrolment numbers made as requested. The fourth paragraph on Page 3-29 should now read:*

*“In the Province 26 private institutions offer a wide range of programs from office administration to heavy equipment operation.”*

- p. 3-29 While College of the North Atlantic can respond to industry needs in a timely manner, it should be noted that this is a public post-secondary institution and hence their ability to respond with new program offerings may be hampered by budgetary constraints.

It should also be mentioned here in the CNA's ability to respond the recently established Oil and Gas Steering Committee as well it would be useful to indicate the source of some of the data provided.

**NLRC Response:**

*The second paragraph on Page 3-29 should now read:*

*“Typically, when CNA delivers training in core skill trades such as a millwright, scaffolding, machinist, welding, pipefitters, etc., these courses run at full capacity. Campuses can increase their capacity to respond to specific industry needs depending on budget availability. This would include recruiting suitable instructors beyond their current complement and possibly looking for additional facilities on a short-term basis, all of which have been done before. All campuses indicated that if industry did increase its demand for skilled trades and worked with the College to focus on delivering incremental programs for same, they would respond very quickly, sometimes in as little as a week. CNA has been*

*working with the Oil and Gas Steering Committee to identify and address industry training needs."*

- p. 3-30 In the second last paragraph on the page the last sentence should end with "Figures C-1 to C-4".

**NLRC Response:**

*Revisions made as requested. Please replace the text in brackets in paragraph two to now read:*

*"For data on Enrolment, refer to Appendix C, Figures C-1 to C-4."*

- With respect Table C-2 which shows the training offered at private training institutions, this changes as demand warrants. There are some instances where the report references private colleges offering courses for which they have no approval from the Department of Education. In all cases noted, they are not relevant to the project at hand so no further action is warranted.

**NLRC Response:**

*Please add the following note below Table C-2 in Appendix C: Education, to read as follows:*

*" \*Note: programs may change due to demand."*

- With respect to Table C-4, capacity at the CNA campuses is as follows:

Clarenville - 190 (177.9%)

Placentia - 145 (71.7%)

Bonavista - 168 (67.3%)

Burin - 434 (74.3%)

Seal Cove - 115 (99.1%)

Carbonear - 259 (72.6%)

St. John's - 1369 (106.5%)

Note: Capacity utilization is in brackets, as it is a useful indicator of the ability of campuses to physically respond to additional demand.

**NLRC Response:**

*Please see the revised versions of Tables C-4 and C-5 below. The above values have been inserted into their respective cell within the row entitled "Capacity" (replacing the text previously provided).*

*Please note that the value in brackets represents capacity utilization, as it is a useful indicator of the ability of campuses to physically respond to additional demand.*

**Revised Table C-4: College of the North Atlantic, Programs and Capacity at Clarenville, Placentia and Bonavista**

|  | Clarenville  | Placentia  | Bonavista  |
|--|--|--|--|
| <b>Capacity</b>                              | • 190 (177.9%).  | • 145 (71.7%)  | • 168 (67.3%)  |
| <b>Programs Offered: (capacity)</b>          | <ul style="list-style-type: none"> <li>• Adult Basic Education (32)</li> <li>• Business Administration (Accounting)(12)</li> <li>• Business Administration (General)(22)</li> <li>• Business Administration (Human Resources Management)</li> <li>• Business Administration (Marketing)(22)</li> <li>• Carpenter – Entry (20)</li> <li>• Career Exploration for Women</li> <li>• Engineering Technology (First Year)(20)</li> <li>• Office Administration (Executive)(15)</li> <li>• Steamfitter/Pipefitter – Entry (32)</li> <li>• College Distributed Learning Services</li> </ul> | <ul style="list-style-type: none"> <li>• Adult Basic Education(15)</li> <li>• Comprehensive Arts and Science: College Transition(15)</li> <li>• Career Exploration for Women</li> <li>• General Studies – Access</li> <li>• Heavy Duty Equipment Technician – Entry (17)</li> <li>• Machinist-Entry(16)</li> <li>• Machinist-Advanced(16)</li> <li>• Industrial Mechanic (Millwright) – Entry : 9 months (32+extra 28)</li> <li>• Industrial Mechanic (Millwright) – Advanced(16)</li> <li>• Welder – Entry(15)</li> </ul> | <ul style="list-style-type: none"> <li>• Adult Basic Education(18)</li> <li>• Comprehensive Arts and Science: College Transition (12)</li> <li>• Construction/Industrial Electrician – Entry (16 +16)</li> <li>• Career Exploration for Women</li> <li>• Natural Resources Technician I(15)</li> <li>• Natural Resources Technician II(15)</li> <li>• Office Administration (30)</li> <li>• Office Administration (Executive)</li> <li>• Plumber – Entry (16)</li> </ul> |
| <b>Apprenticeships (Provincial Capacity)</b> | <ul style="list-style-type: none"> <li>• Carpentry-Construction -8 wks (36)</li> <li>• Plumber-8 wks (32)</li> <li>• Steamfitter/Pipefitter-8 wks (32)</li> </ul>  | <ul style="list-style-type: none"> <li>• Industrial Mechanic (Millwright) Advanced (48)</li> <li>• Machinist – Advanced. (16)</li> </ul>   | • None   |

**Notes:**

\*The ability of these campuses to add on extra courses to meet local needs is not unprecedented. Their ability to do so will depend on the availability of instructors which can vary. Access to space is not an issue. If insufficient space exists within the campus area, the College will lease other available space in the area. It is not unusual to add programs, as required, notably in industrial trades.

**Source:**

College of North Atlantic, Administration, Individual Campuses. April 2007

**Revised Table C-5: College of the North Atlantic, Programs Offered at Burin, Seal Cove  
Carbonear and St. John's**

|                          | <b>Burin</b>  | <b>Seal Cove</b>   | <b>Carbonear</b>   | <b>St. John's</b>   |
|--------------------------|---|--|--|---|
| <b>Capacity</b>          | • 434 (74.3%)   | • 115 (99.1%)  | • 259 (72.6%)  | • 1,369 (106.5%)  |
| <b>Programs Offered:</b> | <ul style="list-style-type: none"> <li>• Adult Basic Education (30)</li> <li>• Business Administration (Accounting)(25)</li> <li>• Business Administration (General) (25)</li> <li>• Business Administration (Human Resource Management)</li> <li>• Business Administration (Marketing)</li> <li>• Career Exploration for Women</li> <li>• Comprehensive Arts and Science Transfer: College University (90)</li> <li>• Comprehensive Arts and Science: College Transition</li> <li>• Cook – Entry(12)</li> <li>• Electrical Engineering Technology (16)</li> <li>• Engineering Technology (First Year)(20)</li> <li>• Industrial Instrument Mechanic – Entry (32)</li> <li>• International Business Management Post Diploma</li> <li>• Metal Fabricator (Fitter) Entry (27)</li> <li>• Office Administration 9@5)</li> <li>• Sheet Metal Worker Entry (16)</li> <li>• Welding Engineering Technician(17)</li> <li>• Welder Entry(16)</li> </ul> | <ul style="list-style-type: none"> <li>• Adult Basic Education (20)</li> <li>• Career Exploration for Women</li> <li>• Cook – Entry(12)</li> <li>• Construction/Industrial Electrical – Entry(16)+Extra 16</li> <li>• Industrial Instrument Mechanic – Entry15</li> <li>• Oil Burner Mechanic – Entry(12)</li> <li>• Powerline Technician (Operating) - Entry (12) + Extra 12</li> </ul> | <ul style="list-style-type: none"> <li>• Adult Basic Education (47)</li> <li>• Bricklayer – Entry</li> <li>• Business Administration (17)</li> <li>• Business Administration (Accounting)</li> <li>• Business Administration (Marketing)</li> <li>• Career Exploration for Women</li> <li>• Comprehensive Arts and Science Transfer: College University</li> <li>• Comprehensive Arts and Science: College Transition</li> <li>• Community Studies (30)</li> <li>• Construction/Industrial Electrician</li> <li>• Engineering Technology (First Year) (16)</li> <li>• General Studies – Assess</li> <li>• Heritage Carpentry – Entry (18)</li> </ul> | <ul style="list-style-type: none"> <li>• Adult Basic Education</li> <li>• Automotive Service Technician</li> <li>• Business Management (Accounting)</li> <li>• Business Management (Marketing)</li> <li>• Community Recreation Leadership</li> <li>• Computer Support Specialist</li> <li>• Cook</li> <li>• Diagnostic Ultrasoundography</li> <li>• Early Childhood Education</li> <li>• Early Childhood Education (DLS)</li> <li>• English as a Second Language</li> <li>• Food Service &amp; Nutrition Management</li> <li>• Graphic Design</li> <li>• Graphic Production &amp; Printing</li> <li>• Hospitality Tourism Management</li> <li>• Marine Cooking</li> <li>• Medical Radiography</li> <li>• Medical Science (First Year)</li> <li>• Motor Vehicle Repair (Metal &amp; Paint)</li> <li>• Occupational Therapist Assistance</li> <li>• Office Administration (Executive)</li> <li>• Office Administration (Legal)</li> <li>• Office Administration (Medical)</li> <li>• Office Administration (Records &amp; Information Management)</li> <li>• Primary Care Paramedicine</li> <li>• Physiotherapists Assistant</li> </ul> |

|   | <b>Burin</b>  | <b>Seal Cove</b>  | <b>Carbonear</b>   | <b>St. John's</b>  |
|---|---|---|--|--|
|   |   |   |  | <ul style="list-style-type: none"> <li>• 'Programmer Analyst (Business) Co-op'</li> <li>• Textile Studies</li> <li>• Welder</li> </ul> |
| <b>Apprenticeship (Provincial Capacity)</b> | <ul style="list-style-type: none"> <li>• Metal fabricator (fitter)- Advanced (64)</li> <li>• Sheet metal worker- Advanced (16)</li> </ul> | <ul style="list-style-type: none"> <li>• Construction Electrical Advanced (144)</li> <li>• Industrial Construction Advanced (NA offered at campuses)</li> <li>• Industrial Instrument Mechanic Advanced (48)</li> <li>• Oil Burner Mechanic Advanced (12)</li> <li>• Powerline Technician (Operating) (24)</li> </ul> | <ul style="list-style-type: none"> <li>• None</li> </ul> |  |

**Notes:**

*\*The ability of these campuses to add on extra courses to meet local needs is not unprecedented. Their ability to do so will depend on the availability of instructors which can vary. Access to space is not an issue. If insufficient space exists within the campus area, the College will lease other available space in the area. It is not unusual to add programs, as required, notably in industrial trades.*

**Source:**

*College of North Atlantic, Administration, Individual Campuses. April 2007*

- Again with respect to Table C-4 and the program offerings at CNA, the only omission of note is a Construction/Industrial Electrician offering at Carbonear campus.

**NLRC Response:**

*In Table C-4, "Construction/Industrial Electrician" has been added to the list of offerings at the Carbonear CNA campus.*

- Table C-7 is a duplication of Table C-6.

**NLRC Response:**

*This duplication has been addressed. Please disregard Table C-7 in Appendix C: Education.*

- Page 3-33 It would be useful if some participation rate statistics were provided on the skilled trades for the younger population.

**NLRC Response:**

*NLRC acknowledges this request and will consider further research on participation rate statistics on the skilled trades for the younger population as this project moves closer to the construction phase.*

- Page 3-34 Paragraph missing “period” at the end.

**NLRC Response:**

*Punctuation corrected.*

- Page 3-35 Need to connect some demographics to the chart for clarity as most of the communities noted are populated by an older less educated group. It would also be beneficial to define older worker in the context of this document.

**NLRC Response:**

*Additional statistics and commentary provided on this point. Please replace Table 3-15 on Page 3-35 with the following table. The observations following should also be added below Table 3-35.*

**Table 3-15      Highest Level of Education, Total Population, by Age Groups and Select Communities, 2001**

|                                       | Sunnyside | Arnold's Cove | Swift Current | North Harbour | Clarenville | Marystown | Southern Harbour | Come By Chance | Placentia* | Garden Cove | Little Harbour East |
|---------------------------------------|-----------|---------------|---------------|---------------|-------------|-----------|------------------|----------------|------------|-------------|---------------------|
| <b>All Ages</b>                       |           |               |               |               |             |           |                  |                |            |             |                     |
| Less than High School Certificate (%) | 69.5      | 52.4          | 52.2          | 73.9          | 39.4        | 40.8      | 50.0             | 38.2           | 45.2       | 36.4        | 53.6                |
| High School Certificate Only (%)      | -         | 9.5           | 4.3           | -             | 8.4         | 8.3       | 8.0              | 14.5           | 9.4        | 9.1         | 25.0                |
| College / Trades (%)                  | 14.6      | 22.6          | 32.6          | 13.0          | 30.1        | 30.6      | 35.0             | 40.3           | 35.2       | 36.4        | 14.3                |
| Bachelor's Degree or Higher (%)       | 3.7       | 3.6           | -             | -             | 11.5        | 7.3       | -                | 3.2            | 1.8        | 13.6        | -                   |
| <b>Ages 20-34</b>                     |           |               |               |               |             |           |                  |                |            |             |                     |
| Less than High School (%)             | 0.0       | 23.3          | -             | -             | 10.3        | 19.9      | 31.8             | 15.8           | 16.9       | -           | -                   |
| High School Certificate Only (%)      | 30.0      | 34.9          | -             | -             | 25.2        | 24.1      | 13.6             | 31.6           | 38.5       | -           | -                   |

|                                      | Sunnyside | Arnold's Cove | Swift Current | North Harbour | Clarenville | Marystown | Southern Harbour | Come By Chance | Placentia* | Garden Cove | Little Harbour East |
|--------------------------------------|-----------|---------------|---------------|---------------|-------------|-----------|------------------|----------------|------------|-------------|---------------------|
| Trades Certificate or Diploma (%)    | 50.0      | 23.3          | -             | -             | 17.9        | 19.9      | 31.8             | 31.6           | 16.9       | -           | -                   |
| College Certificate or Diploma (%)   | 20.0      | 11.6          | -             | -             | 22.2        | 18.3      | 18.2             | 10.5           | 19.2       | -           | -                   |
| University Certificate or Degree (%) | 0.0       | 4.7           | -             | -             | 24.8        | 17.8      | 9.1              | 10.5           | 8.5        | -           | -                   |
| <b>Ages 35-44</b>                    |           |               |               |               |             |           |                  |                |            |             |                     |
| Less than High School (%)            | 78.6      | 50.0          | -             | -             | 23.0        | 35.0      | 47.4             | 33.3           | 22.3       | -           | -                   |
| High School Certificate Only (%)     | 0.0       | 11.8          | -             | -             | 8.1         | 10.7      | 31.6             | 83.3           | 12.2       | -           | -                   |
| Trades Certificate or Diploma (%)    | 0.0       | 23.5          | -             | -             | 32.3        | 28.4      | 10.5             | 33.3           | 36.7       | -           | -                   |
| College Certificate or Diploma (%)   | 14.3      | 5.9           | -             | -             | 18.6        | 17.8      | 10.5             | 0.0            | 22.3       | -           | -                   |
| University Certificate or Degree (%) | 0.0       | 8.8           | -             | -             | 19.3        | 7.6       | 0.0              | 0.0            | 5.0        | -           | -                   |
| <b>Ages 45-64</b>                    |           |               |               |               |             |           |                  |                |            |             |                     |
| Less than High School (%)            | 61.8      | 57.9          | -             | -             | 32.1        | 40.2      | 58.8             | 69.2           | 38.7       | -           | -                   |
| High School Certificate Only (%)     | 8.8       | 14.0          | -             | -             | 13.3        | 9.5       | 5.9              | 15.4           | 15.7       | -           | -                   |
| Trades Certificate or Diploma (%)    | 11.8      | 12.3          | -             | -             | 19.7        | 27.5      | 23.5             | 23.1           | 22.6       | -           | -                   |
| College Certificate or Diploma (%)   | 5.9       | 5.3           | -             | -             | 17.3        | 9.5       | 5.9              | 0.0            | 12.1       | -           | -                   |
| University Certificate or Degree (%) | 14.7      | 8.8           |               |               | 17.7        | 13.3      | 5.9              | 0.0            | 10.9       | -           | -                   |

**Sources:**

-Percentages for "All Ages" provided by Community Accounts, Education Accounts, based on 2001 Census data. Newfoundland Statistics Agency, Dept of Finance, Government of Newfoundland and Labrador

-Percentages by Age Category provided by Community Profiles, Education Accounts, Statistics Canada.

Based on 2001 Census data. <http://www12.statcan.ca/english/Profil01/CP01/Index.cfm?Lang=E>

-Detailed data unavailable for Swift Current, North Harbour, Garden Cove, Little Harbour East

**Observations**

- The highest incidence of people with less than high school education are among ages 45-64 years with rates ranging from 32 percent to 69.2 percent, with Come by Chance having the highest rate;
- Lowest rates of less than high school education are among ages 20-34 years;
- Overall, the highest incidence of people with a trades certificate or diploma is among ages 20-34 based on an average rate of 27.3; however, rates for the communities of Arnold's Cove, Clarenville, Marystown, Come by Chance and Placentia among people ages 35-44 years are the highest among all age groups

*with Come by Chance having the highest level of people with trades certificate completed;*

- *The highest incidence of people with a College certificate or diploma is among ages 20.34 years with an average rate of 19.2 percent compared to an average rate of 12.7 percent for ages 35-44 and 8.0 percent for ages 45-64;*
- *The incidence of people having completed a university degree or diploma is highest among people ages 20-34 years with Clarenville having the highest rate.*

**APPENDIX A:**

**COMMERCIAL FISHERIES &  
THE AQUACULTURE INDUSTRY**

**NL Refinery Fisheries  
Baseline Document:**

**Placentia Bay  
Commercial Fisheries  
and  
Aquaculture Activities**

**Prepared by:**

**Canning and Pitt Associates, Inc.,**

**April 2007**

## **NL Refinery Fisheries Baseline Document: Placentia Bay Commercial Fisheries and Aquaculture Activities**

**Prepared by Canning and Pitt Associates, Inc., April 2007**

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### **1. Fisheries**

This section describes the commercial wild (non-aquaculture) fisheries and aquaculture baseline for Placentia Bay, and for the area nearest the proposed refinery in particular. For the purpose of this baseline analysis, the study area is all of Placentia Bay encompassed by North Atlantic Fisheries Organization (NAFO) Unit Area (UA) 3PSc, as shown on the following maps.

Discussion of Placentia Bay's commercial fisheries includes a historical overview of those activities, recent changes in the area's fisheries management regime and a description of key species and harvesting patterns and locations. Current aquaculture operations and sites are also described, including a brief summary of development trends within this sector during the past decade. A final section provides a brief overview of the study area's fish processing sector.

