Shrimp Production Review

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GOAL 2011
Santiago, Chile, November 6-9, 2011
GOAL 2011
Shrimp Production Survey
Issues & Challenges
GOAL 2011 Survey

Shrimp Aquaculture Production by World Region:

1991 - 2012


Note: M. rosenbergii is not included.

Note: *M. rosenbergii* is not included.

China data include both marine and freshwater production of *P. vannamei*

2005-2009 data are from FAO (2011).
Shrimp Aquaculture by Major Producing Regions:

2005-2009 vs. 2009-2013

Average Annual Growth Rate

Southeast Asia: 6.3% in 2005-2009, -6% in 2009-2013
China: 10.6% in 2005-2009, 0.4% in 2009-2013
India/Bangladesh: -4.0% in 2005-2009
Americas: 5.7% in 2005-2009, 4.8% in 2009-2013
Africa/MidEast: 3.1% in 2005-2009, 10.0% in 2009-2013


Note: M. rosenbergii is not considered.
Shrimp Aquaculture in Asia: 2005 – 2013

China data include both marine and freshwater production of *P. vannamei*.

2005-2009 data are from FAO (2011).


Note: *M. rosenbergii* is not included.
Shrimp Aquaculture in Asia:
2005-2009 vs. 2009-2013

Average Annual Growth Rate

- China: 10.6% (2005-2009), 0.4% (2009-2013)
- Thailand: 7.7% (2005-2009), 5.6% (2009-2013)
- Vietnam: 5.8% (2005-2009), 2.6% (2009-2013)
- Indonesia: 4.8% (2005-2009), 4.5% (2009-2013)
- India: 16.4% (2009-2013)
- Bangladesh: 3.2% (2009-2013)

Note: M. rosenbergii is not considered.
Shrimp Aquaculture Production in China by Species: 2000 - 2010

Sources: FAO (2011); GOAL (2011); Zhejiang Aquatic Product Trade (2011).

M. rosenbergii is not included.
Shrimp Aquaculture Production & Shrimp Exports from China

Million MT

- Shrimp Production (Freshwater)
- Shrimp Production (Marine)
- Shrimp Exports (Product Weight)

Sources: FAO (2011); GOAL (2001).

Export figures for 2009 and 2010 are estimates.
**Shrimp Aquaculture in Latin America: 2005 – 2013**

**Sources:** FAO (2011) & GOAL (2011).

**Note:** *M. rosenbergii* is not included.

2005-2009 data are from FAO (2011).
Shrimp Aquaculture in Latin America:
2005-2009 vs. 2009-2013

Note: *M. rosenbergii* is not considered.
GOAL 2011 Survey

World Shrimp Aquaculture (including M. rosenbergii)
by Species: 1991 - 2013

Million MT

Percentages indicate the share of \textit{P. vannamei}.

2010-2013 data: GOAL estimates.

GOAL 2011 Survey

Shrimp Aquaculture (including *M. rosenbergii*) in Asia by Species: 1991 - 2013

World Landings of Wild-Caught Shrimp by Species

Million MT

- Common shrimp (Crangon crangon)
- Argentine red shrimp (Pleoticus muelleri)
- Northern white shrimp (Penaeus setiferus)
- Northern brown shrimp (Penaeus aztecus)
- Banana prawn (Penaeus merguiensis)
- Fleshy prawn (Penaeus chinensis)
- Giant tiger prawn (Penaeus monodon)
- Southern rough shrimp (Trachypenaeus curvirostris)
- Northern prawn (Pandalus borealis)
- Akiami paste shrimp (Acetes japonicus)

World Production of Shrimp
Capture Fisheries & Aquaculture

Aquaculture accounted for 52% of world shrimp supplies in 2009.

Notes: *M. rosenbergii* is not included.
China includes freshwater production of *P. vannamei.*
**World Production of Shrimp by Species**

**Capture Fisheries & Aquaculture Combined**

*P. vannamei* is the most important species in the world, with virtually all production coming from aquaculture.

Percentages indicate the share of *P. vannamei*.


