Introduction

• The Nova Scotia Fisheries Sector Council has commissioned this Situational Analysis.
• Gardner Pinfo ld Consulting Inc. has been retained to complete this work.
• Project Partners – Working Group
  – Nova Scotia Fisheries Sector Council (NSFSC)
  – Aquaculture Association of Nova Scotia Association (AANSA)
  – Nova Scotia Department of Labour and Advanced Education (LAE)
  – Nova Scotia Department of Fisheries and Aquaculture (DFA)
Background

- The Aquaculture Sector is facing a number of significant labour challenges – a challenge recruiting specialized technical staff, a poor awareness of the nature of work and job opportunities, and a general shortage of workers in the rural economy.
  - Demographic changes are occurring in the rural economy – aging workers and fewer younger people.
  - Image of the industry is a concern.
  - Low uptake of aquaculture programs at post secondary institutions.
Project Objective

- Consult with the industry to document the workforce situation.
- Profile labour markets at a sub-provincial level.
- Develop an analysis of both current and potential impacts.
- Seek input from youth.
- Review situation in other jurisdictions.
Methodology

- Assemble statistical/descriptive labour force information on Aquaculture operations.
- Draw on Labour Market Information data sets from government sources.
- Conduct consultations with owners and managers.
- Engage with youth and community at large.
- Prepare Case Studies
Industry Profile in Nova Scotia

In this section information is provided on the Aquaculture sector in the province including the types and location of production and total scale.
Industry Profile – Summary

- There are 31 business establishments with 163 active lease sites operating in the provincial aquaculture sector.
- Employment – Total about 600 - Mix of full time/part time.
- Total Revenue $50-60 million.
  - Finfish – 85%
  - Shellfish – 15%
  (Source for this information is the Nova Scotia Labour Market Dashboard: Aquaculture prepared by the Nova Scotia Fisheries Sector Council)
- The following map illustrates the distribution of current sites and potential sites. This includes most of the mainland coast and the Bras d’Or lakes in Cape Breton.
Industry Profile - Nova Scotia Aquaculture Map
Industry Profile – Total value of Production 2010-2015

- The total production value has been gradually increasing in Nova Scotia since 2010.
- It has risen approximately 46% to $61.6 million in 2014, it did drop following a super chill to $56.0 million in 2015.

Source: Dashboard
Industry Profile – GDP and Value of Exports

- In 2015 the sector’s total contribution to the provincial economy was $58.6 million, this has increased substantially since 2010.
- The total value of exports has reached $20 million YTD 2016. This value is understated as shipments for processing to New Brunswick are not included.

Source: Dashboard
Industry Profile - Employment 2010-2014

- Total employment in 2014 was about 600 jobs.
- Finfish accounts for the greatest number of full time jobs.
- The sector also supports both short term and long term part time employment.

<table>
<thead>
<tr>
<th>Year</th>
<th>Full Time</th>
<th>Part Time &lt;6 months</th>
<th>Part Time &gt;6 months</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>247</td>
<td>220</td>
<td>139</td>
<td>606</td>
</tr>
<tr>
<td>Finfish</td>
<td>163</td>
<td>53</td>
<td>19</td>
<td>235</td>
</tr>
<tr>
<td>Shellfish</td>
<td>64</td>
<td>163</td>
<td>74</td>
<td>301</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>4</td>
<td>46</td>
<td>70</td>
</tr>
</tbody>
</table>

Source: Dashboard
In this section data is presented to confirm the observation that labour markets in rural Nova Scotia are tight and are expected to tighten further in the future.
Labour Markets in Rural Nova Scotia continue to tighten. The unemployment rate in most regions is falling – indicating fewer people looking for work.

<table>
<thead>
<tr>
<th>Region</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nova Scotia</td>
<td>10.1</td>
<td>9.8</td>
<td>10.0</td>
<td>9.2</td>
</tr>
<tr>
<td>Cape Breton</td>
<td>16.7</td>
<td>16.2</td>
<td>19.4</td>
<td>15.9</td>
</tr>
<tr>
<td>North Shore</td>
<td>11.1</td>
<td>12.8</td>
<td>10.2</td>
<td>9.5</td>
</tr>
<tr>
<td>Annapolis Valley</td>
<td>11.6</td>
<td>10.6</td>
<td>8.8</td>
<td>9.7</td>
</tr>
<tr>
<td>Southern</td>
<td>15.0</td>
<td>12.2</td>
<td>11.3</td>
<td>10.8</td>
</tr>
<tr>
<td>Halifax</td>
<td>6.6</td>
<td>6.6</td>
<td>7.7</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Source: Statistics Canada Labour Force Survey
Labour Market Profile – Changing Demographics

- The Now or Never (Ivany) Report reviewed the demographic outlook for the province.
- They project the province will have 100,000 fewer working age people by 2036.
- This chart depicts the expected change by major age group.