As further discussed in the next section, in addition to relevant historical data, the commercial fisheries analysis relies on existing (2003-2006) federal Department of Fisheries and Oceans (DFO) data on study area fisheries resources and catches. The overview of past and current aquaculture activities is based on information obtained from the Newfoundland and Labrador Department of Fisheries and Aquaculture (DFA). The report also draws on background information from existing agency reports, other research studies and the consultant's files. The discussion on current aquaculture activities also relies heavily on consultations undertaken with all of the existing licence holders in Placentia Bay, as well as consultations with agency (DFA) managers and other industry participants presently exploring the potential for new aquaculture development opportunities in the area.

#### **1.1. Data Sources**

The statistical data and analysis in this report are based primarily on time-series data from the DFO, Newfoundland and Labrador Region and Maritimes Region<sup>1</sup> describing the quantity, month and location (fisheries management Unit Area) of fish harvesting. The datasets also include information on fishing gear, vessels and other information. They have been acquired from DFO in digital form, for the period from 1984 to 2006. The analysis for this document presents historical information about the Placentia Bay

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<sup>1</sup> A small proportion of the harvest from within UA 3PSc is landed in Maritimes (Nova Scotia) Region (less than 15 tonnes in 2005); these datasets are included within the Newfoundland and Labrador Region data and are used in this analysis.

fisheries and then focuses on the current fisheries environment, i.e. the 2003-2006 period, which includes the most recently-available data.

About 15% of the harvest by quantity from UA 3PSc was specifically georeferenced in 2004, 2% in 2005 and 12% in 2006. Though this represents quite a small portion of the harvest overall, this section also provides maps of the georeferenced data that are available to indicate at least a subset of the harvesting locations<sup>2</sup> in Placentia Bay.

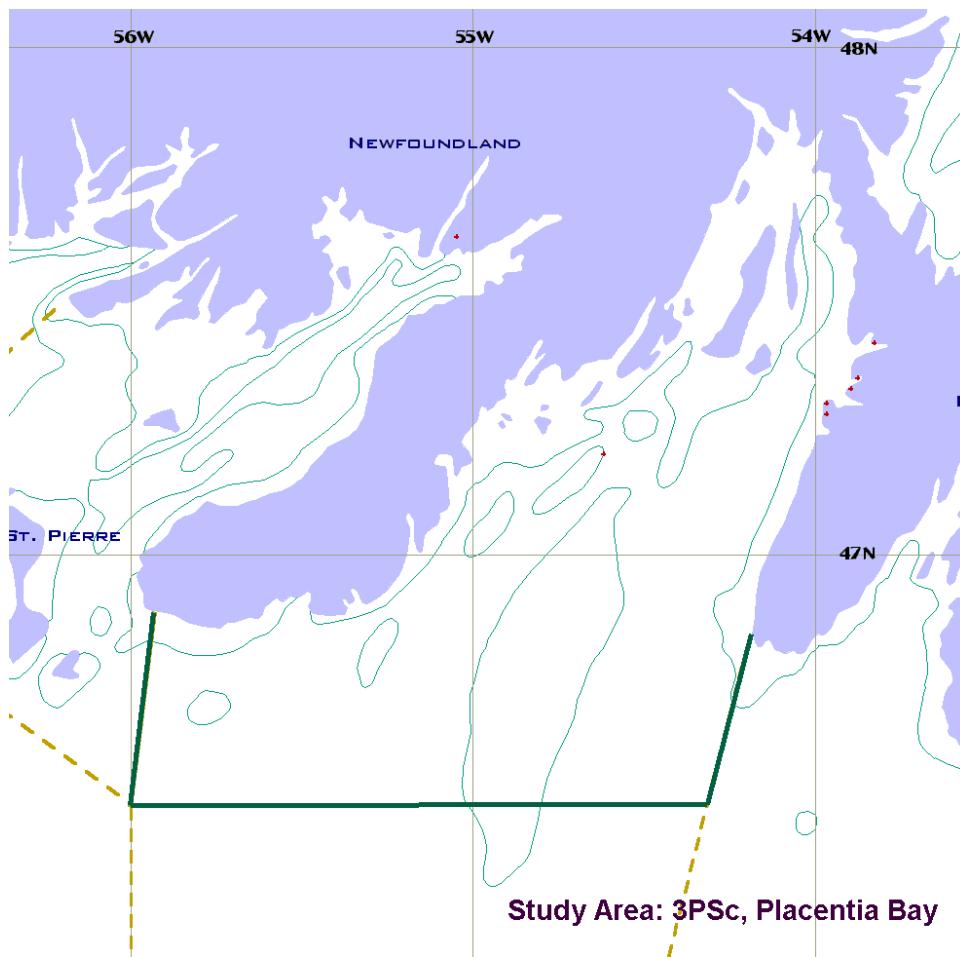
The main analysis of harvesting activities describes fish caught within the waters of fisheries management UA 3PSc (see Figure 1-1). This management and data area encompasses all of Placentia Bay, and captures species harvested from 3PSc wherever they were landed or processed. Thus catches by fishers who are not based in Placentia Bay are included while catches made by Placentia Bay-based vessels are excluded if they were harvested beyond the 3PSc area. For example, some of the larger (>35') vessels based in the area take a portion of their annual catch on fishing grounds farther offshore, such as St. Pierre Bank, whereas catches by fishers based in other areas of the province, e.g. in Fortune Bay, are included in the analysis if taken within 3PSc.

The calculation of the value of the fisheries is much more complex. In addition to variability that results from changes in the quantity of harvest from year to year (whether due to natural variability or changing quotas), prices also vary from year to year, and even within the fishing season, driven primarily by market conditions, which in turn are determined by supply and demand, currency exchange rates and other market factors. Quality issues also affect the prices paid for many species. Consequently, most of the analysis provided in this section involves quantity of harvests (tonnes of fish landed), which is directly comparable from year to year.

Other data sources include fisheries management plans and data tables (e.g. fishing enterprises) provided by DFO. Information on Aquaculture was provided by the DFA, including its AguaGIS.com database, and from individual aquacultural licence holders consulted for this analysis in November 2006 and again in April 2007.

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<sup>2</sup> The location given is that recorded in the vessel's fishing log, and is reported in the database by degree and minute of latitude and longitude; thus the position is accurate within approximately 0.5 nautical mile of the reported co-ordinates. It should be noted that for some gear, such as mobile gear towed over an extensive area, or for extended gear, such as longlines which may be several miles long, the reference point does not represent the full distribution of the gear or activity on the water. However, over many data entries, the reported locations create a fairly accurate indication of where such fishing activities occur.



**Figure 1-1: Study Area**

## 1.2. Consultations

Though the terms of reference did not require the consultants to undertake any new consultations with commercial fisheries participants or aquaculture operators in the study area, relevant DFO and DFA managers and existing aquaculture licence holders were contacted to obtain current information on the area's fisheries and aquaculture sector activities.

Appendix 1 provides a list of all persons consulted for this report.

## 1.3. Commercial Wild Fisheries

This section presents a detailed review of the commercial wild fisheries harvesting environment in the Placentia Bay study area. Topics addressed include the historical context, species harvested, monthly distributions of fishing activities, fishing gears used and geographic location of fishing activities where that information is available.

### 1.3.1. Historical Context, 1980s to the Present

Drastic changes occurred in the Placentia Bay commercial fisheries in the early 1990s when fisheries moratoria were imposed because of declining groundfish stocks. For example, within 3PSc for the period 1984-1990, 74% of the catch by quantity was cod while snow crab made up just 3%; during 1994-1995, immediately after the moratoria were imposed, cod made up only 6% of the harvest and snow crab catches increased to 24%. In terms of value, cod accounted for nearly 60% of the value of the 3PSc harvest (1984-1992), but only a negligible amount in 1994-1995 (see Figure 1-2).

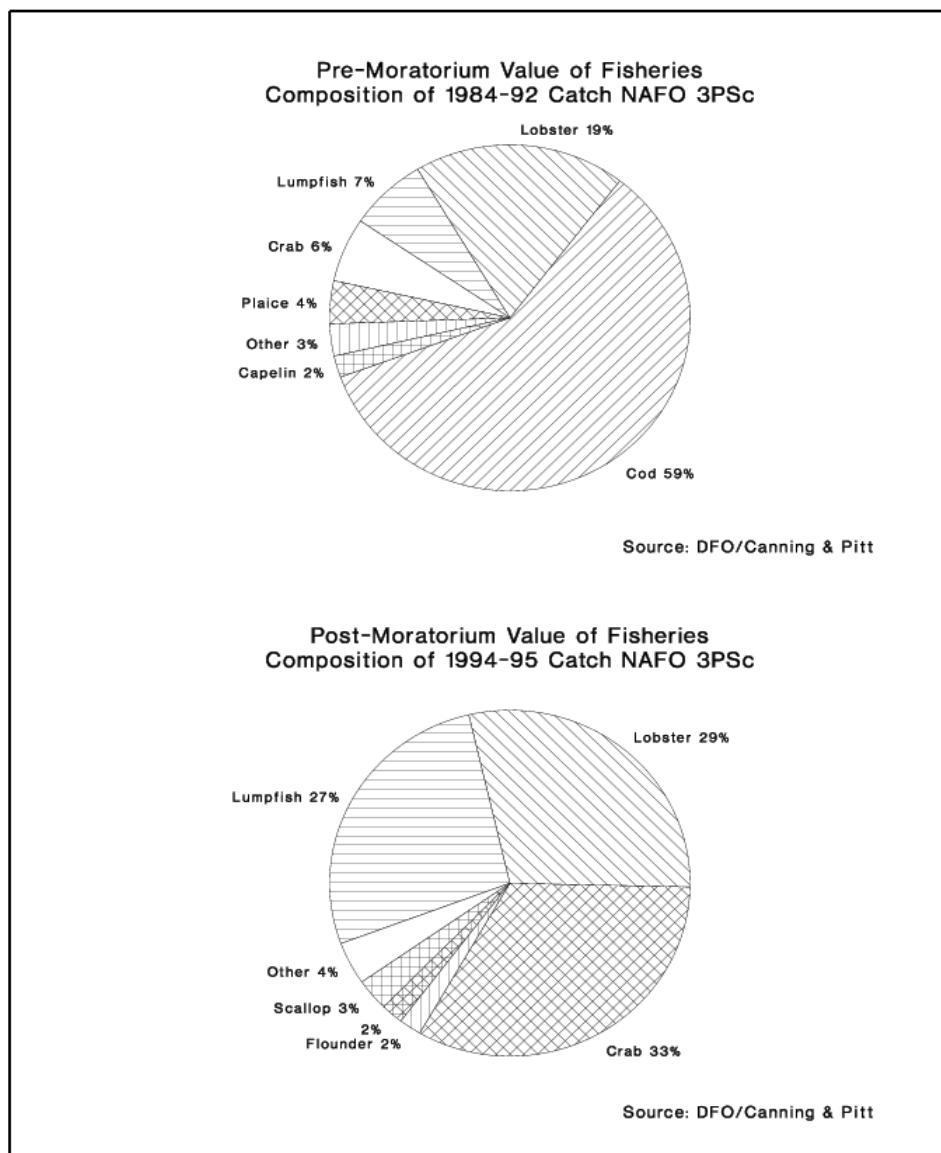


Figure 1-2: Pre-Moratorium Value of Fisheries Composition of 1984-92 Catch NAFO 3PSc

Between the landings highpoint in 1986 and the 1995 harvest, the quantity of biomass taken from Placentia Bay declined from more than 19,000 tonnes to under 3,000 tonnes, a drop of 85%. However, the landed value of the 3PSc fishery did not experience a similar decline owing to the changed composition of the catch, made up - in 1995 - primarily of high-priced species such as lobster, snow crab and lumpfish roe. In that year, the value of the fishery was only 8% lower than in 1986 (\$9,740,000 compared to \$10,634,000). Value continued to rise after 1995, until, by 2002 the harvest from 3PSc was worth more than \$18 million, nearly 180% of the value of the harvest in 1986, the year that the peak quantity was harvested over this timeframe. Even with weaker prices in recent years, snow crab is still a very valuable species in this area.

A limited cod fishery was reinstated in 3PSc in 1997 under a strict management regime, and during 2000-2002 cod again accounted for nearly 60% of the harvest by quantity, though in recent years quotas have been reduced once more. The following graphs show the changes in the quantity of the harvest from 3PSc over the last 20 years (1987 – 2006). Figure 1-3 shows the overall quantity harvested (all species), and Figure 1-4 shows groundfish harvests (mainly cod) and Figure 1-5 shows all other species (mainly shellfish and herring) over this period.

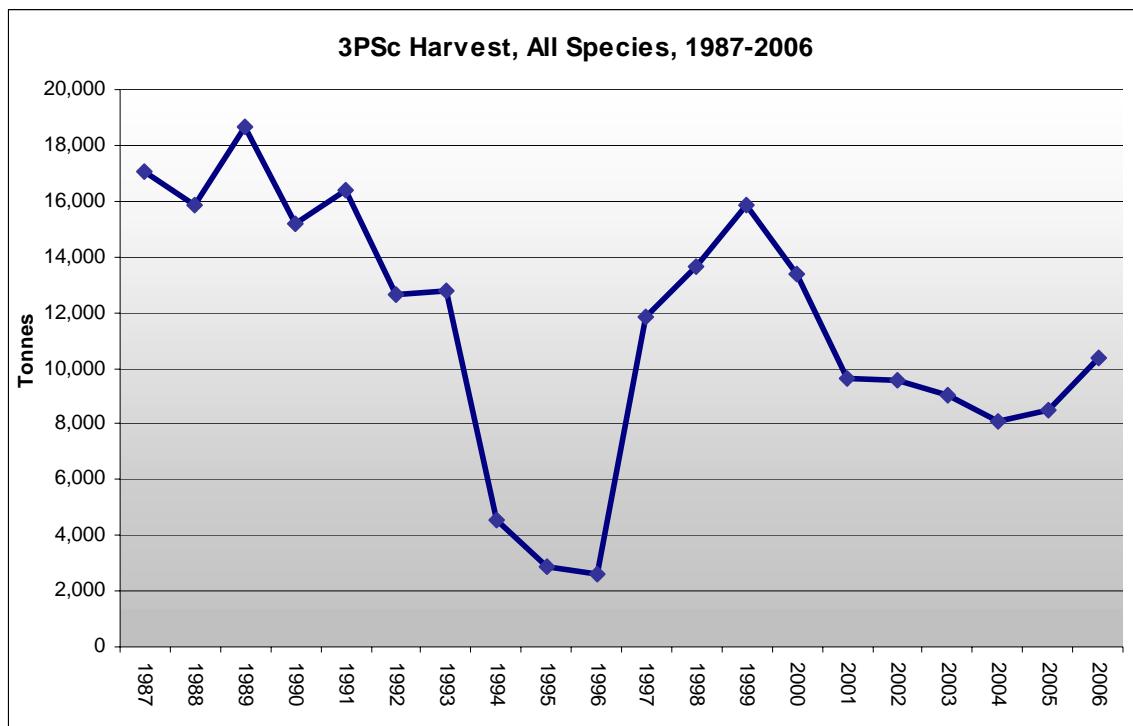


Figure 1-3: 3PSc Harvest, All Species, 1987-2006

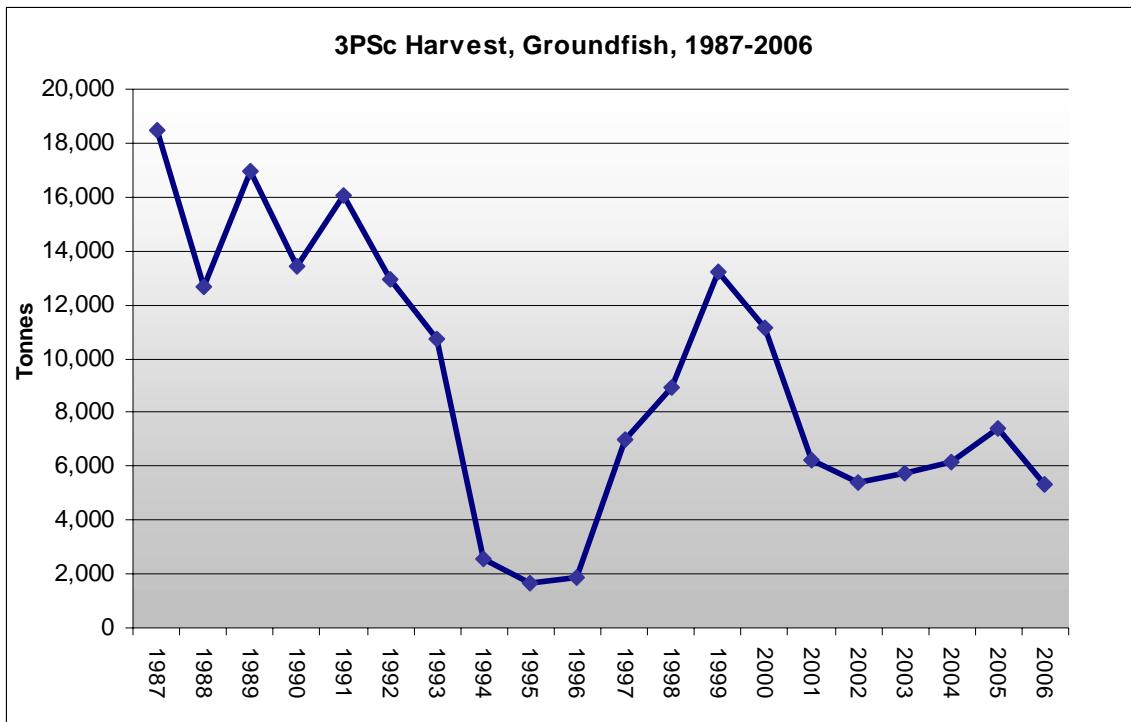


Figure 1-4: 3PSc Harvest, Groundfish, 1987-2006

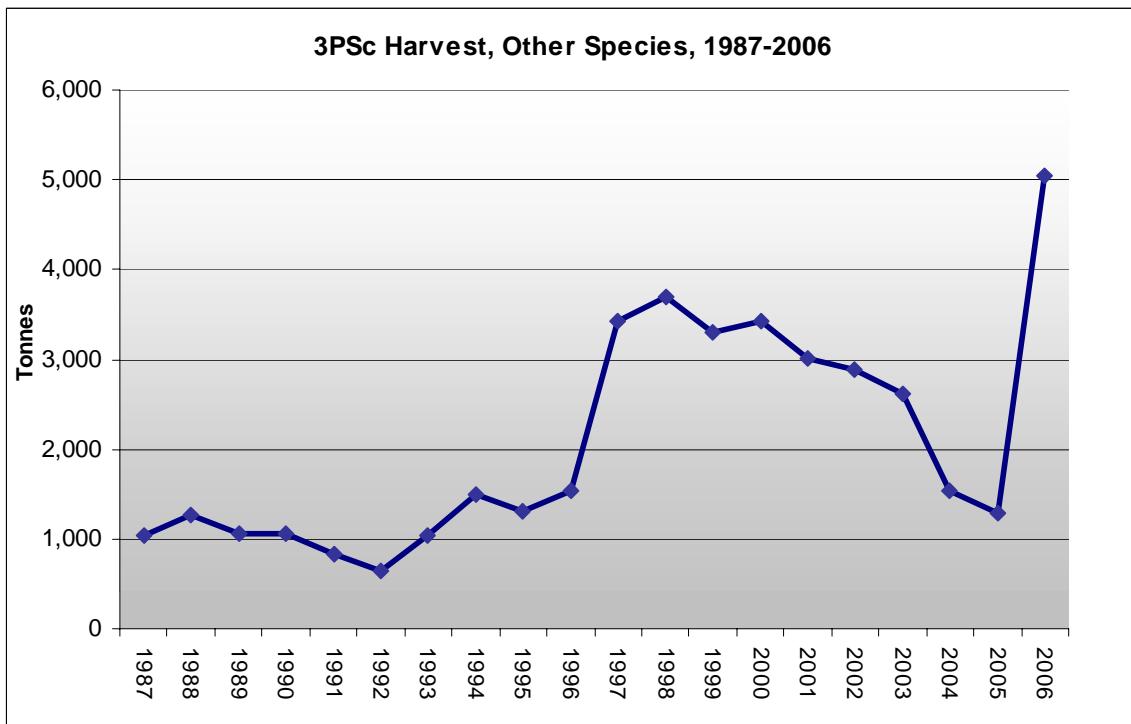


Figure 1-5: 3PSc Harvest, Other Species, 1987-2006

The notable increase in 2006 for non-groundfish species is owing to greatly increased whelk harvesting recorded in the DFO dataset for that year. However, DFO managers contacted about the whelk data report that relatively few fishers are harvesting whelk directly within Placentia Bay, and were not aware of any catch locations within the study

area. They suggest that most of this species catch is made in areas beyond 3PSc, e.g. in the St. Pierre Banks area (M. Eddy, pers comm., April 2007; R. Smith, pers comm., May 2007). However, some 60 records in the 3PSc data locate whelk harvesting in Placentia Bay, and the gear type associated with all the 3PSc whelk records (pot) is correct for this species.