Notes: *M. rosenbergii* is not included. Freshwater production of *P. vannamei* in China is included.
GOAL 2011 Survey
Composition of Shrimp Aquaculture Production by Size Categories – Aggregate 2010

Composition of Shrimp Aquaculture Production by Size Categories – Comparison of Survey Data for Asia
Composition of Shrimp Aquaculture Production by Size Categories – Comparison of Survey Data for the Americas
## Expected Trends in Shrimp Aquaculture

### Size Categories - GOAL Survey 2011

<table>
<thead>
<tr>
<th>Size Category</th>
<th>Asia</th>
<th>Americas</th>
<th>World</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15</td>
<td>Stable/Decrease</td>
<td>Decrease</td>
<td>Stable/Decrease</td>
</tr>
<tr>
<td>15-20</td>
<td>Stable</td>
<td>Increase</td>
<td>Stable</td>
</tr>
<tr>
<td>21-25</td>
<td>Stable</td>
<td>Increase/Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>26-30</td>
<td>Stable</td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>31-40</td>
<td>Stable</td>
<td>Increase</td>
<td>Stable</td>
</tr>
<tr>
<td>41-50</td>
<td>Stable</td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>51-60</td>
<td>Stable</td>
<td>Stable/Decrease</td>
<td>Stable</td>
</tr>
<tr>
<td>61-70</td>
<td>Stable</td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>&gt;70</td>
<td>Stable</td>
<td>Stable</td>
<td>Stable</td>
</tr>
</tbody>
</table>
GOAL 2011 Survey
Composition of Shrimp Aquaculture Production by Product Form – Aggregate 2010

US Imports
- 7% Other Forms
- 18% Breaded
- 34% Cooked
- 40% Peeled
- 7% Green / Head-off
- 21% Green / Head-on

Japan Imports
- 7% Other Forms
- 25% Breaded
- 74% Cooked
- 17% Peeled
- 17% Green / Head-off
- 23% Green / Head-on

Asia
- 3% Other Forms
- 12% Breaded
- 28% Cooked
- 17% Peeled
- 22% Green / Head-off
- 21% Green / Head-on

Americas
- 3% Other Forms
- 12% Breaded
- 50% Cooked
- 31% Peeled
- 22% Green / Head-off
- 22% Green / Head-on

World
- 2% Other Forms
- 11% Breaded
- 27% Cooked
- 23% Peeled
- 23% Green / Head-off
- 21% Green / Head-on
Composition of Shrimp Aquaculture Production by Product Form – Comparison of Survey Data for Asia

- **GOAL 2007**
  - Other Forms: 15%
  - Breaded: 25%
  - Cooked: 19%
  - Peeled: 28%
  - Green / Head-off: 11%

- **GOAL 2008**
  - Other Forms: 11%
  - Breaded: 22%
  - Cooked: 19%
  - Peeled: 35%
  - Green / Head-off: 19%

- **GOAL 2009**
  - Other Forms: 6%
  - Breaded: 20%
  - Cooked: 22%
  - Peeled: 30%
  - Green / Head-off: 9%

- **GOAL 2010**
  - Other Forms: 8%
  - Breaded: 19%
  - Cooked: 23%
  - Peeled: 18%
  - Green / Head-off: 24%

- **GOAL 2011**
  - Other Forms: 12%
  - Breaded: 18%
  - Cooked: 28%
  - Peeled: 28%
  - Green / Head-off: 17%

Graph showing percentage distribution of different product forms from 2007 to 2011.
Composition of Shrimp Aquaculture Production by Product Form – Comparison of Survey Data for China

GOAL 2007
- Other Forms: 5%
- Breaded: 27%
- Cooked: 22%
- Peeled: 25%
- Green / Head-off: 17%
- Green / Head-on: 4%

GOAL 2008
- Other Forms: 10%
- Breaded: 15%
- Cooked: 20%
- Peeled: 35%
- Green / Head-off: 15%
- Green / Head-on: 5%

GOAL 2009
- Other Forms: 9%
- Breaded: 20%
- Cooked: 16%
- Peeled: 33%
- Green / Head-off: 14%
- Green / Head-on: 9%