Source: Now or Never
Ivany also provided this chart that depicts the decline in net interprovincial migration.

The persistent out migration was attributed to skilled workers and better educated young people drawn away to other parts of Canada for better career opportunities.

Source: Now or Never
Industry Consultations

• Detailed discussions were conducted with all major operators in the province.
• Key findings are reported in this section.
Industry Consultations - Main Message

• Labour concerns are being expressed by majority of operators.

• Labour is a major issue for operators “will we be able to recruit and retain sufficient technical and skilled trade staff to grow the industry and remain viable?”. 
Industry Consultations - Workforce Profile

Finfish

• Total Employment ranged from 20-80 jobs.

• Job Categories
  – Management
    • Pay scale $40,000-$50,000
    • Training required – university or technical.
  – Operational/production
    • Pay scale $25,000-$35,000.
    • Training – Technical and on the job.
  – Marine Trades
    • Pay scale – Market based
    • Training – applicable Tech. training.
  – Specialized Positions
    • Can include science directors/engineers.
    • Pay scale market based.
    • Training - Masters

Shellfish

• Total Employment ranged from 2-10 jobs. Clam harvesting employment between 100 and 200.

  – Management
    • Pay scale $40,000-$50,000
    • Training required – university or technical.
  – Operational/production
    • Pay scale $25,000-$35,000.
    • Training – Technical and on the job.
Industry Consultations - Future Needs

- All but four firms expect their labour requirements will increase in the future (next five years). Two firms expect to stay the same and two expect a decrease.

- Specific comments regarding future needs included:
  - Our needs will include both technical staff and managerial positions.
  - Planned production increases could lead to a doubling of workforce.
  - Future workforce expansion potential limited due to government policy.
  - Plan to increase 25% in next five years.
Industry Consultations - Workforce Retention

- About 25% of firms are not experiencing staff turnover.
- Some turnover that does occur can be attributed to low wages.
- Availability of benefit programs quite limited in industry, high cost cited.
- Those that offered benefits noted the important role they played in ability to attract and retain quality employees.
- Without general industry expansion work in the sector will be considered not stable.
Industry Consultations - Recruitment/Attraction

- **Recruitment Methods**
  - Word of mouth most prominent for low skilled positions.
  - Some use of job banks or other web based sources.
  - More technical positions might recruit at colleges or university.
  - Some advertising for highest skilled.

- **Recruitment Challenges**
  - Rural economy and declining population.
  - Managerial jobs most difficult to fill.
  - Some with technical training require more practical.
  - Some owners/managers spend considerable time recruiting.
  - Aging field workers will be difficult to replace.

- **Recruitment - Future Expectations**
  - Recruitment of foreign workers mentioned by some operators.
  - Greater use of coop work programs in partnership with colleges or universities.
  - Will consider investing in more automation.
  - Limited youth available in rural areas.
Industry Consultations - Support Needs

- Industry expansion could benefit all by improving perception of opportunities.
- Need better information dissemination programs and support available (LAE, Sector Council)
- Firms need to invest in training for existing workforce.
- When new grads are recruited they last about one year and then are recruited to other jurisdictions.
- Lack of awareness of what training is available in Nova Scotia.
- Job Fairs and other awareness programs could be helpful.
Industry Consultations - Training Comments

• Generally comments offered through the consultations with operators revealed (additional comments are included in training section below):
  – Limited use of existing programs, often cited as not applicable.
  – Desire to have more shorter and hands on type training available.
  – Suggested industry look to Europe for training models.
  – Need skilled trades people who have understanding of aquaculture operational requirements.
  – General boat handling and safety programs are available.
Youth – What they know and think about the Aquaculture industry

To gain input from Nova Scotia youth on how they view potential career opportunities in the aquaculture industry we conducted a high school classroom visit at Shelburne High School. As part of the visit we conducted a survey to collect their views.
Youth what they know and think about the Aquaculture Industry

Key findings include:

- About 75% of respondents said they plan to stay in Nova Scotia after high school graduation.
- 30% of students said they would consider working at a fish farm.
- Almost 70% were aware they could study aquaculture at the NSCC. About 40% knew about Dalhousie’s program.
- About 30% felt wages paid by the aquaculture industry are low.
- It was split almost 50:50 if they would be too proud to work in aquaculture.
- 85% believe there is good opportunity for career advancement.
- About 75% believe the industry is important in Nova Scotia.
- Less than 40% believe the industry has a bright future in Nova Scotia.
Case Studies

• As part of the project three Case Studies have been prepared:
  – Case Study I – Training in Nova Scotia
  – Case Study II – Review of National Aquaculture Labour Situation
  – Case Study III – Review of New Brunswick Industry and experience with training
Case Study I - Training

• In this section existing training programs in Nova Scotia and other provinces in the Atlantic Region are reviewed.