Since the mid-1990s, the fisheries and fisheries management and licencing regimes in Placentia Bay have continued to evolve. Most significantly, a fish harvesting rationalization strategy was implemented in the province that reduced the number of participants in the harvesting sector, and a professionalization process was introduced which prescribed specific levels of experience and training required to be a professional fish harvester. Along with this system, DFO introduced the "core" harvesting enterprise designation, with restrictions on harvesting by those who are not part of such an enterprise.

The following sections provide more information on key aspects of present-day Placentia Bay fisheries.

### **1.3.2. Current Harvesting**

The following Table 1-1 shows the composition of the harvest in 3PSc in recent years, based on 2003-2006 landings by year. As these data show, cod is still by far the most important species harvested in the area, with snow crab, herring and lumpfish (roe fishery), scallops and a few other groundfish species making up most of the remainder.

**Table 1-1: 3PSc Harvest, 2003 - 2006 (Annual)**

| <b>Species</b>              | <b>Tonnes</b> | <b>% of Total</b> |
|-----------------------------|---------------|-------------------|
| 2003                        |               |                   |
| Atlantic cod                | 4,804.2       | 53.4%             |
| Redfish                     | 5.6           | 0.1%              |
| American plaice             | 212.1         | 2.4%              |
| Yellowtail flounder         | 13.2          | 0.1%              |
| Winter flounder             | 91.3          | 1.0%              |
| Turbot (Greenland flounder) | 7.0           | 0.1%              |
| Skate                       | 48.3          | 0.5%              |
| Pollock                     | 7.7           | 0.1%              |
| White hake                  | 18.4          | 0.2%              |
| Monkfish                    | 9.3           | 0.1%              |
| Herring                     | 1,057.1       | 11.7%             |
| Sea scallops                | 6.1           | 0.1%              |
| Icelandic scallops          | 177.6         | 2.0%              |
| Whelks                      | 7.8           | 0.1%              |
| Sea cucumbers               | 87.8          | 1.0%              |
| Sea urchins                 | 18.7          | 0.2%              |
| Lobster                     | 86.7          | 1.0%              |
| Snow crab                   | 2,222.5       | 24.7%             |

| <b>Species</b>     | <b>Tonnes</b>  | <b>% of Total</b> |
|--------------------|----------------|-------------------|
| Lumpfish roe       | 121.7          | 1.4%              |
| All other species  | 8.6            | 0.1%              |
| <b>Total</b>       | <b>9,003.0</b> | <b>100.0%</b>     |
| 2004               |                |                   |
| Atlantic cod       | 4,594.9        | 57.0%             |
| Haddock            | 6.0            | 0.1%              |
| American plaice    | 143.0          | 1.8%              |
| Winter flounder    | 68.0           | 0.8%              |
| Skate              | 30.3           | 0.4%              |
| Pollock            | 14.1           | 0.2%              |
| White hake         | 71.2           | 0.9%              |
| Herring            | 927.0          | 11.5%             |
| Capelin            | 71.6           | 0.9%              |
| Sea cucumbers      | 182.2          | 2.3%              |
| Sea urchins        | 44.0           | 0.5%              |
| Lobster            | 58.7           | 0.7%              |
| Snow crab          | 1,243.0        | 15.4%             |
| Lumpfish roe       | 602.2          | 7.5%              |
| All other species  | 19.8           | 0.2%              |
| <b>Total</b>       | <b>8,056.3</b> | <b>100.0%</b>     |
| 2005               |                |                   |
| Atlantic cod       | 5,016.6        | 59.1%             |
| Haddock            | 40.8           | 0.5%              |
| Redfish            | 6.7            | 0.1%              |
| Halibut            | 10.0           | 0.1%              |
| American plaice    | 239.0          | 2.8%              |
| Winter flounder    | 99.1           | 1.2%              |
| Skate              | 91.8           | 1.1%              |
| Pollock            | 124.5          | 1.5%              |
| White hake         | 507.1          | 6.0%              |
| Monkfish           | 155.7          | 1.8%              |
| Hagfish            | 180.7          | 2.1%              |
| Herring            | 279.8          | 3.3%              |
| Mackerel           | 33.1           | 0.4%              |
| Sea scallops       | 47.6           | 0.6%              |
| Icelandic scallops | 121.7          | 1.4%              |
| Whelks             | 77.4           | 0.9%              |
| Sea cucumbers      | 307.6          | 3.6%              |
| Sea urchins        | 31.9           | 0.4%              |
| Lobster            | 70.3           | 0.8%              |
| Snow crab          | 637.3          | 7.5%              |
| Lumpfish roe       | 415.7          | 4.9%              |
| All other species  | 14.1           | 0.2%              |
| <b>Total</b>       | <b>8,494.5</b> | <b>100.0%</b>     |
| 2006               |                |                   |
| Atlantic cod       | 4,491.0        | 43.2%             |
| Haddock            | 28.8           | 0.3%              |

| <b>Species</b>      | <b>Tonnes</b>   | <b>% of Total</b> |
|---------------------|-----------------|-------------------|
| Redfish             | 72.9            | 0.7%              |
| Halibut             | 9.9             | 0.1%              |
| American plaice     | 206.8           | 2.0%              |
| Yellowtail flounder | 6.0             | 0.1%              |
| Winter flounder     | 92.4            | 0.9%              |
| Skate               | 107.8           | 1.0%              |
| Pollock             | 139.7           | 1.3%              |
| White hake          | 126.4           | 1.2%              |
| Monkfish            | 69.8            | 0.7%              |
| Herring             | 870.9           | 8.4%              |
| Mackerel            | 131.9           | 1.3%              |
| Capelin             | 250.4           | 2.4%              |
| Sea scallops        | 463.8           | 4.5%              |
| Icelandic scallops  | 69.6            | 0.7%              |
| Squid               | 9.7             | 0.1%              |
| Whelks              | 1,993.9         | 19.2%             |
| Sea cucumbers       | 140.1           | 1.3%              |
| Sea urchins         | 19.6            | 0.2%              |
| Lobster             | 69.3            | 0.7%              |
| Snow crab           | 597.3           | 5.7%              |
| Lumpfish roe        | 428.6           | 4.1%              |
| All other species   | 4.5             | 0.0%              |
| <b>Total</b>        | <b>10,396.6</b> | <b>100.0%</b>     |

<sup>1</sup> Although the DFO data identify this harvest as “sea cucumbers” (*Cucumaria frondosa*), DFO managers consulted believe this is also an error in the dataset, either associated with the incorrect Unit Area designation (sea cucumbers are harvested off St. Pierre Bank in 3PS), or the incorrect species code was used when the data were entered. If the latter, these may be scallops (code 618, not code 619).

The annual DFO quotas for Atlantic cod have not yet been set for 2007, but are expected shortly (in May). In 2006, the IQs for various PB based fishers, by vessel size, was as follows:

|              |  |
|--------------|--|
| < 25'        | 14,350 lbs / 6.51 tonnes (round weight)  |
| 25' - 34'11" | 23,000 lbs / 10.43 tonnes (round weight) |
| 35' - 65'    | 38,700 lbs / 17.55 tonnes (round weight) |

The overall 2007 3PS snow crab quota is 4,065 tonnes, while the quota for Placentia Bay itself (3PSc, or CFA 10a) is 975 tonnes: 450 tonnes for Inner Placentia Bay, and 525 tonnes for Outer Placentia Bay. The Individual Quotas (IQs) are as follows:

|                                |                         |
|--------------------------------|-------------------------|
| For small boat (< 35') fishers |                         |
| in Inner Placentia Bay         | 5,040 lbs / 2.29 tonnes |
| in Outer Placentia Bay         | 6,740 lbs / 3.06 tonnes |

Placentia Bay-based crab fishers holding Supplementary licences are not permitted to fish this species within 3PSc. They harvest most of their crab allocation in 3PSf, i.e. within CFA 10a and 10bc, in which their 2007 IQ is 51,000 pounds; these Supplementary

licence holders also have a small allocation (4,102 pounds) within CFA 11s, as well as an exploratory IQ of 10,100 pounds in 3PSh (CFA 10d) south of 45 35 N (M. Eddy, DFO pers comm., April 2007; R. Smith, pers comm., May 2007). As such, Placentia Bay Supplementary crab licence holders have an overall 2007 IQ of about 65,000 pounds (29.5 tonnes).

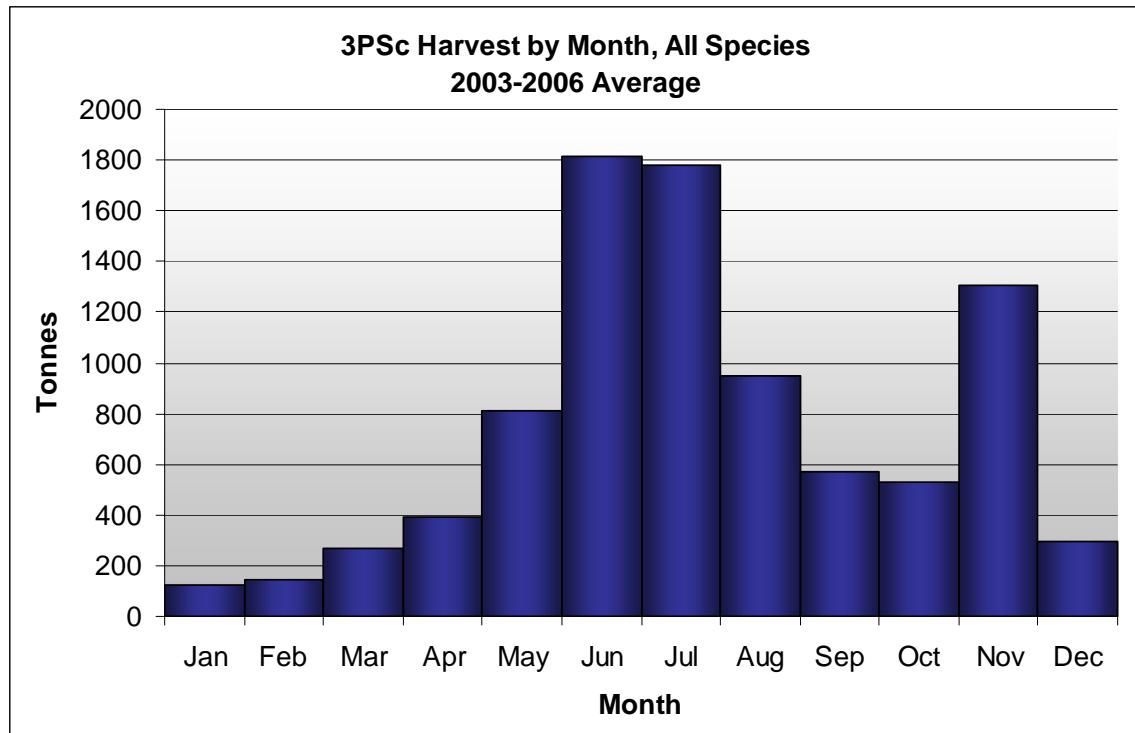
In terms of economic value, the area's commercial fishers usually depend on three, high-value species - lobster, snow crab and cod - for the bulk of their annual fishing income.

While lobster accounts for only a small percentage by weight of the annual catch, given its high value this species remains very important to many study area fishers, and tends to be fished quite close to shore. Although the herring fishery is important (especially as bait), it does not have the direct economic value of the other three fisheries.

Section 1.3.3 below provides harvest information and recent values for the harvest specifically for ports near the proposed refinery site.

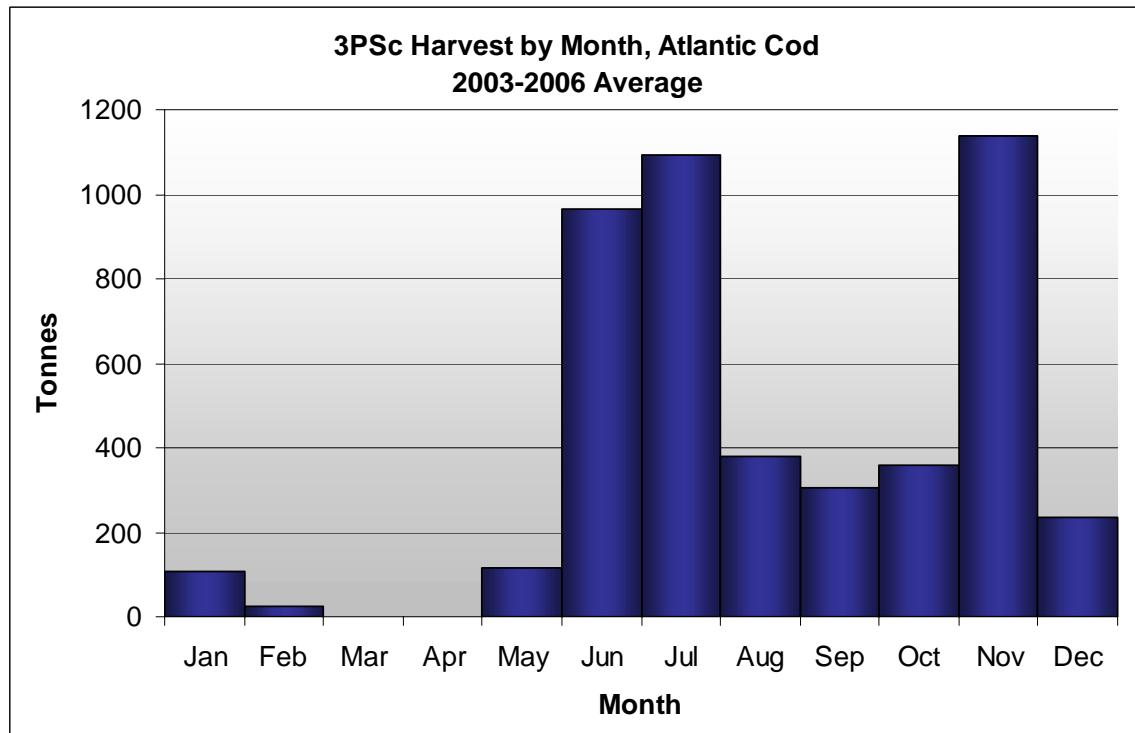
### ***1.3.3. Seasonality***

Currently, some harvesting is conducted year-round, as it was in the pre-moratorium (1984-1992) period, though in recent years it has been much less evenly distributed throughout the months as it once was (see Figure 1-6). Since 1996, the peak harvesting months have been June and July, but there has also been a fairly strong fishery in the late fall (for cod) as indicated in the graph.



**Figure 1-6: 3PSc Harvest by Month, All Species 2003-2006 Average**

The following graphs show the timing of the 2003-2006 harvests for selected Placentia Bay species.