GOAL 2010
- Other Forms: 9%
- Breaded: 10%
- Cooked: 27%
- Peeled: 15%
- Green / Head-off: 28%
- Green / Head-on: 9%

GOAL 2011
- Other Forms: 4%
- Breaded: 18%
- Cooked: 15%
- Peeled: 31%
- Green / Head-off: 13%
- Green / Head-on: 20%
Composition of Shrimp Aquaculture Production by Product Form –
Comparison of Survey Data for the Americas

- GOAL 2007: 41% Green / Head-off, 45% Peeled, 6% Cooked, 8% Breaded, 4% Other Forms
- GOAL 2008: 53% Green / Head-off, 40% Peeled, 6% Cooked, 4% Breaded, 1% Other Forms
- GOAL 2009: 46% Green / Head-off, 44% Peeled, 7% Cooked, 7% Breaded, 2% Other Forms
- GOAL 2010: 45% Green / Head-off, 46% Peeled, 7% Cooked, 7% Breaded, 1% Other Forms
- GOAL 2011: 31% Green / Head-off, 50% Peeled, 12% Cooked, 4% Breaded, 4% Other Forms

Note: Graph shows percentage distribution across various product forms each year from GOAL 2007 to GOAL 2011.
### Expected Trends in Shrimp Aquaculture

**Product Form - GOAL Survey 2011**

<table>
<thead>
<tr>
<th>Product Form</th>
<th>Asia</th>
<th>Americas</th>
<th>World</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green / Head-on</td>
<td>Stable</td>
<td>Stable/Increase</td>
<td>Stable</td>
</tr>
<tr>
<td>Green / Head-off</td>
<td>Stable</td>
<td>Decrease</td>
<td>Stable/Decrease</td>
</tr>
<tr>
<td>Peeled</td>
<td>Increase</td>
<td>Increase</td>
<td>Increase</td>
</tr>
<tr>
<td>Cooked</td>
<td>Increase/Stable</td>
<td>Increase</td>
<td>Increase</td>
</tr>
<tr>
<td>Breaded</td>
<td>Stable/Increase</td>
<td>Increase</td>
<td>Stable/Increase</td>
</tr>
<tr>
<td>Other Forms</td>
<td>Stable</td>
<td>Increase</td>
<td>Stable</td>
</tr>
</tbody>
</table>
## Trends in Product Form

Comparing Responses from 2011 vs. 2010 Surveys

<table>
<thead>
<tr>
<th>Product Form</th>
<th>Asia</th>
<th>Americas</th>
<th>World</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green / Head-on</td>
<td>◄►</td>
<td>◄►</td>
<td>◄►</td>
</tr>
<tr>
<td>Green / Head-off</td>
<td>▲</td>
<td></td>
<td>▼►</td>
</tr>
<tr>
<td>Peeled</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Cooked</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Breaded</td>
<td>◄►</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Other Forms</td>
<td>◄►</td>
<td>▲</td>
<td>▲</td>
</tr>
</tbody>
</table>

Cell colors indicate response in 2011 survey (e.g., Green = Stable/Increase, Increase). Arrows indicate change in trend compared to 2010 survey.
GOAL 2011 Survey

Issues & Challenges in Shrimp Aquaculture

All Countries

1. Diseases
2. *Production costs - Feed/Fishmeal
3. *International market prices
4. Seed stock quality & availability
5. Access to disease-free broodstock
6. Product quality control
7. Feed quality and availability
8. Production costs - Fuel
9. Banned chemicals / antibiotic use
10. Production costs - Others
11. Environmental management
12. Access to Credit
13. *International trade barriers
14. Infrastructure
15. Market coordination
16. Conflicts with other users
17. Public Relations Management


Asterisk indicates Top 3 issue in GOAL 2007 Survey

- International market prices
- Diseases
- Production costs - Feed/Fishmeal
- Environmental management
- Access to disease-free broodstock
- Seed stock quality & availability
- International trade barriers
- Production costs - Fuel
- Access to Credit
- Production costs - Others