• Additional commentary based on the industry consultations are included as well.
Case Study I - Nova Scotia Community College (NSCC)

- Program- Ocean Resources – Fisheries and Aquaculture
- Credential – Diploma
- Length – 1 year
- Full time – Class Room
- Description –
  - This program provides an overview of fisheries science, fishing practices, fish biology and disease control, economics of the fisheries, seafood processing, sustainable harvesting, fish husbandry and disease control, quality control, waste management in fishing production, eco-certification requirements and food science. The program is comprised of 18 separate modules, one of which is dedicated to Aquaculture.
  - Graduates will have the skills, knowledge and certifications needed to work in the harvesting, processing and aquaculture sectors of the seafood industry.
  - Students learn about the aquaculture industry in Atlantic Canada. The major finfish and shellfish species are covered. Both land-based and marine applications are reviewed.
Case Study I - Dalhousie University: Faculty of Agriculture

- Program – B.Sc (Agriculture) in Aquaculture
- Credential – Degree
- Length – 4 years
- Full time – Class room and Lab (some practical)
- Description:
  - Covers Fish Health, Aquatic Ecology and Aquacultural Engineering.
  - A comprehensive learning experience conducted at the state-of-the-art Aquaculture Centre is located on campus in Truro.
  - A range of subjects related to fish production and aquatic ecosystems. Required courses include Fish Health, Shellfish Production, and Physiology of Aquatic Animals.
Case Study I- Comments on Aquaculture Programs in Nova Scotia – Program Administrators

Dalhousie University
- Enrolment #’s in the program have been stable over the last decade, heavily reliant on Chinese students, generally around 12 but as low as 3 one year.
- Very few Canadian youth want to study aquaculture, due to possible stigma. Youth don’t see aquaculture as a career opportunity.
- Up until 2 - 3 years ago, very few graduates got jobs on the east coast. Most grads went west to BC or returned to China.
- Major company in Atlantic Canada have become active recruiters.
- For 2017/18 they expect 8 - 10 students from China and hopefully a few more Canadian youth.

NSCC – Ocean Resources
- Program is only in it’s 2nd year. It’s an intensive 1 year diploma program.
- # Students: The target is 20. In year #1 - 5 enrolled and in year #2 - 8
- Would benefit from additional marketing and promotion. Focused on teaching practical skills and knowledge - from science based information to boat handling, radio operator and MED skills, through to business management - for both fisheries and aquaculture. It’s applicable to university grad’s, industry people and high school graduates. It is hands on with work placements at the end of each semester.
- Job Prospects: All of the year 1 students (5) secured employment related to the fishery.
## Case Study I – Other Training Programs in Atlantic Canada

<table>
<thead>
<tr>
<th>Province</th>
<th>Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prince Edward Island</strong></td>
<td>Program: Health and Husbandry of Aquatic Laboratory Animals: University of Prince Edward Island</td>
</tr>
<tr>
<td></td>
<td>Program: Advanced Aquatic Animal Care and Husbandry -University of Prince Edward Island</td>
</tr>
<tr>
<td></td>
<td>Both programs are 2 day workshops</td>
</tr>
<tr>
<td><strong>Newfoundland and Labrador</strong></td>
<td>Technical Certificate in Aquaculture-Mussels</td>
</tr>
<tr>
<td></td>
<td>Technical Certificate in Aquaculture-Salmanoid Both programs offered through Marine Institute and are each 12 weeks</td>
</tr>
<tr>
<td></td>
<td>Aquaculture Certificate</td>
</tr>
<tr>
<td></td>
<td>Kelvin College (Grand Falls-Windsor Agriculture/Aquaculture) Certificate 56 week term.</td>
</tr>
<tr>
<td><strong>New Brunswick</strong></td>
<td>Aquaculture Technician</td>
</tr>
<tr>
<td></td>
<td>NBCC College</td>
</tr>
<tr>
<td></td>
<td>Certificate – 1 year</td>
</tr>
</tbody>
</table>
Case Study I - Industry Comments on Training

- We need basic courses from business to animal husbandry to boat handling – short focused courses not long courses (years) and as much as possible hands on.
- Ongoing education would be great – markets, regulations, technology, business. Perhaps a central desk to check with re courses, conferences, reg’s updates, meetings.
- The hardest position to fill is the lab position as it requires highly educated and capable people. Interestingly, college grad’s haven’t been a good fit. We’ve found older mature people fit better as the hours vary greatly and the work needs to get done.
- Some people have been over trained – they didn’t get the practical training. The job wasn’t as they were taught. The realities of farming was new to them.
- Need to revive a program in the Truro area for a school to teach aquaculture basics. This would help with recruitment and training. The students could have an apprentice component where they actually spend time on farm – like a coop program.
Case Study II - Canadian Aquaculture Industry Situation