**Figure 1-7: 3PSc Harvest by Month, Atlantic Cod 2003-2006 Average**

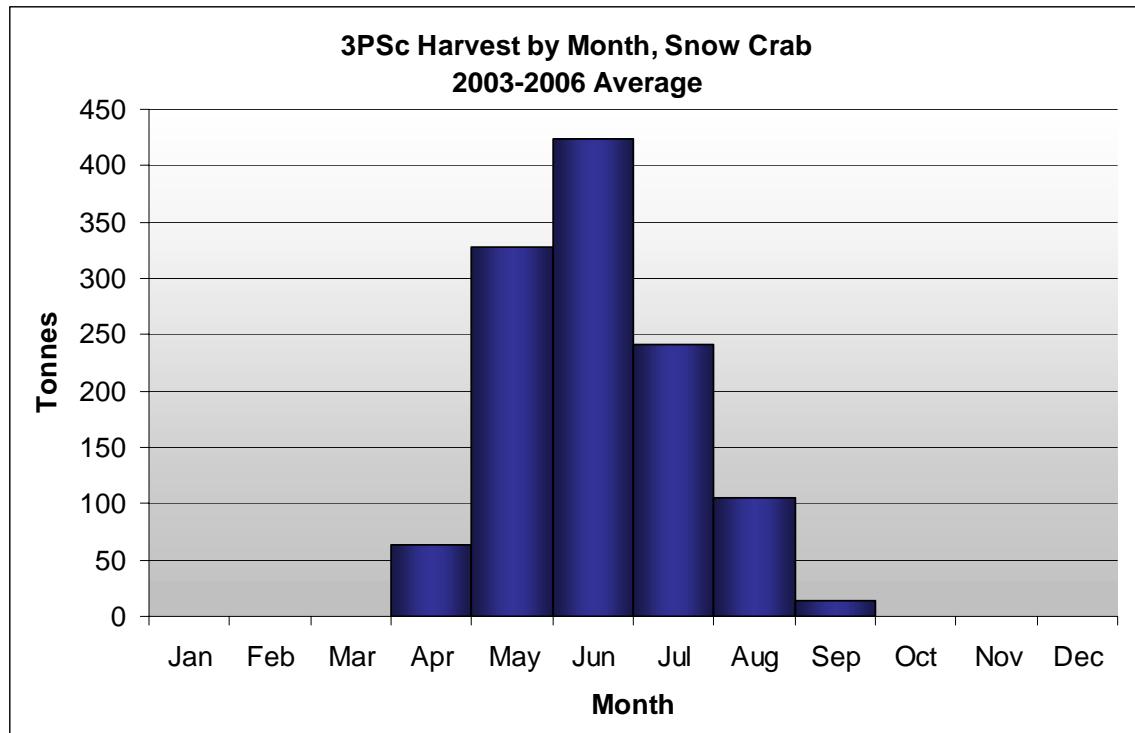


Figure 1-8: 3PSc Harvest by Month, Snow Crab 2003-2006 Average

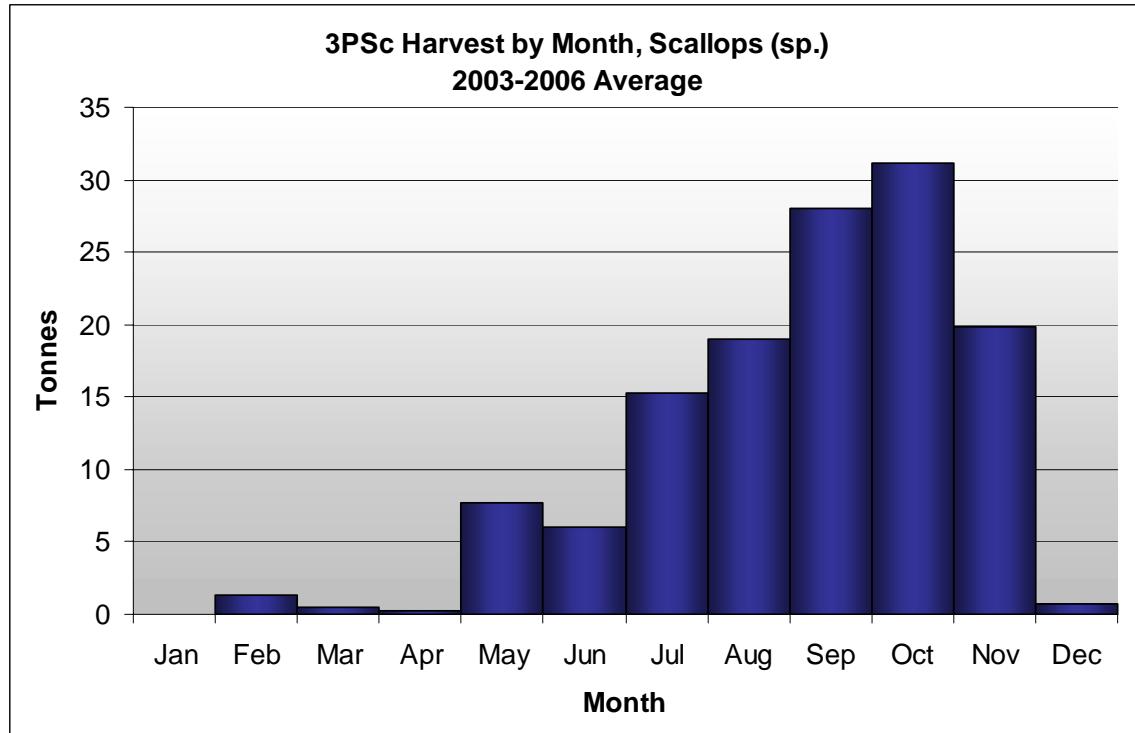


Figure 1-9: 3PSc Harvest by Month, Scallops (sp.) 2003-2006 Average

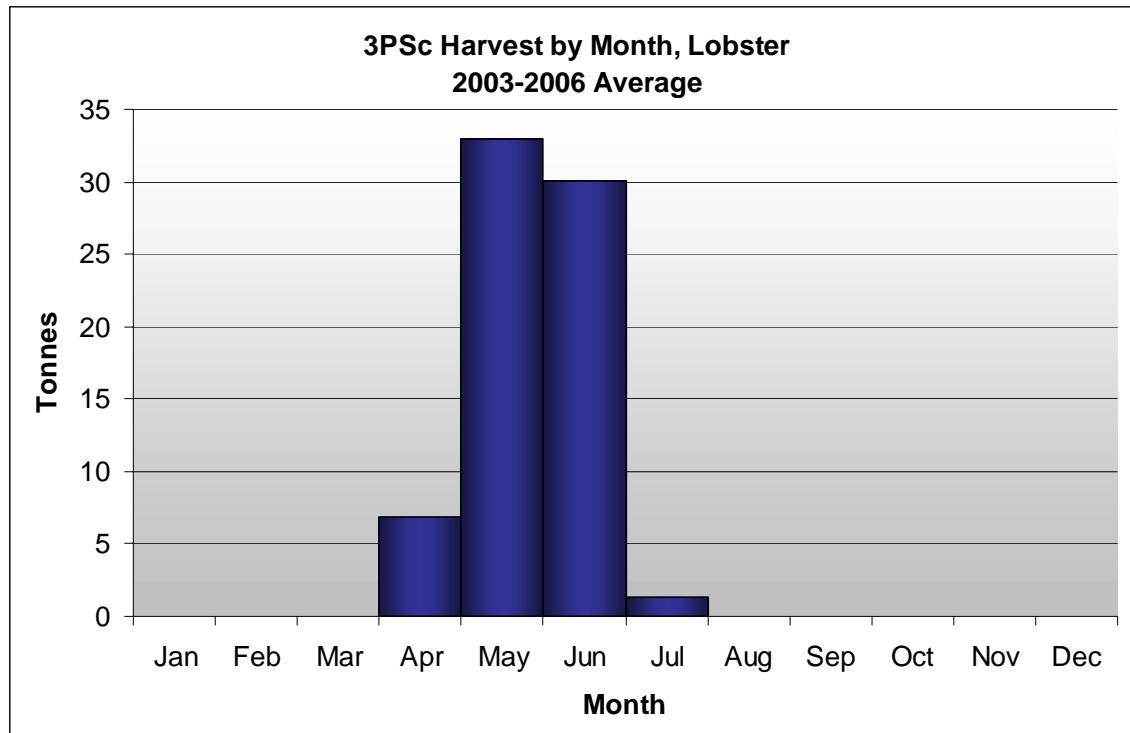


Figure 1-10: 3PSc Harvest by Month, Lobster 2003-2006 Average

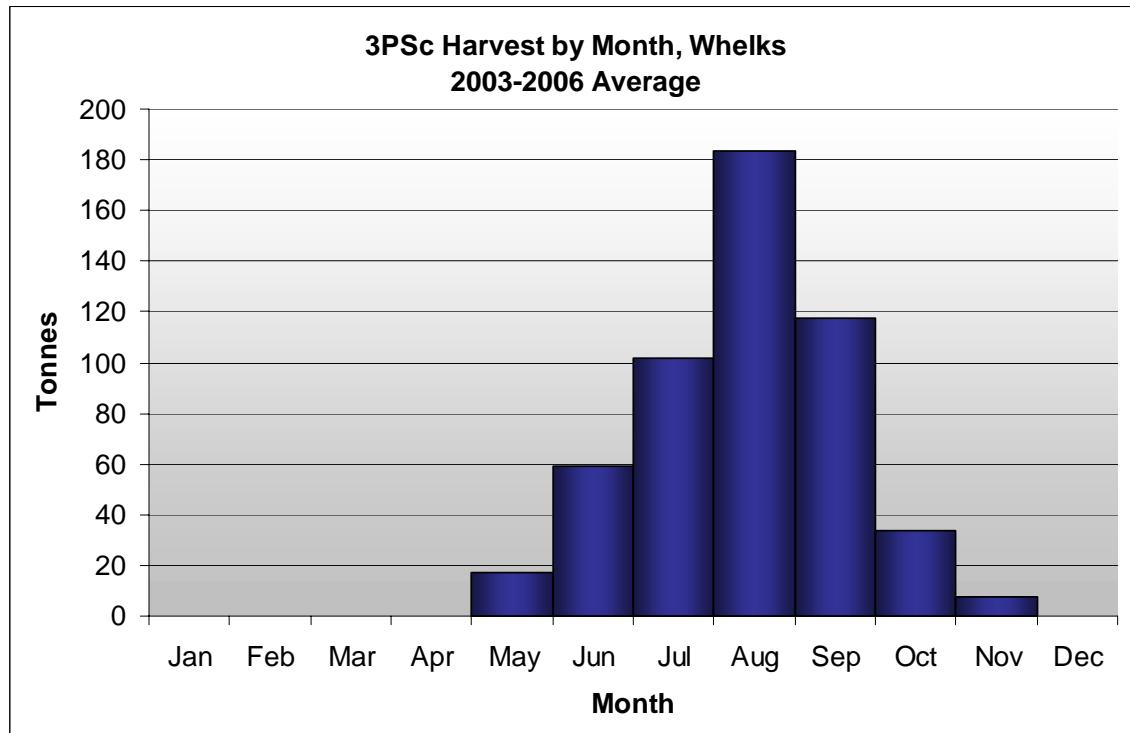


Figure 1-11: 3PSc Harvest by Month, Whelks 2003-2006 Average

#### 1.3.4. Harvesting Locations

The following maps (Figure 1-12 to Figure 1-15) show the locations recorded in the DFO georeferenced dataset for all species, 2003 – 2006, aggregated, and then for selected species. As noted above, however, this represents only small sub-set of the 3PSc harvest. Some species (for example, lobster) are not represented at all in the georeferenced data. The Placentia Bay Traffic Separation lanes are also shown on these maps.

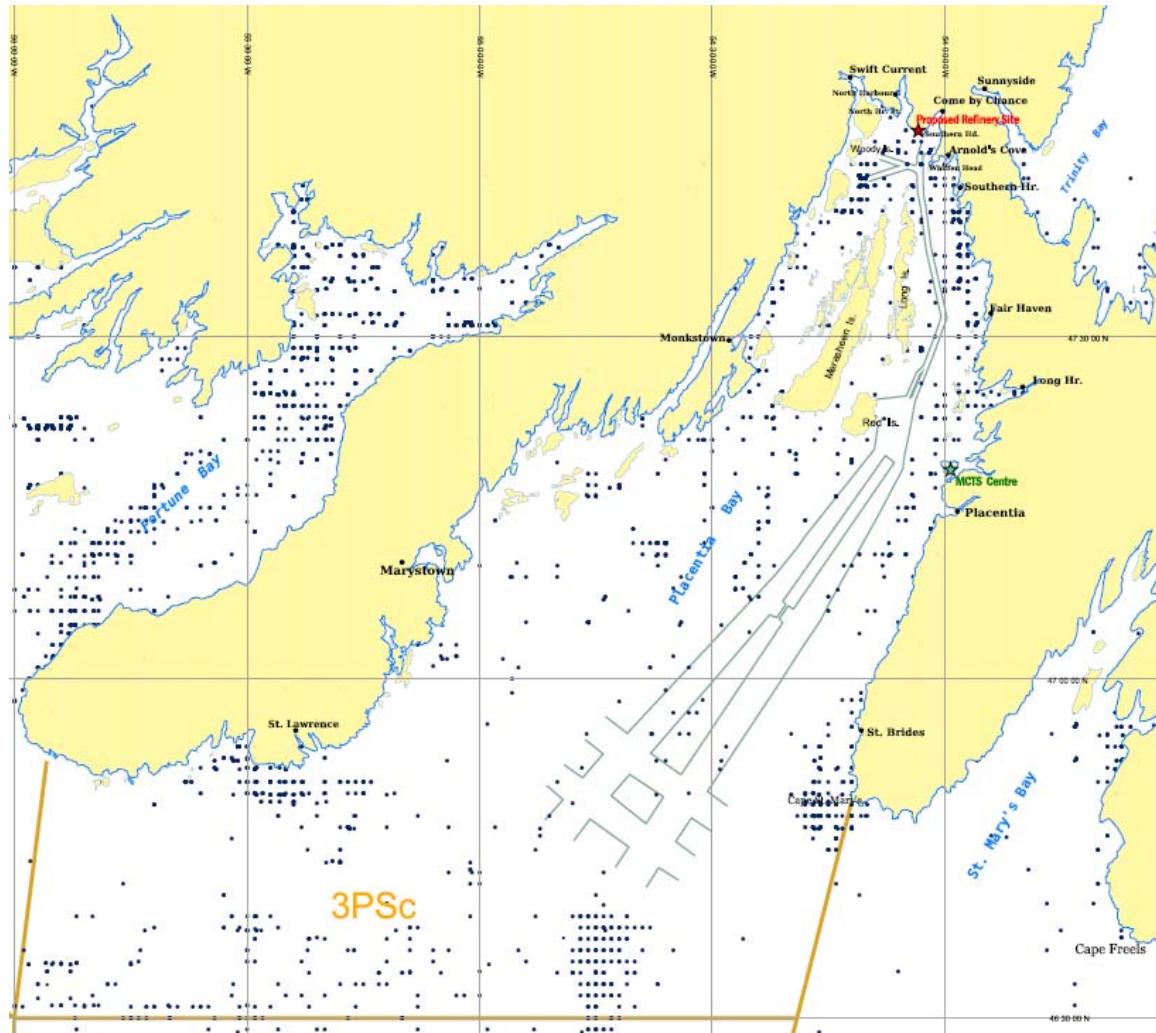


Figure 1-12: 2003-2006 Recorded Fishing Locations, All Months, All Species, Aggregated

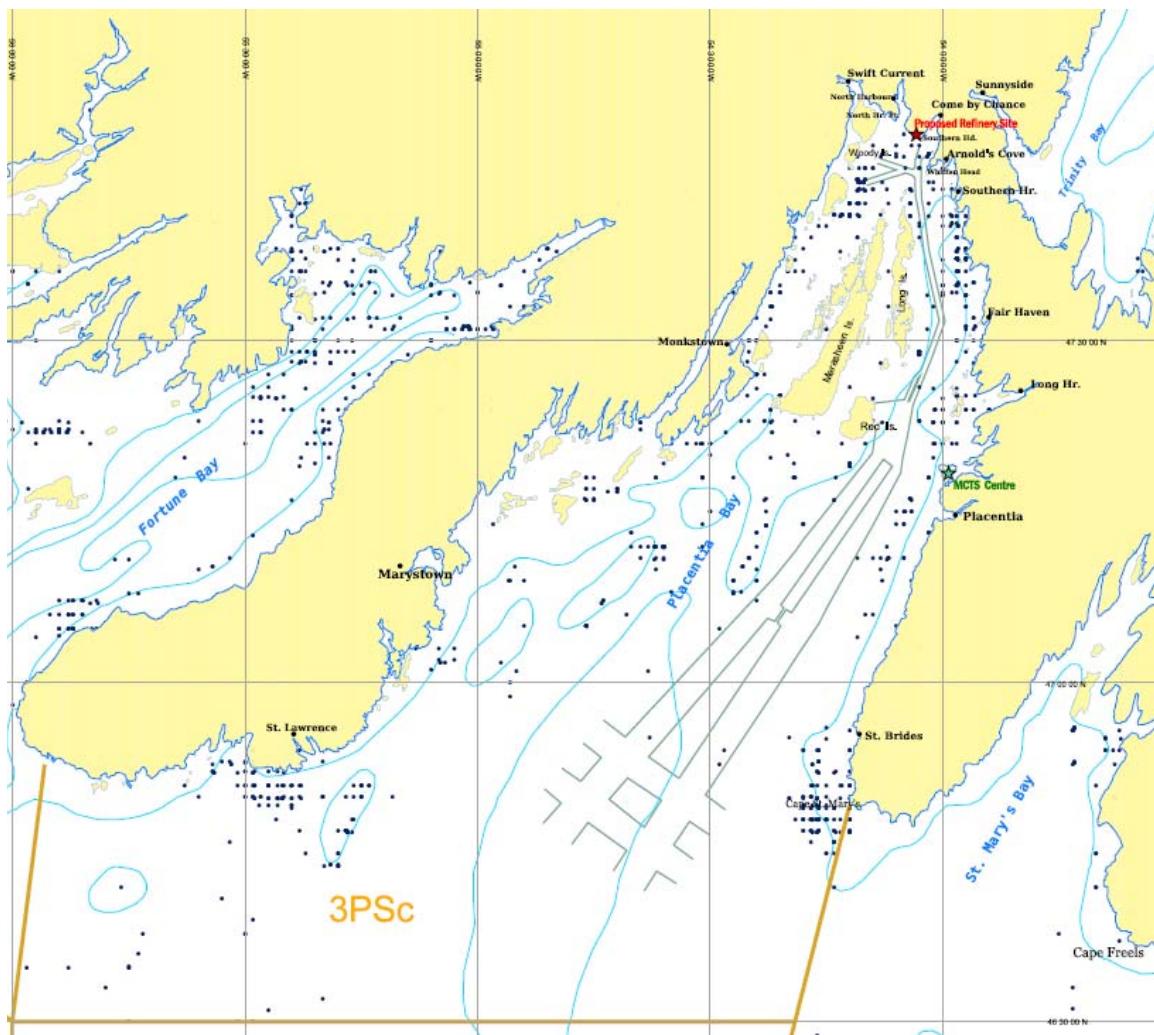


Figure 1-13: 2003-2006 Recorded Fishing Locations, All Months, Atlantic Cod, Aggregated

