DIVERSIFICATION OF GLOBAL SHRIMP FARMING THROUGH TRANSPARENCY – THE NEW ASC METRICS METHODOLOGY

Kathrin Steinberg
10.10.2019
Aquaculture Stewardship Council

- Independent, not-for-profit certification & labelling program
- Established in 2010: WWF & IDH
- Global, market-based & voluntary
- Based on science & transparency
- Work with industry, NGOs and all others who want to participate
Our vision - A world where aquaculture plays a major role in supplying food and social benefits for mankind whilst minimising negative impacts on the environment
The ASC Standards

• 7 Principles per Standard
  (Environment, Social & Community)
• Aquaculture Dialogues
• Performance indicators setting ‘thresholds’
• Disclosure of monitoring data
• Continuous improvement (3 – 5 years)
An example:

The ASC Shrimp Standard

- Legal compliance (39)
- Preservation of the natural environment & biodiversity (13)
- Preservation of water resources & water quality (9)
- Preservation of species diversity & wild populations (8)
- Use of feed & sources of feed (8)
- Good animal health & husbandry (14)
- Be a good employer (10)
- Be a good neighbour (2)
The ASC Standards

- Tilapia
- Pangasius
- Salmon
- Bivalves
- Trout
- Shrimp
- Seriola & Cobia
- Abalone
- Seabass, Seabream & Meagre
- Seaweed

- 7 Principles per Standard (Environment, Social & Community)
- Aquaculture Dialogues
- Performance indicators setting ‘thresholds’
- Disclosure of monitoring data
- Continuous improvement (3 – 5 years)
What is the status?
Certified farm-sites (8/2019)

- Europe: 371 (Norway: 181)
- North America: 68
- Africa: 4
- South America: 192 (Chile: 122)
- Asia: 389 (Vietnam: 201)
- Oceania: 20

- 305 Shrimp Farms
- Production Volume: 210.533t
- 4-5% of Global Production
Certified Volume (8/2019)

1718849 tonnes
ASC Metrics Methodology
Metrics within ASC Standards

• Metrics: numbers that provide information about efficiency, performance, progress or quality
• In ASC: description on system and production efficiencies, evaluation of performance levels
  • Phosphorus discharge/effluent load
  • Feed use (FFDR)
  • Energy use
  • Survival rate
  • Dissolved oxygen
  • ...
• Desired or necessary range or cut-off values (lower or upper)
• Standardised protocols
Relevant Types of Data

- Farm Data
  - Certified
    - Audit reports
    - Data submission (Salmon appendix VI, Trout Appendix II)
  - Non-certified
    - Pre-certification audits
    - Field visits
    - Database (e.g. GSI)
- Scientific Data
  - Research data (laboratory)
  - Field study

Reflect global performance as good as possible
The ASC Shrimp Standard

- ASC Shrimp Standard v.1.0 currently under revision
- Covers species under the genus \textit{Penaeus} (and \textit{Litopenaeus})
  - Oriented towards \textit{P. monodon} and \textit{P. vannamei}
- Inclusion of potential new candidates
  - \textit{P. stylirostris} (Blue shrimp)
  - \textit{P. merguiensis} (Banana prawn)
  - \textit{P. japonicus} (Kuruma prawn)
  - \textit{P. ensis} (Greasyback shrimp)
The ASC Shrimp Standard

QUESTION

Is it necessary to include species specific metrics for other shrimp species and if yes, what would be the appropriate value?
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Requirement</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.3</td>
<td>Annual average farm survival rate (SR)</td>
<td>1)&gt;25%</td>
</tr>
<tr>
<td></td>
<td>1) unfed and non-permanently aerated pond</td>
<td>2)&gt;45%</td>
</tr>
<tr>
<td></td>
<td>2) fed but non-permanently aerated pond</td>
<td>3)&gt;60%</td>
</tr>
<tr>
<td></td>
<td>3) fed and permanently aerated pond</td>
<td></td>
</tr>
<tr>
<td>5.1.4</td>
<td>Stocked larvae that are SPF or SPR for all important pathogens</td>
<td>100% (if commercially available)</td>
</tr>
<tr>
<td>6.2.2</td>
<td>percent of total post larvae from closed loop hatchery</td>
<td>100%</td>
</tr>
<tr>
<td>7.4.1</td>
<td>Feed Fish Equivalence Ratio (FFER)</td>
<td>1.35:1 <em>L. vannamei</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.9:1 <em>P. monodon</em></td>
</tr>
<tr>
<td>7.4.2 a</td>
<td>economic feed conversion ratio (eFCR)</td>
<td>records available</td>
</tr>
<tr>
<td>7.4.2 b</td>
<td>protein retention efficiency (PRE)</td>
<td>records available</td>
</tr>
<tr>
<td>7.5.1</td>
<td>nitrogen effluent per ton of shrimp produced over a 12 month period</td>
<td>&lt;25.2 kg/T <em>L. vannamei</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;32.4 kg/T <em>P. monodon</em></td>
</tr>
<tr>
<td>7.5.2</td>
<td>phosphorous effluent per ton of shrimp produced over a 12 month period</td>
<td>&lt;3.9 kg/T <em>L. vannamei</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;5.4 kg/T <em>P. monodon</em></td>
</tr>
<tr>
<td>7.5.4</td>
<td>concentration of settleable solids</td>
<td>&lt;3.3 mL/L + treatment evidence</td>
</tr>
<tr>
<td>7.5.5</td>
<td>Percentage change in diurnal DO relative to DO at saturation in receiving</td>
<td>&lt;65%</td>
</tr>
<tr>
<td></td>
<td>water body for the waters specific salinity and temperature</td>
<td></td>
</tr>
</tbody>
</table>
### Species Specific Indicators