- The Canadian Agricultural Human Resource Council undertook a labour market analysis recently. We have reviewed their findings and have noted relevant information for the Nova Scotia situation.
Case Study II - Canadian Aquaculture Industry Situation

- “This industry already faces labour challenges, but over the next 10 years, the labour gap will widen even further as a result of increased production to meet a rising global market for fish protein”........“Over the next decade, the global market for aquacultural products is predicted to grow as the demand for animal protein in emerging markets accelerates”.
- “Because most aquacultural operations are located in rural areas, declining rural populations is a top labour concern for this industry”........ “Canada’s ‘aquaculture’ industry is geographically concentrated, with British Columbia and Atlantic Canada accounting for two-thirds of industry employment. Because most aquacultural operations are located in rural areas, the declining rural population is a top labour concern for this industry”.
- “A growing market and higher output will place additional pressure on the demand for labour”.

- Does not apply
Case Study II - Canadian Aquaculture Industry Situation (cont.)

- A less mobile workforce and rural depopulation will make it harder for the industry to recruit the workers it needs in the coming years. Based on the high number of operators who reported lost sales due to worker shortages, it’s clear that the impact on the bottom line is particularly acute for this industry”.

- The industry is less affected by seasonality and variability in its hours of operation, which makes it a more stable, attractive employment option.

- A relatively young workforce means that retirements will have a minor impact on the ‘aquaculture’ industry. While ‘aquaculture’ faces big challenges in finding enough workers over the next decade, a younger than-average domestic workforce means that this industry can expect to lose comparatively fewer workers to retirement”.

- Aquacultural operators were much more likely to identify their location in rural areas as a problem,”
Case Study III – Review of New Brunswick industry labour experience and training

- Recently Gardner Pinfold completed a Sectoral Study of The Maritime Industry in Atlantic Canada for the Collège Communautaire du Nouveau Brunswick School of Fisheries.
- Included in the study was an analysis of the New Brunswick aquaculture industry.
- Topics addressed included economic scale relative to other Atlantic Provinces, labour requirements and training experience and opportunities.
- In this case study relevant findings to the Nova Scotia situation are highlighted and applicable experience noted.

- The New Brunswick aquaculture industry is the largest in Atlantic Canada, at $165 million in value of production, in 2015 it is about triple the size of Nova Scotia.
- Bay of Fundy finfish dominate with some shell fish production in the Gulf.
- Expansion potential limited for finfish as most space has been allocated.
- There are still potential growth opportunities for shell fish.
Case Study III

- In recent years although total production value in New Brunswick has been consistent labour force requirements have dropped. This drop is attributed to company consolidation and investment in automation.
- Foreign workers have also been accessed to help meet labour demands.
- Training needs have been best met by Holland College programs customized that are short in duration and can take place at farm sites.
- Industry has also started to recruit graduates of the Dal program.
- Industry participants are expecting competition for skilled workers to occur as the Newfoundland industry expands. This expansion will also have an impact on the Nova Scotia industry.
- If the scale of production in Nova Scotia increases automation could play a bigger role as it has done in New Brunswick.
- Short duration customized training programs would likely fit Nova Scotia needs as well.
Summary Messages

• For technical staff compete in global market.
• Industry must grow to provide vibrant future for employees.
• Rural labour markets continue to tighten.
• Training must be enhanced, maybe on an Atlantic region basis.
• Relations between government and industry need to be improved – there is distrust and lack of respect.
• Province is not seen as a progressive aquaculture region.
• Government already has lots of programs. The issue is people are not aware of the programs. LAE programs seem to be very good but we had no idea they existed.
• Perhaps the association or sector council could become the clearing house for this and training information.
Next Steps

- Industry participants expressed a range of workforce issues and generally admitted they were unaware of support programs. The NSFSC and AANSA should act as an information clearing house and develop an industry navigator service for such support.

- Among industry participants there was poor awareness of post secondary aquaculture programs in the province. There was also an expressed requirement for short term and hands on training that could take place at farm sites. A process could be set up to facilitate an ongoing exchange of information between the post secondary institutions and the industry.
Next Steps (continued)

- Retention of existing workers is important as other emerging aquaculture regions such as Newfoundland and Labrador are targeting employees in Nova Scotia. The industry needs to continue to work with government to ensure the industry grows in a responsible manner and provides employees good career opportunities. AANSA needs to take the lead with appropriate support from NSFSC.

- Generally employment opportunities in the sector are not as well known as in other more traditional sectors. Work can be done to provide information that is targeted to both youth and others looking for employment in rural Nova Scotia.
Discussion