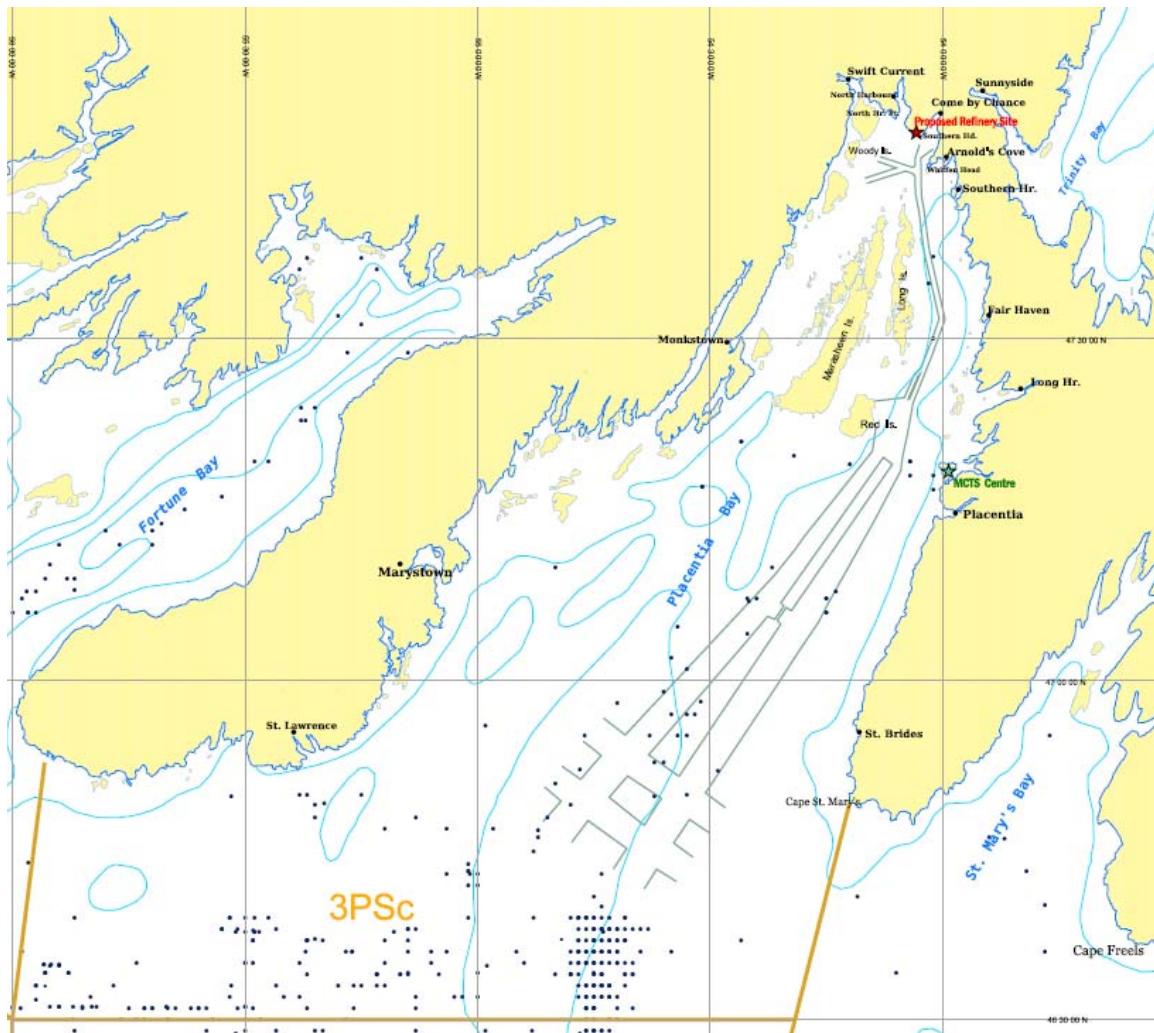


Figure 1-14: 2003-2006 Recorded Fishing Locations, All Months, Snow Crab, Aggregated

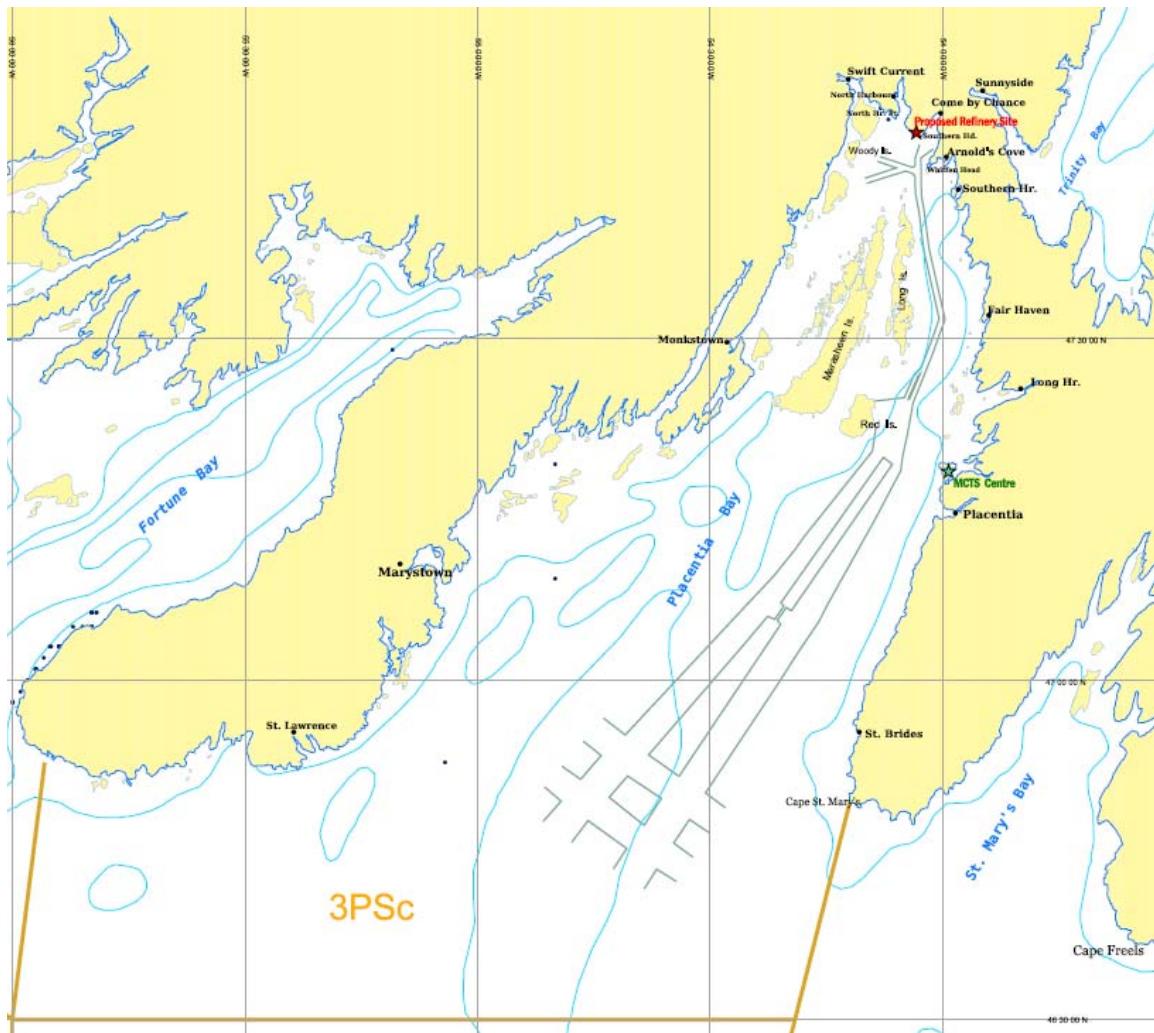


Figure 1-15: 2003-2006 Recorded Fishing Locations, All Months, Scallops (sp), Aggregated

Since so little of the catch data is specifically georeferenced and indicated on the preceding map, the following analysis was undertaken to provide a better indication of the locality of fishing effort. This looks particularly at fisheries activities in the general vicinity of the proposed refinery site. This analysis considers, for 2003 - 2006, the quantity of the harvest from the waters of 3PSc, (1) by the recorded Statistical Section (SS) of the fishing vessel's homeport, and (2) by the Statistical Section of the port where the catch was landed (port of landing).<sup>3</sup>

The DFO datasets indicate fishing vessel homeport SS for about 61% of the 2003-2006 catch (by quantity) harvested in UA 3PSc. Of this subset, more than 97% (by weight) is harvested by vessels registered in ports in Placentia Bay, i.e. ports within SS 29 – 32, indicated on the following map, Figure 1-16.

<sup>3</sup> DFO Newfoundland and Labrador Region does not disclose the specific homeport or port of landings for confidentiality reasons.

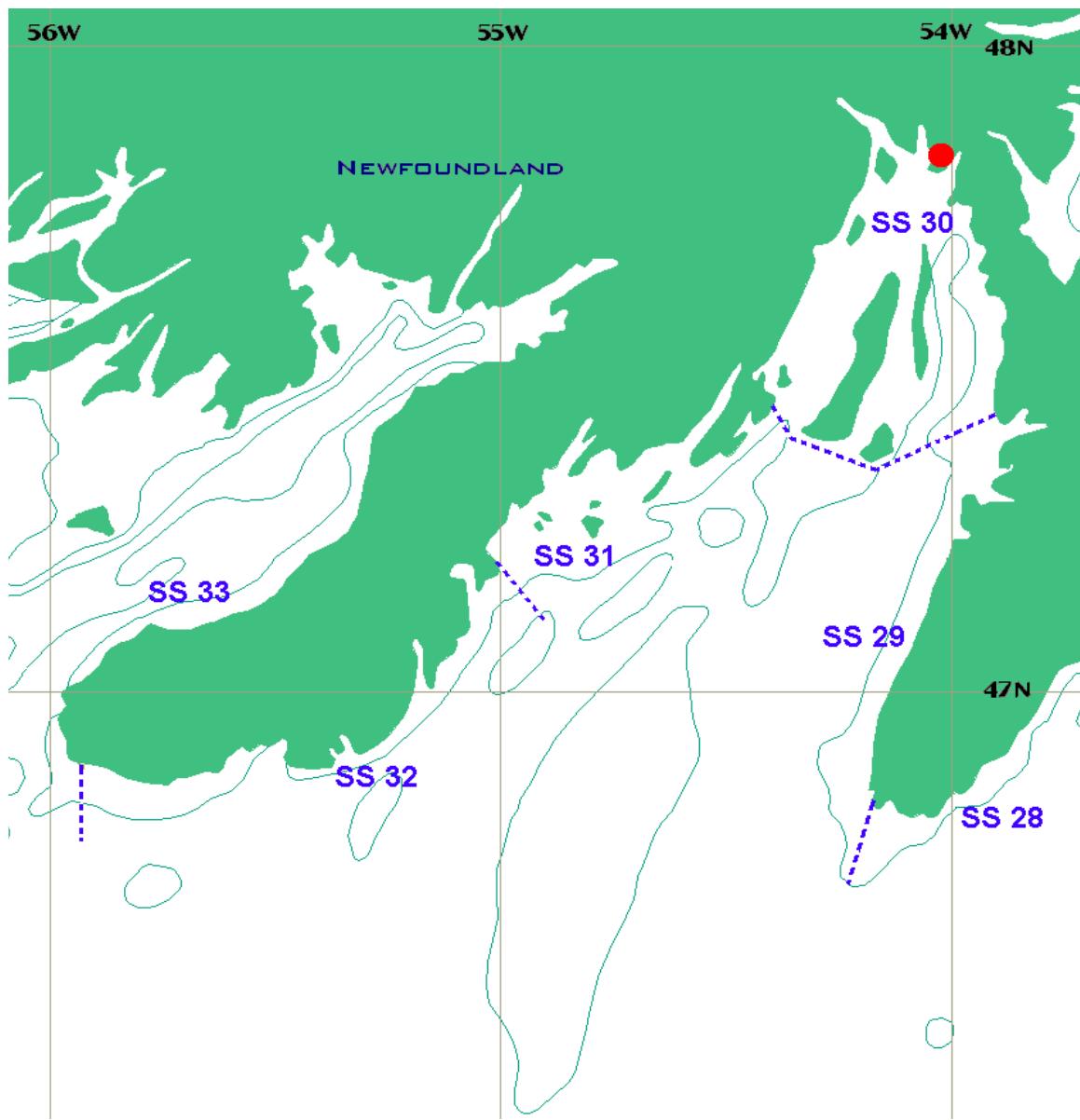
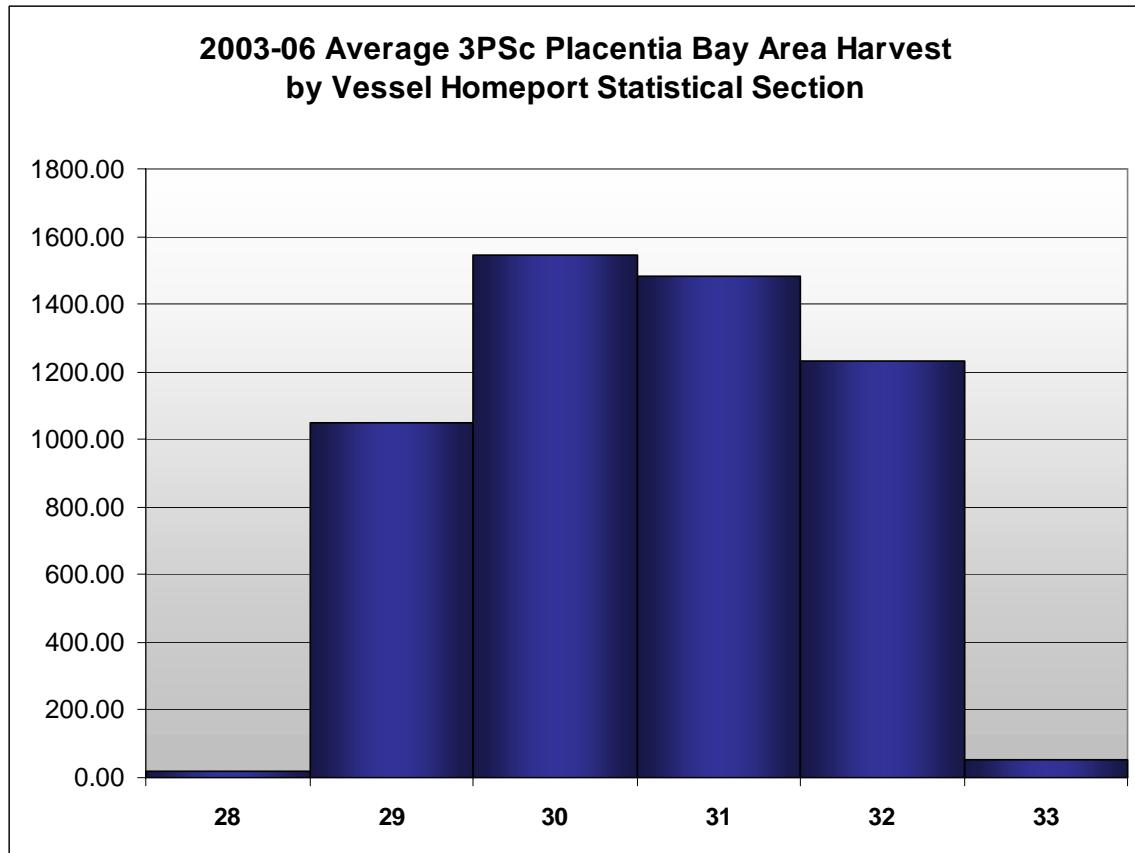
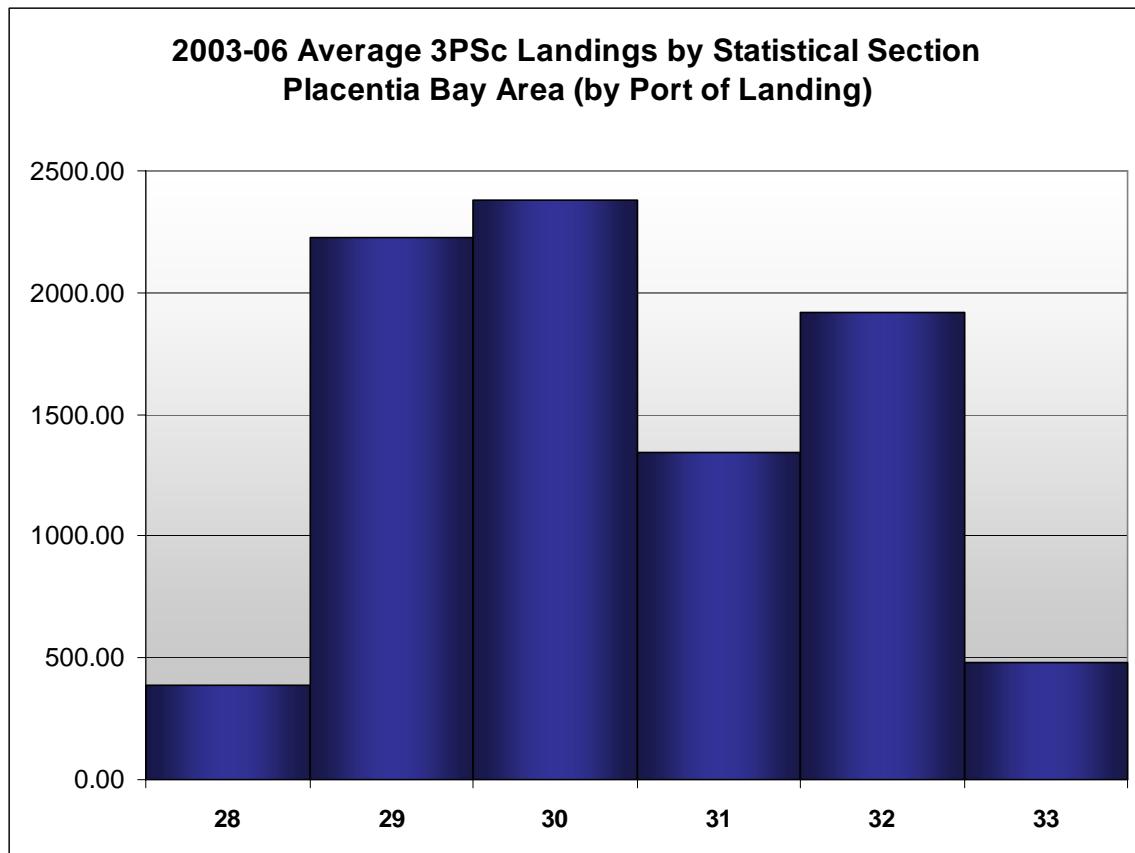


Figure 1-16: Placentia Bay and Area, Location of Statistical Sections



**Figure 1-17: 2003-2006 Placentia Bay Harvest, All Species, by Statistical Section of Landing**

The SS of the port of landing of the harvest (i.e. where it is brought to port and off-loaded) is indicated for 100% of the 3PSc catch. These locations range more broadly, indicating that the Placentia Bay harvest is landed in many ports around the island of Newfoundland and in Nova Scotia. For 2003-2006, though, 87% of the harvest was landed in Placentia Bay ports (though this does not mean it was processed there). Figure 1-17 compares the quantity of the harvest landed in 2003-2006 in the Placentia Bay Statistical Sections (SS 29-32) and those immediately adjacent to Placentia Bay (SS 28 and 33).