GOAL 2011 Survey

Issues & Challenges in Shrimp Aquaculture - Asia

1. Diseases
   - Production costs - Feed/Fishmeal
   - Seed stock quality & availability
   - Access to disease-free broodstock
   - Product quality control
   - International market prices
   - Banned chemicals / antibiotic use
   - Feed quality and availability
   - Environmental management
   - Production costs - Others
   - Production costs - Fuel
   - Access to Credit
   - International trade barriers
   - Infrastructure
   - Market coordination
   - Conflicts with other users
   - Public Relations Management


Asterisk indicates Top 3 issue in GOAL 2007 Survey
GOAL 2011 Survey

Issues & Challenges in Shrimp Aquaculture

Americas

*Production costs - Feed/Fishmeal
*Diseases
*International market prices
Access to Credit
Production costs - Fuel
Access to disease-free broodstock
Production costs - Others
Seed stock quality & availability
Market coordination
International trade barriers
Feed quality and availability
Infrastructure
Product quality control
Public Relations Management
Conflicts with other users
Environmental management
Banned chemicals / antibiotic use

Not Important  Moderately Important  Extremely Important


Asterisk indicates Top 3 issue in GOAL 2007 Survey
GOAL 2011 Survey

Top Issues & Challenges in Shrimp Aquaculture

Asia vs. Latin America

- Diseases
- Production costs - Feed/Fishmeal
- International market prices
- Access to disease-free broodstock
- Production costs - Fuel
- Access to Credit
- Seed stock quality & availability
- Production costs - Others
- Product quality control
- International trade barriers

## GOAL 2011 Survey

**Global economic conditions will be better in 2012 compared to 2011**

<table>
<thead>
<tr>
<th>Outlook</th>
<th>Asia</th>
<th>Americas</th>
<th>Oceania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Taiwan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>Bangladesh, Philippines, Vietnam</td>
<td>Colombia</td>
<td></td>
</tr>
<tr>
<td>Neutral/No Opinion</td>
<td>China, India, Indonesia, South Korea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>Malaysia, Thailand</td>
<td>Belize, Brazil, Ecuador, Mexico, Nicaragua, Panama, Peru, USA</td>
<td>Australia</td>
</tr>
</tbody>
</table>

Strongly Disagree
GOAL 2011 Survey

**Feed prices will be lower in 2012 compared to 2011**

<table>
<thead>
<tr>
<th>Outlook</th>
<th>Asia</th>
<th>Americas</th>
<th>Oceania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Taiwan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral/No Opinion</td>
<td>China, Indonesia, Malaysia</td>
<td>Nicaragua</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>India, Philippines, South Korea, Thailand, Vietnam</td>
<td>Belize, Brazil, Colombia, Ecuador, Mexico, Panama, Peru, USA</td>
<td>Australia</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>Bangladesh</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**GOAL 2011 Survey**

The global shrimp market will strengthen in **2012** compared to **2011**

<table>
<thead>
<tr>
<th>Outlook</th>
<th>Asia</th>
<th>Americas</th>
<th>Oceania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Taiwan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>Bangladesh, Indonesia, Malaysia, Malaysia, Philippines, Vietnam</td>
<td>Ecuador</td>
<td></td>
</tr>
<tr>
<td>Neutral/No Opinion</td>
<td>China, India, Thailand</td>
<td></td>
<td>Colombia</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td>Belize, Brazil, Mexico, Nicaragua, Panama, Peru, USA</td>
<td>Australia</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Trends in U.S. Shrimp Import Prices

Source: USDC/NMFS (2011)
P. monodon vs. P. vannamei

U.S. Wholesale Prices

Source: Urner Barry (2011)
# Price Flexibilities

% Change in Price given a 1% Change in:

<table>
<thead>
<tr>
<th>Market (All Product Forms)</th>
<th>Import Quantity</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>-1.1%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Japan</td>
<td>-1.1%</td>
<td>0.9%</td>
</tr>
<tr>
<td>France</td>
<td>-0.9%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>
Thank You!