Proteins for Food and Health – Sustainable Aquaculture
Dr Mathew Cook – Research Director, CSIRO Aquaculture

Trends in production of animal protein

Source: EPI from FAO
Capture vs Aquaculture

“With the world’s population predicted to increase to 9 billion people by 2050 — particularly in areas that have high rates of food insecurity — aquaculture, if responsibly developed and practiced, can make a significant contribution to global food security and economic growth,”

— Árni M. Mathiesen, Assistant Director-General
FAO Fisheries and Aquaculture Department

Challenges for Aquaculture Development
Aquaculture is an efficient protein provider

<table>
<thead>
<tr>
<th>Protein retention</th>
<th>31%</th>
<th>21%</th>
<th>18%</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy retention</td>
<td>23%</td>
<td>10%</td>
<td>14%</td>
<td>27%</td>
</tr>
<tr>
<td>Feed conversion ratio</td>
<td>1.1</td>
<td>2.2</td>
<td>3.0</td>
<td>4-10</td>
</tr>
<tr>
<td>Edible meat/100 kg fed</td>
<td>61kg</td>
<td>21kg</td>
<td>17kg</td>
<td>4-10kg</td>
</tr>
</tbody>
</table>

Source: Velina

Net producer of fish protein due to ingredient substitution

Bioactives – CSIROs Novacq

Raw materials
Solid or liquid wastes

Bioconversion to Novacq

Bioreactor

Novacq + Prawn feed

Prawn feed + Novacq

Patent: AU2008201886

Novacq – increased growth and survival in prawns

20-40% increase in growth rates

37% increase in survival
Tangential effects of Aquaculture

Thank You

Dr Mathew Cook
mathew.cook@csiro.au
+61 402 100 533