**Figure 1-18: 2003-06 Placentia Bay Harvest, All Species, by Statistical Section of Landing**

### **1.3.5. Refinery Area**

As Figure 1-18 indicates, boats from SS 30, which contains the proposed refinery site, recorded the greatest proportion of the recent Placentia Bay harvest. Figure 1-18 shows that SS 30 ports also received close to the greatest proportion of the bay's landings that year.

The following tables (Table 1-2 and Table 1-3) show the quantity and value of the harvest by species in 2003-2006 (averaged) for vessels reported as based in SS 30 homeports, and the quantity and value of the 3PSc harvest landed in SS 30 ports. (Values are calculated based on the average annual quantities of landings for 2003-2006, applying recent prices. Specifically, these prices are the average landed amounts paid to harvesters in 2006, averaged over all months, for relevant species within the Newfoundland and Labrador Region<sup>4</sup>).

<sup>4</sup> See [http://www.nfl.dfo-mpo.gc.ca/publications/reports\\_rapports/Land\\_All\\_2006.htm](http://www.nfl.dfo-mpo.gc.ca/publications/reports_rapports/Land_All_2006.htm)

**Table 1-2: 3PSc Recorded Harvest by Vessels from SS 30 Ports (2003-2006 Averages)**

| <b>Species</b>  | <b>Tonnes</b>  | <b>Value</b>       |
|-----------------|----------------|--------------------|
| Atlantic cod    | 1,108.1        | \$1,280,342        |
| American Plaice | 30.4           | \$21,214           |
| Winter flounder | 7.5            | \$3,108            |
| Skate           | 5.2            | \$1,508            |
| Herring         | 26.4           | \$5,388            |
| Capelin         | 22.7           | \$6,378            |
| Sea scallops    | 4.5            | \$7,561            |
| Whelks          | 22.5           | \$22,149           |
| Lobster         | 43.4           | \$478,592          |
| Snow crab       | 248.5          | \$529,609          |
| Lumpfish roe    | 21.1           | \$41,951           |
| Other           | 6.8            | \$8,554            |
| <b>Total</b>    | <b>1,540.4</b> | <b>\$2,397,800</b> |

**Table 1-3: 3PSc Harvest Landed in SS 30 Ports (2003-2006 Averages)**

| <b>Species</b>  | <b>Tonnes</b>  | <b>Value</b>       |
|-----------------|----------------|--------------------|
| Atlantic Cod    | 1,608.4        | \$1,858,421        |
| American Plaice | 49.3           | \$34,406           |
| Winter Flounder | 17.6           | \$7,238            |
| Skate           | 7.2            | \$2,078            |
| Herring         | 349.2          | \$71,237           |
| Capelin         | 56.2           | \$15,822           |
| Sea Scallops    | 10.1           | \$17,076           |
| Sea urchins     | 19.5           | \$25,947           |
| Lobster         | 46.2           | \$509,117          |
| Snow crab       | 184.1          | \$392,454          |
| Lumpfish roe    | 16.9           | \$33,470           |
| Other           | 13.0           | \$16,351           |
| <b>Total</b>    | <b>2,364.8</b> | <b>\$2,983,616</b> |

As Table 1-5 reports, in the ports between Southern Harbour and Garden Cove (in the general vicinity of the proposed refinery location), there are 92 Core fishing enterprises (based on 2003 records). Of these, nearly 80% use vessels less than 35 feet in length. In general, these smaller fishing boats tend to fish closer to shore than the larger boats and closer to their home ports and/or ports of landing.

This suggests that – despite the gaps in the mapped georeferenced data - the inshore areas in the general vicinity of the proposed refinery site (i.e. inner Placentia Bay) are likely very busy with small boat harvesting activities, such as lobster, cod and herring fishing, and these fishers are responsible for harvesting a significant part of the 3PSc resource.

In particular, the lobster fishery (which is 0% georeferenced) is known to occur relatively close to the fishers' home wharves, along rocky shorelines and nearshore islands, using small boats. This fishery – while making up less than 1% of the overall 3PSc harvest by quantity in 2003-2005 – accounted for almost 7% of the value of the bay's harvest. Within SS 30 ports, lobster represented more than 19% of the value of their catch.

More detailed mapping of these fishing locations will be conducted based on consultations during the next study (impact assessment) phase.

### **1.3.6. Fishing Gear**

In many cases the fishing gear used is specific to the species harvested: pots for snow crab, scallop drags for scallops, diving for sea urchins. Cod is harvested using several gear types, but primarily it is harvested with gillnets in this area. Table 1-4 shows the quantity of the harvest by each gear type for the 2003-2006 period.

**Table 1-4: 3PS Harvest by Gear Type, 2003-2006 Average**

| <b>Gear</b>            | <b>Tonnes</b>  | <b>% of Total</b> |
|------------------------|----------------|-------------------|
| Stern otter trawl      | 79.8           | 0.9%              |
| Beach and bar seine*   | 32.6           | 0.4%              |
| Tuck seine             | 22.3           | 0.2%              |
| Purse seine            | 666.4          | 7.4%              |
| Gillnets (set)*        | 5,265.6        | 58.5%             |
| Longlines*             | 331.1          | 3.7%              |
| Handlines*             | 246.5          | 2.7%              |
| Trap*                  | 110.5          | 1.2%              |
| Pot*                   | 1,764.5        | 19.6%             |
| Dredge / drag          | 401.7          | 4.5%              |
| Diving                 | 28.5           | 0.3%              |
| Hagfish barrel*        | 45.2           | 0.5%              |
| Other                  | 4.7            | 0.1%              |
| <b>Total (Average)</b> | <b>8,994.6</b> | <b>100.0%</b>     |

\* Fixed gear

The locations of the subset of georeferenced fixed and mobile gear fisheries are shown on the following maps ( Figure 1-19 and Figure 1-20). In general, industrial activities and vessel traffic have a greater potential to conflict with fixed gear fisheries than with mobile gear.

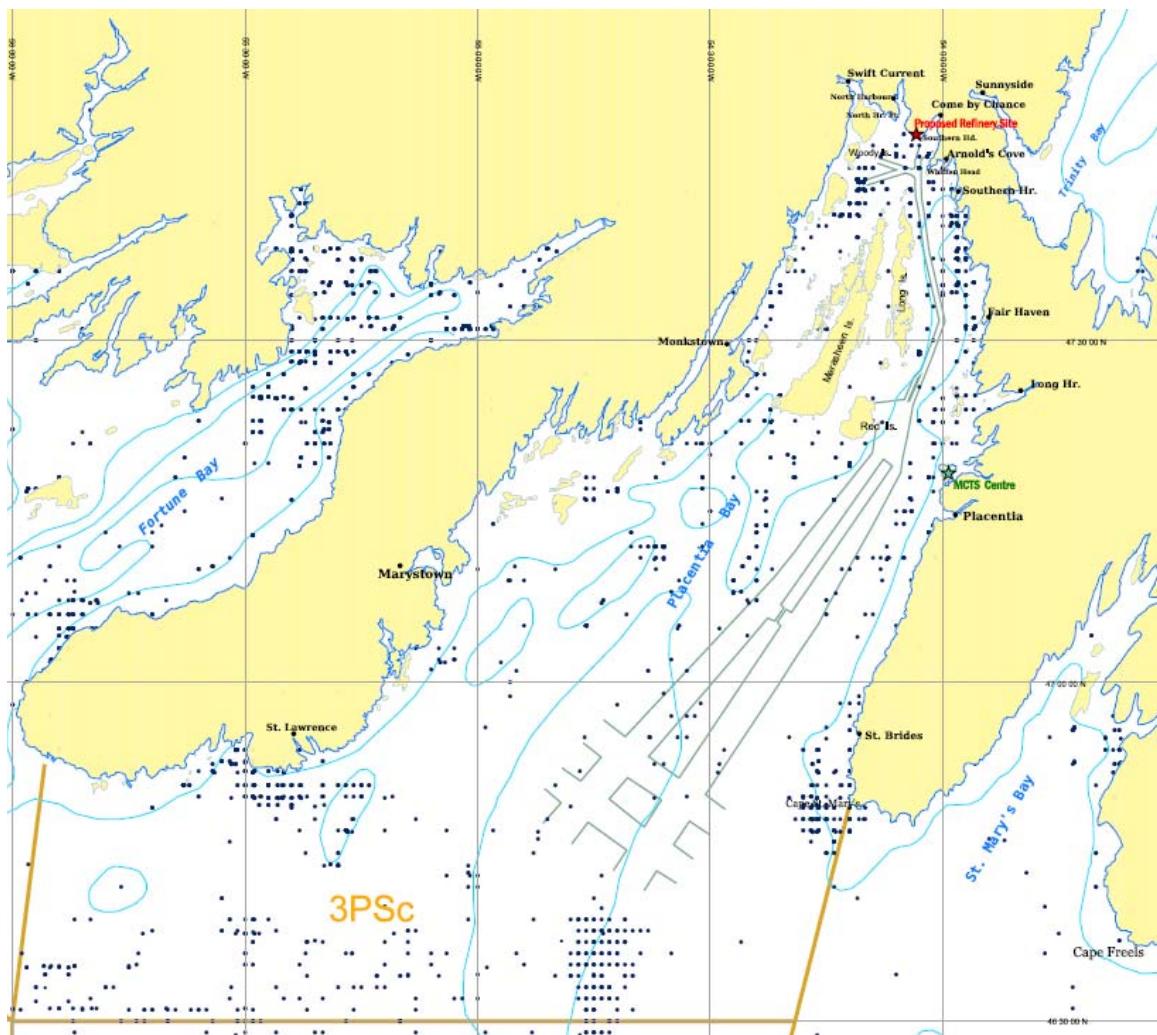


Figure 1-19: 2003-2006 Recorded Fishing Locations, All Months, Fixed Gear, Aggregated

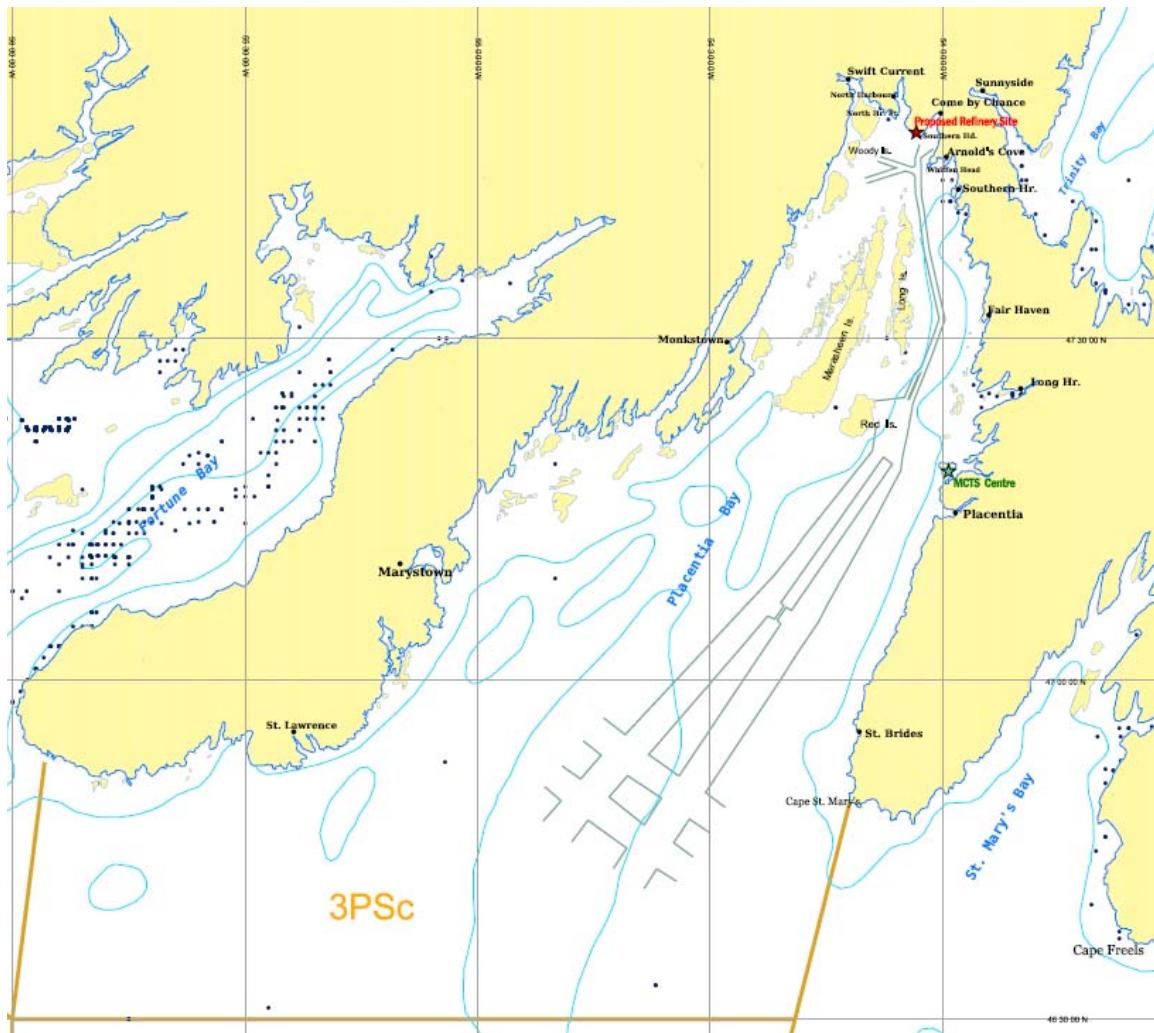


Figure 1-20: 2003-2006 Recorded Fishing Locations, All Months, Mobile Gear, Aggregated

### 1.3.7. Fishing Enterprises, Fishers and Fishing Licences

Data on the number of core and non-core fishing enterprises in the study area, as well as information on the distribution of species licences, were provided by DFO's Licensing Branch in St. John's. The latest data readily available for the purpose of this background report was for the year 2003. It is likely that these data adequately reflect the current (2005-2006) situation in the study area.

Table 1-5 to Table 1-7 show the number of core and non-core enterprises by community and vessel length for Placentia Bay (Fishing Area 10) in 2003.<sup>5</sup> Table 1-8 lists the numbers of licences.

<sup>5</sup> A "core" fishing enterprise is a commercial fishing enterprise holding key species licences, under a system established by DFO in 1996. New core enterprises are not normally created, though existing enterprises may be transferred to a new eligible harvester. DFO requires that the transfer go to a Level II

**Table 1-5: Number of Core Enterprises and Vessel Size, Placentia Bay (2003 Data)**

| <b>Home Port</b>                | <b>&lt;35 ft</b> | <b>35-64 ft</b> | <b>Total</b> |
|---------------------------------|------------------|-----------------|--------------|
| St. Bride's                     | 30               | 10              | 40           |
| Patrick's Cove                  | 1                |                 | 1            |
| Placentia (including Southeast) | 10               | 11              | 21           |
| Dunville                        | 5                |                 | 5            |
| Jerseyside                      | 2                | 1               | 3            |
| Freshwater                      | 1                |                 | 1            |
| Fox Harbour                     | 5                | 3               | 8            |
| Ship Harbour                    | 6                | 1               | 7            |
| Long Harbour                    | 2                | 1               | 3            |
| Mt. Arlington Heights           | 2                |                 | 2            |
| Fair Haven                      | 13               | 1               | 14           |
| Little Harbour East             | 12               | 5               | 17           |
| Southern Harbour                | 28               | 16              | 44           |
| Arnold's Cove                   | 21               | 3               | 24           |
| Come By Chance                  | 4                |                 | 4            |
| North Harbour                   | 13               | 1               | 14           |
| Garden Cove                     | 6                |                 | 6            |
| Swift Current                   | 2                | 1               | 3            |
| Prowseton & Sand Hr. (Vacated)  | 4                | 1               | 5            |
| Davis Cove (Vacated)            | 6                | 1               | 7            |
| Old Cove-Woody Island (Vacated) | 1                |                 | 1            |
| Bar Haven (Vacated)             | 2                |                 | 2            |
| Haystack (Vacated)              | 1                |                 | 1            |
| Red Island (Vacated)            | 4                |                 | 4            |
| Brewley (Vacated)               | 1                |                 | 1            |
| Merasheen (Vacated)             | 5                |                 | 5            |

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professional fish harvester as certified by the Professional Fish Harvesters Certification Board (PFHCB) of Newfoundland and Labrador. A non-core enterprise is one holding other (perhaps single) species licences.

| <b>Home Port</b>              | <b>&lt;35 ft</b> | <b>35-64 ft</b> | <b>Total</b> |
|-------------------------------|------------------|-----------------|--------------|
| Tack's Beach (Vacated)        | 2                |                 | 2            |
| Isle Au Valen (Vacated)       | 3                |                 | 3            |
| Little Paradise (Vacated)     | 2                | 2               | 4            |
| Great Paradise (Vacated)      | 2                |                 | 2            |
| South East Bight              | 23               | 2               | 25           |
| Monkstown                     | 5                | 1               | 6            |
| Petite Forte                  | 17               | 3               | 20           |
| Port Ann (Vacated)            | 1                |                 | 1            |
| Boat Hr (including Brookside) | 8                |                 | 8            |
| Parkers Cove                  | 11               |                 | 11           |
| Baine Harbour                 | 8                | 3               | 11           |
| Rushoon                       | 2                | 1               | 3            |
| Oderin (Vacated)              | 2                |                 | 2            |
| Red Harbour                   | 16               | 1               | 17           |
| Jean De Baie                  | 1                |                 | 1            |
| Rock Harbour                  | 1                |                 | 1            |
| Little Bay                    |                  | 1               | 1            |
| Beau Bois                     | 1                |                 | 1            |
| Fox Cove (near Burin)         | 1                |                 | 1            |
| Port Au Bras                  | 1                | 1               | 2            |
| Burin                         | 17               | 7               | 24           |
| Little St. Lawrence           | 1                |                 | 1            |
| St. Lawrence                  | 9                | 7               | 16           |
| Lawn                          | 10               | 11              | 21           |
| Lord's Cove                   | 13               | 1               | 14           |
| Point Au Gal                  | 10               |                 | 10           |
| Lamaline                      | 17               | 1               | 18           |
| Point May                     | 8                |                 | 8            |
| <b>Total</b>                  | <b>379</b>       | <b>98</b>       | <b>477</b>   |