#### Literature Data

<table>
<thead>
<tr>
<th>Penaeus</th>
<th>stylirostris</th>
<th>merguiensis</th>
<th>japonicus</th>
<th>vannamei</th>
<th>monodon</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein Requirement [%]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 – 35&lt;sup&gt;1&lt;/sup&gt;</td>
<td>50&lt;sup&gt;1&lt;/sup&gt;</td>
<td>&gt;52&lt;sup&gt;14&lt;/sup&gt;</td>
<td>30&lt;sup&gt;1, 15&lt;/sup&gt;</td>
<td>36 – 42&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>36 – 42&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td>42&lt;sup&gt;1&lt;/sup&gt;</td>
<td>20 – 35&lt;sup&gt;2&lt;/sup&gt;</td>
<td>40&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>FCR</strong></td>
<td>2.82 ± 0.22&lt;sup&gt;3&lt;/sup&gt;</td>
<td>1.47 – 1.65&lt;sup&gt;6&lt;/sup&gt;</td>
<td>4.12&lt;sup&gt;13&lt;/sup&gt;</td>
<td>1.2&lt;sup&gt;2&lt;/sup&gt;</td>
<td>1.6&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>1.6&lt;sup&gt;2&lt;/sup&gt;</td>
<td>1.11 – 1.82&lt;sup&gt;7&lt;/sup&gt;</td>
<td>3.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.53&lt;sup&gt;8&lt;/sup&gt;</td>
<td>(0.47 – 7.04)&lt;sup&gt;11&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Survival [%]</strong></td>
<td>64 – 75&lt;sup&gt;4&lt;/sup&gt;</td>
<td>82 – 90&lt;sup&gt;6&lt;/sup&gt;</td>
<td>62&lt;sup&gt;11&lt;/sup&gt;</td>
<td>65 – 90&lt;sup&gt;2&lt;/sup&gt;</td>
<td>45 – 80&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>50 – 60&lt;sup&gt;2&lt;/sup&gt;</td>
<td>83&lt;sup&gt;9&lt;/sup&gt;</td>
<td>&gt;75&lt;sup&gt;12&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>98&lt;sup&gt;8&lt;/sup&gt;</td>
<td>60&lt;sup&gt;13&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*non-permanently aerated*
### Species Specific Indicators

**ASC Farm Data**

<table>
<thead>
<tr>
<th>Penaeus</th>
<th>stylirostris</th>
<th>merguiensis</th>
<th>japonicus</th>
<th>vannamei</th>
<th>monodon</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FCR</strong></td>
<td>2.25&lt;sup&gt;5&lt;/sup&gt;</td>
<td>2.28&lt;sup&gt;5&lt;/sup&gt;</td>
<td>No stocking of larvae thus not applicable&lt;sup&gt;10&lt;/sup&gt;</td>
<td>No certified farms</td>
<td>1.44 ± 0.34 (n=76)</td>
</tr>
<tr>
<td><strong>Survival [%]</strong></td>
<td>67&lt;sup&gt;5&lt;/sup&gt;</td>
<td></td>
<td></td>
<td>79.2 ± 9.9 (n=59)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>61.2 ± 13.1* (n=28)</td>
<td>76.2 ± 11.7* (n=19)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70.6 ± 22.4* (unfed) (n=3)</td>
<td>36.6 ± 16.1* (unfed) (n=11)</td>
</tr>
</tbody>
</table>

* non-permanently aerated

**NEED**

Data from non-certified farms!
Suggestions

• *P. ensis* very limited data, not recommended to specifically add the species to the ASC Shrimp Standard

• *P. merguiensis* and *P. japonicus* similar to *P. monodon* with slightly higher protein requirements

• *P. stylirostris* similar to *P. vannamei* (survival) and *P. monodon* (protein requirement)
  • Currently certified under *P. monodon* requirements

Recommendation: Do not differentiate between

  *P. merguiensis, P. japonicus, P. stylirostris* and

  *P. monodon*

(same metric requirements, review in progress)
What can you do?
Stakeholder Involvement

• Participate in public consultations
• Provide data to the ASC
• Make suggestions
  • Species
  • Issues
  • ...
• Talk to us at Booth #86
Thank you!

Kathrin.Steinberg@asc-aqua.org
References

5SOPAC SA, New Caledonia (ASC certified Farm)
8Ruenreungdee, K., Sornprasom, W., 2008. Monoculture of banana shrimp (Penaeus merguiensis, de Man) by close recycled system.
10Caminex, Than Doan and Namcan, Vietnam;
New Shrimp Species

- *P. stylirostris* (Blue shrimp)
- *P. merguiensis* (Banana prawn)
- *P. japonicus* (Kuruma prawn)