Main problems of the Chilean Salmon Industry

PROBLEM

- Authorized Production per Neighborhood (NH) largely exceeds Sustainable Production

CONSEQUENCES

- Poor sanitary performance
- Poor production performance
- Antibiotic use
- High risk to spread diseases
- Low productivity fixed assets
- Biomass concentration

Neighborhoods:
- Too many and small
- Defined without model of marine currents
- Inefficient production calendar
Main Competitiveness problems of the Chilean Salmon Industry

**PROBLEM**

- Concessions:
  - Too many and small
  - Too close to each other
  - Many not well located

- Excessive and redundant regulations

- Poor marketing

**CONSEQUENCES**

- Low productivity per site
- High risk to spread diseases

- Unnecessary higher production cost

- Limitations to market access
- Lower sales price compared with peers
Government’s Plan to change existing Regulation

Main Initiatives from Government:

1. Amendment of Sanitary & Density Regulation
2. Redefinition of Neighborhoods
3. Relocation & Merger of Concessions
4. Removal of Excessive and Redundant Regulation
Proposal from Government
(Dec 28, 2015)

- In each Neighborhood, each company have to choose only one option
- New Regulation will apply to XII region by 2021
Option 1: New Farming Density Rules:

Based on the current Density Rules, but with more strict criteria to define density.

Option 2: Individual Stocking Control Program per Neighborhood

Main Concepts

- Farming density: 17 kgs/m³ (fixe)
- Flexibility to distribute production within company’s concessions in Neighborhood
- Company’s production for next cycle will depend on performance of the previous production cycle (Biosecurity Risk Score)
  - Mortality
  - Sea Lice
  => Max Growth 3%
Amendment of Sanitary & Density Regulation

Expected impact on future production:

1. **Future Maximum Allowed Growth for regions X and XI:** 3% per cycle (Last Government’s Proposal)

2. **2018-2020:** Growth should come from XII region

3. **2018-2020:** Chilean total production (all species) is expected to be reduced to 750,000-820,000 tons/year (2015: 863,000 tons/year)
Redefinition of Neighborhoods

1. Main Changes / Proposal
   - To merge neighborhoods and redefine boundaries according with Marine Currents Model
   - Change production cycle from current 21+3 / 24+3 months to extended cycles (most probably 45+3)
   - Change Calendar of new neighborhoods

2. Expected Impact
   - Lower risk of disease contamination between neighborhoods
   - More efficient production planning and fixed assets management
3. Relocation & Merger of Concessions

1. Main Changes / Proposal
   - Relocation process by Neighborhood - Ongoing
   - Fast-Track process to merge concessions

2. Expected Impact
   - Increase size of sites (by merge)
   - Decrease N° of concessions per Neighborhood
   - Increase distance between concessions
   - Lower risk of disease contamination
1. Main Changes / Proposal
   - Government and Industry already agreed a list of regulatory measures to be eliminated from regulation
   - Fast-Track procedure to eliminate undesired regulatory measures

2. Expected Impact
   - More easy operation and less personnel dedicated to regulation compliance
Industry’s Initiative: Chilean Salmon Marketing Plan

1. Industry Proposal (...in progress)

   - To create a Salmon Marketing Board (private-public)
   - To create a strong Marketing Fund to finance initiatives of Salmon Marketing Board
   - Companies contribution to Marketing Fund based on sales
   - Government’s financial contribution

2. Expected Impact

   - Expansion of existing markets
   - New markets development
   - To shorten price gap with products from other countries
Chilean Salmon Industry Projections 2016-2017
Pluviometry in Regions X and XI (Jan-Mar): 75% less than normal

Oceanic Nino Index (ERSST.v4 ONI)
3mmr Nino 3.4 SST Anomalies (varying 30yr base period)

....an “El Niño” consequence

X & XI Region

1 3 5 7 9 11131517192123252729313335373941434547495153
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Temperature 2015
Temperature 2016
Temperature 2013-2014

1973
1983
1998
2016
“El Niño” consequence in Chile: Mortalities in Live Marine Stocks

Salmon Region X & XI Q1

Sardines (wild stocks) Region IX April

Razor Clams (wild stocks) Region X April
Algae concentration in X region
Early March - 2016

Total Industry Losses (Q1-16)

<table>
<thead>
<tr>
<th>Specie</th>
<th>million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic Salmon</td>
<td>23.5</td>
</tr>
<tr>
<td>Coho Salmon</td>
<td>3.4</td>
</tr>
<tr>
<td>Trout</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27.9</strong></td>
</tr>
</tbody>
</table>

20 – 100 microns
Projection Facts and Assumptions

- 2015 **stocking decrease** 7.6% ➞ -11 million smolts
- **Algae Bloom Loss** ➞ 30 million fish
- **Lower average harvest size**, 4.55 in 2016E (4.8 in 2015)

**SW Fish Inventory**
- > 1,2 kg (Mar 16)
- for Harvest 2016
- 78 million fish

(-) **Losses**
- # of Fish to be harvested in 2016
- 72,5 million fish

@ 4,55 kg WFE
- **Biomass harvested in Q1 2016**
- 160 Th. WFE Tons

Harvest 2016E
- 490 Th. WFE ton
2017 Atlantic Salmon Harvest Projections - CHILE

**Projection Facts and Assumptions**

**Fact**
- **Smolt Stocking**
  - Sep 15 – Mar 16
  - 19% decrease vs. same period previous year

**Assumption**
- **Smolt Stocking**
  - Apr 16 – Aug 16
  - 5% to 15% decrease vs. same period previous year

**Projection**
- **Smolt Stocking** for Harvest 2017
  - 121 to 127 million smolts

**Projection**
- **Harvest 2017E**
  - 495 - 520 Th.Ton WFE
  - Yield
    - For 2017
    - 4.1 kg WFE
### 2016 - 2017 Chilean Salmon Industry Projections (All Species)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Atlantic</td>
<td>604</td>
<td>611</td>
<td>490</td>
<td>495 - 520</td>
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<tr>
<td>Trout</td>
<td>134</td>
<td>97</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Coho</td>
<td>157</td>
<td>155</td>
<td>120</td>
<td>135</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>895</td>
<td>863</td>
<td>690</td>
<td>710 - 735</td>
</tr>
</tbody>
</table>

Source: Aquabench / Multiexport Foods
Chilean Salmon Industry - Outlook

Multiexport Foods

Thank You

Visit us at booth 634 – Hall 5