**Table 1-6: Number of Non-core Enterprises and Vessel Size, Placentia Bay (2003 Data)**

| <b>Home Port</b>                | <b>&lt;35 ft</b> | <b>35-64 ft</b> | <b>Total</b> |
|---------------------------------|------------------|-----------------|--------------|
| Placentia (including Southeast) | 3                |                 | 3            |
| Jerseyside                      | 1                |                 | 1            |
| Freshwater                      | 2                |                 | 2            |
| Fox Harbour                     | 2                |                 | 2            |
| Ship Harbour                    | 1                |                 | 1            |
| Long Harbour                    | 1                |                 | 1            |
| Mt. Arlington Heights           | 1                |                 | 1            |
| Fair Haven                      | 3                |                 | 3            |
| Little Harbour East             | 4                |                 | 4            |
| Southern Harbour                | 6                |                 | 6            |
| North Harbour                   | 2                |                 | 2            |
| Garden Cove                     | 2                |                 | 2            |
| Swift Current                   | 1                |                 | 1            |
| Red Island (Vacated)            | 1                |                 | 1            |
| Merasheen (Vacated)             | 1                |                 | 1            |
| South East Bight                | 1                |                 | 1            |
| Monkstown                       | 1                |                 | 1            |
| Boat Hr (including Brookside)   | 2                |                 | 2            |
| Parkers Cove                    | 1                |                 | 1            |
| Burin                           | 2                |                 | 2            |
| Little St. Lawrence             | 2                |                 | 2            |
| St. Lawrence                    | 4                |                 | 4            |
| Lawn                            | 4                |                 | 4            |
| Lord's Cove                     | 2                |                 | 2            |
| Lamaline                        | 1                |                 | 1            |
| <b>Total</b>                    | <b>51</b>        |                 | <b>51</b>    |

\*Key Licence Holders Only

**Table 1-7: Number of Core and \*Non-core Enterprises and Vessel Size, Placentia Bay (2003)**

| <b>Home Port</b>                | <b>&lt;35 ft</b> | <b>35-64 ft</b> | <b>Total</b> |
|---------------------------------|------------------|-----------------|--------------|
| St. Bride's                     | 30               | 10              | 40           |
| Patrick's Cove                  | 1                |                 | 1            |
| Placentia (including Southeast) | 13               | 11              | 24           |
| Dunville                        | 5                |                 | 5            |
| Jerseyside                      | 3                | 1               | 4            |
| Freshwater                      | 3                |                 | 3            |
| Fox Harbour                     | 7                | 3               | 10           |
| Ship Harbour                    | 7                | 1               | 8            |
| Long Harbour                    | 3                | 1               | 4            |
| Mt. Arlington Heights           | 3                |                 | 3            |
| Fair Haven                      | 16               | 1               | 17           |
| Little Harbour East             | 16               | 5               | 21           |
| Southern Harbour                | 34               | 16              | 50           |
| Arnold's Cove                   | 21               | 3               | 24           |
| Come By Chance                  | 4                |                 | 4            |
| North Harbour                   | 15               | 1               | 16           |
| Garden Cove                     | 8                |                 | 8            |
| Swift Current                   | 3                | 1               | 4            |
| Prowseton & Sand Hr. (Vacated)  | 4                | 1               | 5            |
| Davis Cove (Vacated)            | 6                | 1               | 7            |
| Old Cove-Woody Island (Vacated) | 1                |                 | 1            |
| Bar Haven (Vacated)             | 2                |                 | 2            |
| Haystack (Vacated)              | 1                |                 | 1            |
| Red Island (Vacated)            | 5                |                 | 5            |
| Brewley (Vacated)               | 1                |                 | 1            |
| Merasheen (Vacated)             | 6                |                 | 6            |
| Tack's Beach (Vacated)          | 2                |                 | 2            |
| Isle Au Valen (Vacated)         | 3                |                 | 3            |
| Little Paradise (Vacated)       | 2                | 2               | 4            |
| Great Paradise (Vacated)        | 2                |                 | 2            |
| South East Bight                | 24               | 2               | 26           |

| <b>Home Port</b>              | <b>&lt;35 ft</b> | <b>35-64 ft</b> | <b>Total</b> |
|-------------------------------|------------------|-----------------|--------------|
| Monkstown                     | 6                | 1               | 7            |
| Petite Forte                  | 17               | 3               | 20           |
| Port Ann (Vacated)            | 1                |                 | 1            |
| Boat Hr (including Brookside) | 10               |                 | 10           |
| Parkers Cove                  | 12               |                 | 12           |
| Baine Harbour                 | 8                | 3               | 11           |
| Rushoon                       | 2                | 1               | 3            |
| Oderin (Vacated)              | 2                |                 | 2            |
| Red Harbour                   | 16               | 1               | 17           |
| Jean De Baie                  | 1                |                 | 1            |
| Rock Harbour                  | 1                |                 | 1            |
| Little Bay                    |                  | 1               | 1            |
| Beau Bois                     | 1                |                 | 1            |
| Fox Cove (near Burin)         | 1                |                 | 1            |
| Port Au Bras                  | 1                | 1               | 2            |
| Burin                         | 19               | 7               | 26           |
| Little St. Lawrence           | 3                |                 | 3            |
| St. Lawrence                  | 13               | 7               | 20           |
| Lawn                          | 14               | 11              | 25           |
| Lord's Cove                   | 15               | 1               | 16           |
| Point Au Gal                  | 10               |                 | 10           |
| Lamaline                      | 18               | 1               | 19           |
| Point May                     | 8                |                 | 8            |
| <b>Total</b>                  | <b>430</b>       | <b>98</b>       | <b>528</b>   |

\*Key Licence Holders Only

**Table 1-8: Core, Non-core and Recreational Licences (832 Fishers), Placentia Bay (2003)**

| <b>Species</b>          | <b>Total Licences</b> |
|-------------------------|-----------------------|
| Bait                    | 371                   |
| Capelin Fg              | 100                   |
| Capelin Ps              | 1                     |
| Eel                     | 6                     |
| Groundfish Fg           | 518                   |
| Herring Fg              | 124                   |
| Herring Ps              | 10                    |
| Lobster                 | 345                   |
| Mackerel Fg             | 105                   |
| Mackerel Ps             | 8                     |
| Salmon Atlantic         | 5                     |
| Scallop                 | 225                   |
| Scallop Recreational    | 265                   |
| Seal                    | 53                    |
| Seal Personal Use       | 42                    |
| Snow Crab Inshore       | 401                   |
| Snow Crab Supplementary | 68                    |
| Squid                   | 245                   |
| Tuna Bluefin            | 4                     |
| Whelk                   | 86                    |
| <b>Total</b>            | <b>2,982</b>          |

## **1.4. Placentia Bay Aquaculture**

### ***1.4.1. Development of Placentia Bay Aquaculture Activities (1997- 2007)***

To date, the majority of the aquaculture development and investment activities in southern Newfoundland have been concentrated in the Bay d'Espoir and Fortune Bay areas. In 2000, the province's aquaculture Strategic Plan noted "The Newfoundland salmonid industry is located in Bay d'Espoir, the only area of the province that is suitable

for the growing of steelhead trout and salmon.”<sup>6</sup> However, DFA aquaculture managers now believe that Placentia Bay has many of the desirable characteristics of Bay d’Espoir. As such, they are confident that Placentia Bay has significant growth opportunities, including possibilities for the development of salmonid farming, as well as further expansion of existing cod and mussel operations.

The development of aquaculture resources in Placentia Bay has been underway since about the mid-1990s. In 1997 there were about seven active aquaculture operations and several applications to investigate and/or develop additional sites. (Two sea urchin sites were later approved but by 2003 these were no longer active. A cod hatchery was also established in Placentia Bay in the early 1990s, but this was subsequently destroyed by fire.)

During 2000-2003, DFA reported a relatively significant level of expansion in the Placentia Bay aquaculture sector and a considerable interest in the development of new mussel and cod farming sites, particularly on the Burin Peninsula side of the bay and around Merasheen Island. During this period, DFA deployed thermographs in numerous locations to monitor water temperatures in order to assess whether such areas might be suitable for aquaculture.

By 2003 there were 15 approved aquaculture operations, including six blue mussel sites and nine cod grow-out facilities.<sup>7</sup> At that point, most of these aquaculture sites were still at a “developmental” stage, i.e. they had product in the water, but no significant amount of commercial sales. In 2004, DFA reported that only four operators were selling their product on a commercial basis.<sup>8</sup> Nevertheless, based on discussions with DFA experts and 2004 production and sales data obtained from selected aquaculture enterprises, the annual value of aquaculture production (after primary processing) in Placentia Bay was estimated at \$500,000.<sup>9</sup>

In 2006, a detailed analysis of aquaculture operations in Placentia Bay was undertaken as part of a larger comprehensive study of oil spill risk assessment within the South Coast – Eastern Avalon region prepared for Transport Canada.<sup>10</sup> This study, based on data obtained from detailed consultations with industry participants as well as DFA experts, calculated current (2006/2007) mussel production levels in Placentia Bay at 3.5 million

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<sup>6</sup> Burke Consulting. 2000. Strategic Plan: Newfoundland and Labrador Aquaculture. Prepared in collaboration with Resource Development Associates.

<sup>7</sup> As of 2004, there were still no full-cycle (“egg to plate”) cod aquaculture operations in the province, and all cod enterprises are thus “grow-out” facilities. However, current production of farmed cod is limited because of restrictions on taking wild cod for any purpose (DFA managers, pers comms., 2004)

<sup>8</sup>These included a cod farming facility on Jerseyman Island, two blue mussel farms at Crawley Island/St. Croix Bay and another mussel operation on Merasheen Island.

<sup>9</sup>Canning and Pitt Associates. 2005. Placentia Bay Project Benefits Study: Marine Institute Canadian Centre for Marine Communications.

<sup>10</sup> Canning and Pitt Associates, Inc. Risk Assessment of Oil Spills on the South Coast of Newfoundland and Labrador: Commercial Fisheries and Tourism (Phases 1 and 2), Final Report, March 2007. Prepared for RMRI (Canada) Inc. The RMRI study undertaken for Transport Canada is titled “Quantitative Assessment of Oil Spill Risk for the South Coast of Newfoundland and Labrador” and is expected to be released in May 2007.

pounds with a primary product value (before processing) of \$1.4 million. These data were based on current production levels at the five commercially-active mussel farming sites within the Placentia Bay study area.

Currently, the annual value of aquaculture production within Placentia Bay is still relatively small compared to other areas where fish farming has been under development for a much longer period. For example, the study prepared for Transport Canada estimated that, in 2007, salmonid production in the Bay d'Espoir-Fortune Bay region will be about 6,500 tonnes with a primary product value of \$34.5 million. By 2008, production levels in that region are expected to more than double, to 14,700 tonnes, which, at current product market values (\$5,315 per tonne) would be worth an estimated \$78 million. (Annual Blue mussel production levels in the Bay d'Espoir-Fortune Bay are currently estimated at 300,000 pounds valued at \$120,000.)<sup>11</sup>

#### ***1.4.2. Placentia Bay Aquaculture Sites and Activities (2007)***

According to the most recent (April 2007) DFA data there are currently 13 licenced aquaculture operations within Placentia Bay.<sup>12</sup> Applications for another 8 sites are awaiting DFA approval.<sup>13</sup> Currently licenced sites include five mussel farming operations and eight Atlantic cod grow-out sites.

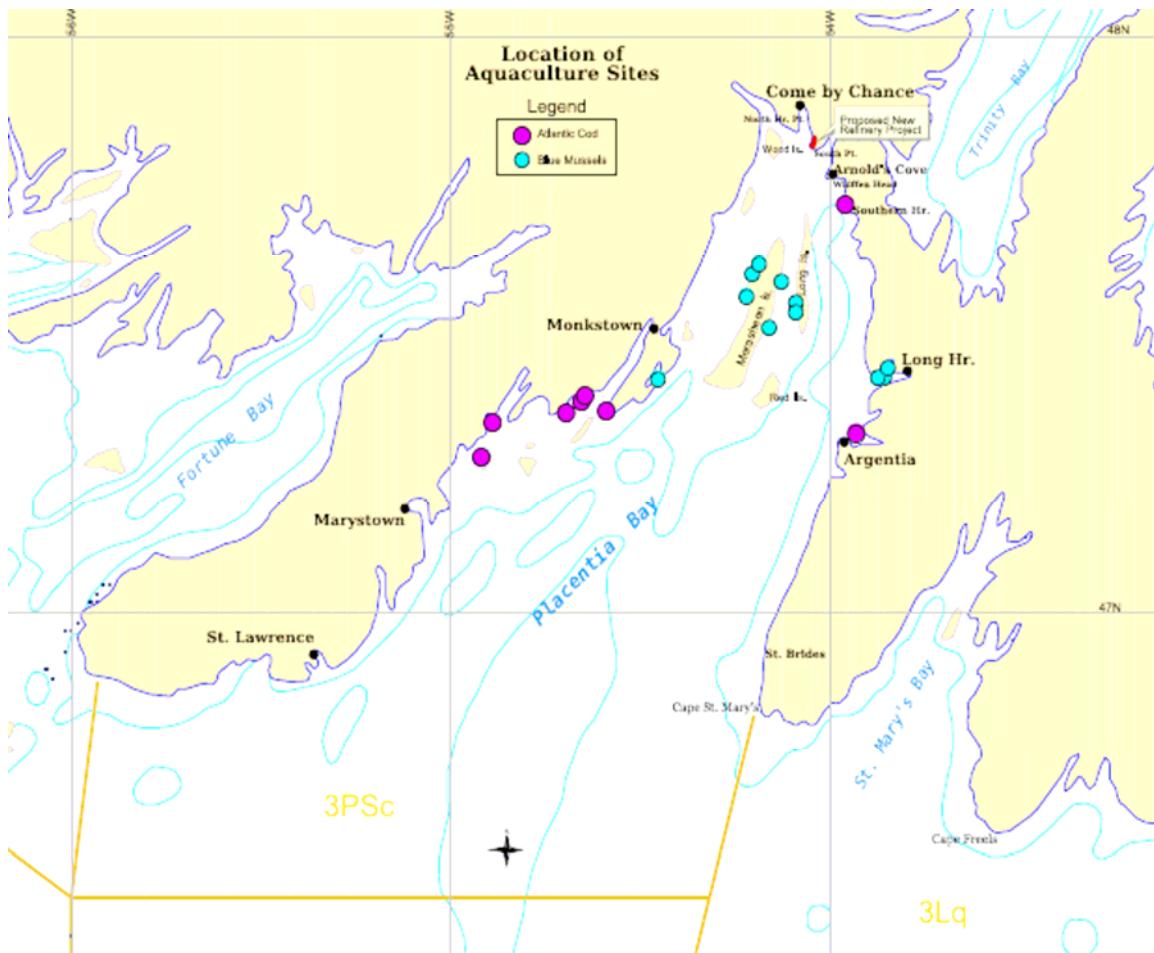
Figure 1-21 shows the geographic location of existing aquacultural sites in Placentia Bay, and Table 1-9 provides relevant, more detailed information on these mussel and cod farming operations.

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<sup>11</sup> DFA experts and industry participants acknowledge that, for various reasons, mussel farming in the Bay d'Espoir-Fortune bay region has not been as successful as it has been in Placentia Bay, or in other provincial aquaculture zones, e.g. along the Northeast Coast.

<sup>12</sup> DFA managers report that, if an aquaculture site is licenced, it is deemed to be "active", even though it may not be at the commercial production stage, i.e. currently selling its product. It was also noted that, although their licences have been renewed annually, most of the Atlantic cod operations have had little or no activity over the past several years due to moratoria. Further, most of the area's cod sites are classed as "developmental" licences (for reasons related to the original intent of the cod grow-out sector and associated land tenure issues). Managers also note that even "developmental" mussel licences are considered active since these operations have gear deployed in the water, and hence "aquaculture" is being conducted (T. Budgell, pers comm., August 2006).

<sup>13</sup> DFA notes that there is no guarantee that all of these applications will receive final approval (T. Budgell, pers comm., August 2006 and April 2007).



**Figure 1-21: Existing Aquaculture Sites in Placentia Bay (2007)**

Source. DFA site location data in Table 1.1 (from T. Budgell, August 2006)

**Table 1-9: Placentia Bay Aquaculture Site Licences and Applications, 2007**

| Company Name                     | Location                        | Latitude<br>(Deg / Min) | Longitude<br>(Deg / Min) | Species |       |              |
|----------------------------------|---------------------------------|-------------------------|--------------------------|---------|-------|--------------|
| <b>Licences</b>                  |                                 |                         |                          |         |       |              |
| Jones, Ambrose                   | Petite Forte                    | 47                      | 23.4                     | 54      | 39.99 | Atlantic Cod |
| Keating, Joseph (Baie Sea Farms) | Crawley Island, Long Harbour    | 47                      | 25.5                     | 53      | 51.33 | Blue Mussels |
| Keating, Joseph (Baie Sea Farms) | Crawley Island, Long Harbour    | 47                      | 25.5                     | 53      | 52.43 | Blue Mussels |
| Keating, Joseph (Baie Sea Farms) | St. Croix Bay                   | 47                      | 26.8                     | 53      | 51.57 | Blue Mussels |
| Leonard, Peter W.                | Southern Harbour                | 47                      | 42.8                     | 53      | 57.6  | Atlantic Cod |
| Moulton, Clayton                 | Flat Island Harbour             | 47                      | 16.12                    | 54      | 55.15 | Atlantic Cod |
| Norman, Bernard                  | Jerseyman Island, Placentia Bay | 47                      | 20.09                    | 54      | 53.24 | Atlantic Cod |
| Pevie, Joseph and                | Woody Island (North)            | 47                      | 22.38                    | 54      | 42.34 | Atlantic Cod |

| Company Name                         | Location                          | Latitude<br>(Deg / Min) |       | Longitude<br>(Deg / Min) |       | Species       |
|--------------------------------------|-----------------------------------|-------------------------|-------|--------------------------|-------|---------------|
| Pearson, Christopher                 | Side)                             |                         |       |                          |       |               |
| Pomeroy, Donald A. & Barry, John Jr. | Petite Forte Hr.                  | 47                      | 24.06 | 54                       | 39.49 | Atlantic Cod  |
| Pomeroy, Donald A. & Barry, John Jr. | Gaultoin's Cove                   | 47                      | 20.9  | 54                       | 35.4  | Atlantic Cod  |
| Sapphire Sea Farms Ltd.              | Dunville, P. Bay                  | 47                      | 15.9  | 53                       | 55.11 | Atlantic Cod  |
| Warren, Christopher J.               | Big South West Cove, Merasheen I. | 47                      | 34.43 | 54                       | 10.35 | Blue Mussels  |
| Warren, Christopher J.               | Merasheen Island                  | 47                      | 36.22 | 54                       | 9.85  | Blue Mussels  |
| <b>Applications</b>                  |                                   |                         |       |                          |       |               |
| Merasheen Mussel Farms               | Jean de Gaunt                     | 47                      | 32.9  | 54                       | 14.17 | Blue Mussels  |
| Merasheen Mussel Farms               | Dog Harbour                       | 47                      | 34.7  | 54                       | 8.6   | Blue Mussels  |
| Merasheen Mussel Farms               | Rose au Rue                       | 47                      | 30.1  | 54                       | 10.86 | Blue Mussels  |
| Merasheen Mussel Farms               | Barren Island                     | 47                      | 31.2  | 54                       | 6.36  | Blue Mussels  |
| Merasheen Mussel Farms               | Presque Hr                        | 47                      | 24.8  | 54                       | 29.17 | Blue Mussels  |
| Warren, Christopher                  | Big South West (Expansion)        | 47                      | 34.43 | 54                       | 10.35 | Blue Mussels  |
| Mervin Hollett                       | Port Royal Arm                    | 47                      | 32.3  | 54                       | 5.55  | Blue Mussels  |
| Merasheen Mussel Farms               | Merasheen Island                  | 47                      | 36.22 | 54                       | 9.85  | Oyster add-on |

Source: DFA, Newfoundland and Labrador (T. Budgell/Claudette Laing, DFA Grand Falls, April 2007)

#### **1.4.3. Other Inactive/Abandoned Aquaculture Sites**

In addition to the sites which DFA has currently approved, during the past decade or so aquacultural activities have been investigated, approved and developed at various other locations within Placentia Bay. While none of these older aquaculture sites are presently active or under development, some of these farming locations may be re-activated at some point in the future. Previously active or licenced aquaculture sites within the study area are shown below, and may give some indication of the potential for a more widespread development of the area's aquaculture sector in the future.<sup>14</sup>

Previous aquaculture sites (number) and species activities were located at the following sites:

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<sup>14</sup> Information on these sites was obtained from DFA licence files (2003/2004), AquaGIS.com data, and Todd Budgell, pers comm., August 2006.

**Blue Mussels**

Bar Haven (3)

Gulch Head

Cross Island

**Atlantic Cod**

Fox Cove

Jigging Cove (near Monkstown)

Spanish Room Point

Petite Forte Harbour (2)

Muddy Hole, Sound Island

Chambers Island (3)

Isle Valen (3)

**Salmon**

Northeast Nonsuch Arm

Boat Harbour

**Sea Urchins**

Cooper Island

***1.4.4. Current Status of Aquacultural Production Activities in Placentia Bay***

Consultations with all operators presently involved in the Placentia Bay aquaculture sector were undertaken (in November 2006 and April 2007) to obtain further information about the present status of these farming operations, including their current production levels, future plans and any concerns related to the proposed Refinery at Southern Head.

The following Table 1-10 presents an overview of recent activity levels, current licence status and economic output of DFA approved aquaculture sites. This table updates baseline information obtained from DFA based on consultations with industry participants. (Appendix 1 provides a list of all industry participants and agency managers consulted for this report.)

**Table 1-10: Current Activity Status of Placentia Bay Aquaculture Sites (April 2007)**

| Company/Operator                 | Location                     | Species      | Current Status   |
|----------------------------------|------------------------------|--------------|--|
| Keating, Joseph (Baie Sea Farms) | Crawley Island, Long Harbour | Blue Mussels | Operation has had commercial sales for the last 5 years or more; owner has plans to expand production from current levels    |
| Keating, Joseph (Baie Sea Farms) | Crawley Island               | Blue Mussels | Operation has had commercial sales for the last 5 years or more; operator has plans to expand production from current levels |

|  |                                       |              |   |
|--|---------------------------------------|--------------|---|
| Keating, Joseph (Baie Sea Farms)       | St. Croix Bay                         | Blue Mussels | Operation has had commercial sales for the last 5 years or more; operator has plans to expand production from current levels  |
| Warren, Christopher J.                 | Big South West Cove, Merasheen Island | Blue Mussels | Operation has had commercial sales for the last 5 years or more; operator has applied to DFA for site expansion, expects to increase production of mussels  |
| Warren, Christopher J.                 | Merasheen Island                      | Blue Mussels | Operation has had commercial sales for the last 5 years or more; operator has applied to DFA to add oyster farming activities to the site   |
| Hollett, Mervin                        | Port Royal Arm                        | Blue Mussels | Licence status/approval is uncertain pending DFO review of objections from scallop fisher(s) operating near the site; no commercial sales to date; operator hopes to begin mussel farming in 2007 or 2008 if DFA/DFO approvals are obtained; if so, operator anticipates commercial sales of 400-500,000 pounds in 4-5 years  |
| Leonard, Peter                         | Southern Harbour                      | Atlantic Cod | Licence has been renewed but no commercial sales to date; operation presently inactive, no equipment on site; operations may resume pending DFO allocation of cod for grow-out; potential for commercial sales will depend on the same factors that have affected growth of other PB cod grow-out operations (availability of growing stock, feed supply and market conditions) |
| Norman, Bernard                        | Jerseyman Island                      | Atlantic Cod | Licence has been renewed, but operation is currently inactive, no commercial sales to date; equipment (four Polar cages) still on site; operator hopes to begin farming steelhead trout in 2008   |
| Pomeroy, Donald A. and Barry, John Jr. | Petite Forte Harbour                  | Atlantic Cod | Licence status is uncertain and operator is awaiting word from DFA and NWPA application renewal; no equipment presently on site; operator may renew cod farming if approvals are forthcoming  |
| Jones, Ambrose                         | Petite Forte                          | Atlantic Cod | Licence status uncertain; operator reported commercial sales for two or three years, but ceased cod farming activities in 2004; owner not sure if operations will resume in future  |
| Merasheen Mussel Farms Inc.            | Barren Island                         | Blue Mussels | Awaiting DFA approval   |
| Merasheen Mussel Farms Inc.            | Jean de Gaunt Island                  | Blue Mussels | Awaiting DFA approval   |

|  |                                       |              |   |
|--|---------------------------------------|--------------|---|
| Merasheen Mussel Farms Inc.            | Presque Harbour                       | Blue Mussels | Awaiting DFA approval   |
| Merasheen Mussel Farms Inc.            | Rose au Rue                           | Blue Mussels | Awaiting DFA approval   |
| Merasheen Mussel Farms Inc.            | Dog Harbour                           | Blue Mussels | Awaiting DFA approval   |
| Merasheen Mussel Farms Inc.            | Merasheen Island                      | Oyster       | Awaiting DFA approval; operator has applied to add oyster activities to existing mussel operations at this site |
| Warren, Christopher                    | Big South West (Expansion)            | Blue Mussels | Awaiting DFA approval (expansion of existing site already licenced by DFA)                                      |
| Moulton, Clayton                       | Flat Island Harbour                   | Atlantic Cod | DFA licence has lapsed; site was commercially active for only one year (2001-2002)                              |
| Pevie, Joseph and Pearson, Christopher | Woody Island                          | Atlantic Cod | No commercial sales since 2001; licence lapsed in 2006  |
| Pomeroy, Donald A. and Barry, John Jr. | Gaultoin's Cove (near Great Paradise) | Atlantic Cod | Operator reports that DFA licence for this site has probably lapsed; last commercial sales were in 2003         |
| Sapphire Sea Farms Ltd.                | Dunville                              | Atlantic Cod | DFA reports that site licence lapsed several years ago  |

Source: DFA, Newfoundland and Labrador (DFA Grand Falls, April 2007); Canning and Pitt, Inc. industry consultations November 2006 and April 2007

As indicated in the above table, although there are some 13 DFA-licenced aquaculture sites within the study area, only five of these are presently in commercial production. All of the commercially-active operations are engaged in mussel farming; the remaining sites - all of which are licenced for Atlantic cod - are currently not in production, and several of these operations have not renewed their licences. As indicated in Table 1-10, applications for an additional eight sites are presently being reviewed by DFA, all of these applications are for mussel farming, with one exception (i.e. one firm has applied to add oyster farming activities to its existing mussel farming site on Merasheen Island).

None of the existing Atlantic cod grow-out operations are presently in commercial production and most have not had product sales for the past 3-4 years (J. Pevie and A. Walsh, pers comms., November 2006; A. Jones, D. Pomeroy, M. Hollett, P. Leonard, B. Norman and C. Moulton, pers comms., November 2006 and April 2007).

Licences for three of the cod sites (at Flat Island Harbour, Woody Island and Gaultoin's Cove) have either lapsed or have not been renewed. The licence status of two other cod farming sites is "uncertain", while the operator of another, currently-licenced cod site (at Jerseyman Island) is considering switching to Steelhead trout in 2008.

Consultations with licence holders indicate that cod farming has not proven to be economically feasible, and only one operator anticipates resuming his cod farming activities in the next year or two. Cod farmers report that a combination of factors - availability of growing stock, feed supply and costs and market conditions - have made it very difficult to produce and sell farmed cod on an economic basis. One or two operators remain optimistic that a special allocation of cod from DFO for grow-out stock might allow them to re-enter the aquaculture sector within the next few years.

In contrast, Placentia Bay mussel farmers are relatively optimistic about the future potential for their sector, and both of the current operations have plans to expand their production levels (J. Keating, pers comm., November 2006; C. Warren, pers comm., November 2006). As indicated in Table 1-9, DFA is now considering applications from one firm to develop five new mussel farming sites, and that applicant says he expects to have marketable product available in about two years. The owner of that company has also applied to expand his existing mussel farming operation at Big South West (on the west side of Merasheen Island).

Within the past year or so, Cook Aquaculture has expressed some interest in developing new cod and salmonid farming operations in Placentia Bay. However, company managers indicated that they are still in the process of collecting preliminary data and exploring potential sites and, as such, the company has no specific investment plans at this point (N. Halse, pers comm., April 2007).

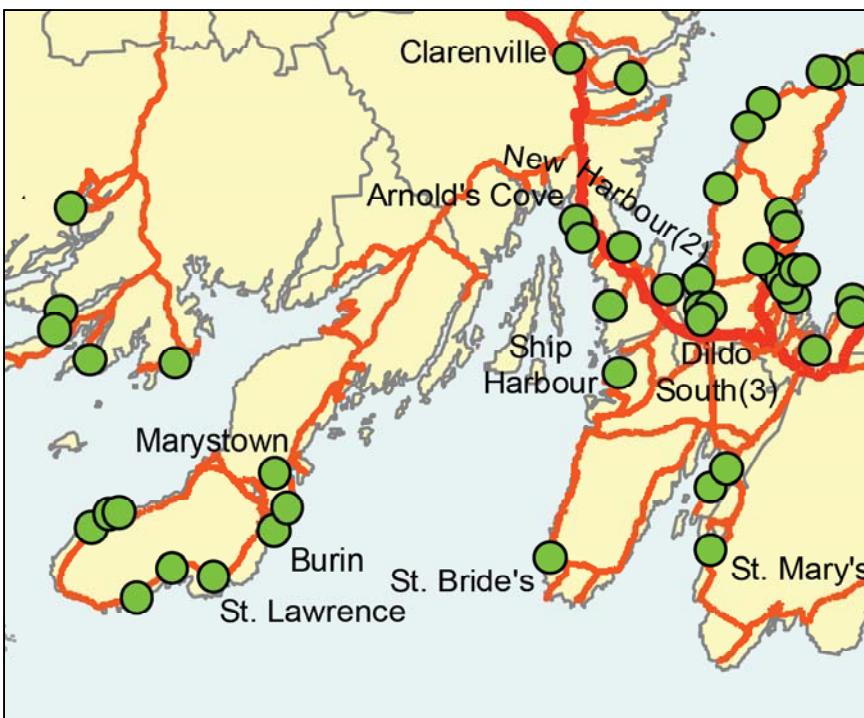
Of the five, commercially-active mussel farms in Placentia Bay, three are situated near Crawley Island in Long Harbour and the other in St. Croix Bay; these three sites have been under active development since the late 1980s. The remaining two mussel producing sites are located in the central islands area of the bay; one is situated at Big South West on the west side of Merasheen Island and the other is on the east side of this island, just north of Dog Harbour, in the central channel between Merasheen Island and Long Island.

These five, commercially-active mussel farming operations range in size from 3.5 hectares to 150 hectares and, together, have a 2006/2007 production capacity of about 3.5 million pounds of marketable product. Their harvesting/sales season is from November to May/June, though one enterprise anticipates that most of its 2007 sales will take place during the January-April period. Total investment (all five sites) in production equipment and gear (ropes, buoys and collector socks, but excluding harvesting vessels) is estimated at about \$1.2 million; based on the total area under production, this investment averages about \$3,478 per hectare.

## **1.5. Fish Processing**

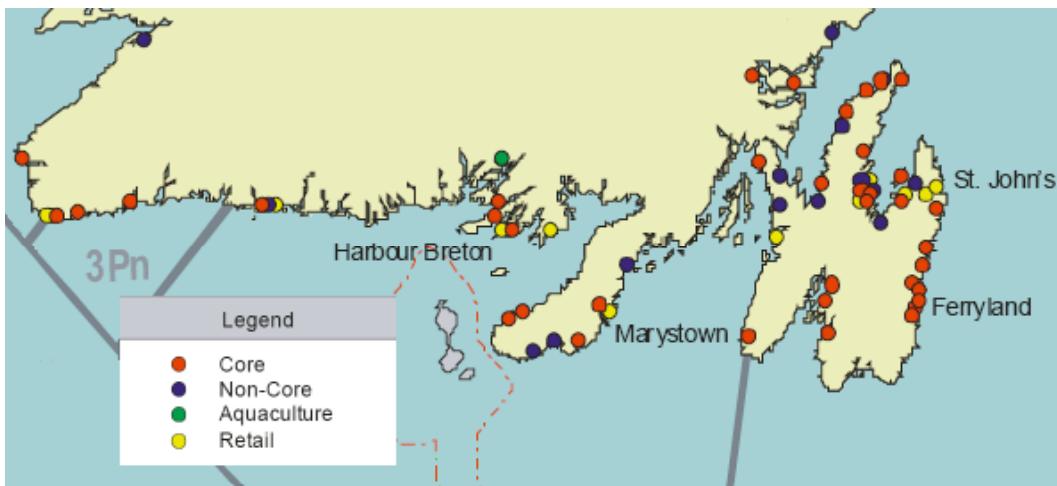
### **1.5.1. Locations**

The locations of fish processing plants in the Placentia Bay and adjacent areas for 2006 are shown in Figure 1-22, based on DFA (2007). The second map (Figure 1-23) shows locations in 2004 in Placentia Bay and the South Coast by plant classification, based on Dunne (2004). However, the ownership and operation of some plants in this area (and other areas) are in transition, and their future structure and numbers are not settled at present.



**Figure 1-22:Placentia Bay Fish Processing Plant Locations 2006**

(Source: DFA, 2007)



**Figure 1-23:Southern Newfoundland Fish Processing Licence Locations by Category (Dec 2004)**

(Source: Dunne, 2004)

Many of the existing processing plants in Placentia Bay have received significant portions of their raw material inputs from fishing enterprises and suppliers from fishing areas beyond UA 3PSc. For example, FPI's major Marystown facility has traditionally obtained >90% of its fish inputs (primarily flatfish species) from offshore sources, in fishing areas beyond Placentia Bay, and some from outside the DFO Region.

On the other hand, some of the fish harvested from 3PSc goes to plants outside Placentia bay for processing, even if it is landed there.

### **1.5.2. Processing Value**

Most of the species sold to various processors and buyers are subsequently processed into a variety of final products and sold into various markets, at different prices which vary according to product type and mix, quality, exchange rates, market demand, and so on. Depending on its particular production costs, overhead structure, desired profit margin, etc., a processing firm may be able to sell its final output for a higher price compared to another operator, or at a higher profit margin. Also, large quantities of lobster are purchased directly from fishers and then resold again, without ever being “processed”. Hence, a significant portion of the final value of several species is not captured in local plant production figures.

There is no reliable way to establish the final, or export, value of all of the fish caught in 3PSc. Some portion - or all - of most species sold to various processors and buyers are subsequently processed into a variety of final products and sold into various markets, at different prices which vary according to product type and mix, exchange rates, market demand, quality and so on. Depending on production costs, overhead structure, desired profit margin, and other factors, a processing firm may be able to sell its final output for a higher price compared to another operator, or at a higher profit margin than another processor.

Provincially, DFA calculates the value of fish after processing by applying average market prices to the quantity for the species; however, this excludes the value added through secondary processing.

A rough estimate of the value can be derived by assuming that primary processing adds an additional 65.26% of the landed value. This is based on recent average provincial-level data for landings and processing values for all species. Thus for 3PSc fish harvested by SS 30 based vessels averaged over the past four years (based on Table 1-2 above), the additional value added by processing (wherever it is eventually landed and processed) would be in the order of \$1,564,804 (65.26% of \$2,397,800), for a total of \$3,962,604. Since not all landings data are linked to specific homeports, discussed above, the actual value would likely be higher.

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- Canning and Pitt Associates, Inc. 2007. Risk Assessment of Oil Spills on the South Coast of Newfoundland and Labrador: Commercial Fisheries and Tourism (Phases 1 and 2), Final Report. Report prepared for RMRI (Canada) Inc. and Transport Canada.
- Transport Canada 2007 (forthcoming May). Quantitative Assessment of Oil Spill Risk for the South Coast of Newfoundland and Labrador.

## **Appendix 1**

### **Agencies and Persons Consulted**

#### **(Commercial Fisheries and Aquaculture Sector)**

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#### **DFO**

Max Eddy, Fisheries Officer, Arnold's Cove  
Robin Smith, Acting Chief Resource Management, Grand Bank

#### **Department of Fisheries and Aquaculture (2006 and 2007)**

Mike Warren, Executive Director, Policy and Planning  
Todd Budgell, Manager of Aquaculture Licensing and Inspections  
Elizabeth Barlow, Salmonid Aquaculturalist  
Claudette Laing, Aquaculture Licensing Administrator

#### **Cook Aquaculture**

Nell Halse, Director of Communications  
Robert Sweeney, Consultant, St. Stephen NB

#### **Placentia Bay Aquaculture Operators (2006 and 2007)**

Ambrose Jones, Petite Forte  
Peter Leonard, Southern Harbour  
Bernard Norman, Rushoon  
Mervin Hollett, Arnold's Cove  
Don Pomeroy, Placentia  
Andrew Walsh, St. John's  
Joseph Pevie, Arnold's Cove  
Calyton Moulton, Red Harbour  
Joseph Keating, Holyrood  
Christopher Warren, Arnold's Cove