Marine Fish and Shellfish Backyard Hatcheries in Thailand

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Typical backyard hatchery in Thailand
Advantages of backyard hatcheries

- Low construction and operating cost
- Flexibility to switch from one species to another
- Flexibility to start/stop operation

Disadvantages

- Low technology
- Vulnerable to diseases and pollution
- Lack of money to improve the facilities
Backyard hatcheries in Thailand:
Species: White shrimp, Black tiger prawn, Seabass, Abalone, Babylonlia
Backyard shrimp hatcheries in Thailand:

Number 1,754 hatcheries
Production 100,000 million PL/year
Species: *Peneaus monodon*, *P. vannamei*
Major area: Chachoengsao, Chonburi, Phuket, Nakon Sri Tammarat
### Backyard shrimp hatcheries in Thailand:

<table>
<thead>
<tr>
<th>Area</th>
<th>No. of hatcheries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chachoengsao</td>
<td>344</td>
</tr>
<tr>
<td>Phuket</td>
<td>240</td>
</tr>
<tr>
<td>Chonburi</td>
<td>354</td>
</tr>
<tr>
<td>Nakon Sri Tammarat</td>
<td>165</td>
</tr>
<tr>
<td>Others</td>
<td>651</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,754</strong></td>
</tr>
</tbody>
</table>
Sectors in shrimp hatcheries

- Broodstock collectors/keepers
  - Nauplii suppliers
    - Nauplii - PL8
      - Nauplii – PL15
        - PL15 – PL30
        - FARM
Backyard fish hatcheries in Thailand:

Number 60 hatcheries
Production 50,000,000 fingerlings/year
Species: *Lates calcarifer*
Area: Chachoengsao, Chonburi
Sectors in seabass hatcheries

- Eggs/Yolk fry suppliers
- Fry - Fingerling 1 cm BL
- Fingerling 1 cm BL to Fingerling 3 inches BL
- FARM
Backyard mollusk hatcheries in Thailand:
Backyard mollusk hatcheries in Thailand:

Number 25 hatcheries
Production 500,000 pieces/year/hatchery
Species: *Babylonia aereolata*,
*Haliotis asinina*
Area: Phuket, Rayong, Chumporn
Potential species for backyard hatcheries:

Anemone Fish
Potential species for backyard hatcheries:

Barramundi Cod: Humpback Grouper
Cromileptes altivalis
Potential species for backyard hatcheries:

Bluespot Grouper
*Plectropomus maculatus*
Potential species for backyard hatcheries:

Cobia

*Rachycentron canadum*
Potential species for backyard hatcheries:

Scallop

*Chlamys senatoria*
Potential species for backyard hatcheries:

Giant Clam

*Tridacna squamosa*
Some constraints in (Thai) aquaculture:

GSP (Generalize system preference)
AD (Anti dumping)
Antibiotic residues
Answers towards ban of antibiotics:

- Aquatic farms and hatcheries registration
- Strict control on chemical and drug use in aquaculture
- Farm and hatcheries certification program (GAP, CoC)
- Aquaculture product traceability
GAP : Good Aquaculture Practices for shrimp hatchery (started in 2003)

Topic concerned:

1. Site selection
2. General management
3. Feed management
4. Shrimp fry health management
5. Hatchery sanitation
6. Harvesting and shrimp fry transportation
7. Data recording
GAP certification for shrimp hatchery
CoC : Code of conduct for hatcheries

Topic concerned: same as GAP standard but include more topics on

- Water and waste treatment
- Responsibility to the community
CoC certification for shrimp hatchery
Aquaculture product traceability

Started in 2002:

- Hatcheries
  - FMD: Fry movement document
- Farms
  - MD: Movement document
- Processing plants
Traceability document

FMD: Fry movement document
Antibiotic residues monitoring program

Four antibiotics are monitored:

<table>
<thead>
<tr>
<th>Antibiotics</th>
<th>Limit</th>
<th>Method</th>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>Oxytetracyclin</td>
<td>0.1 ppm</td>
<td>HPLC</td>
<td>1995</td>
</tr>
<tr>
<td>Oxolinic acid</td>
<td>0.02 ppm</td>
<td>HPLC</td>
<td>1995</td>
</tr>
<tr>
<td>Chloramphenical</td>
<td>0.3 ppb</td>
<td>ELISA</td>
<td>2002</td>
</tr>
<tr>
<td>Nitrofurans</td>
<td>1 ppb</td>
<td>LC MS MS</td>
<td>2002</td>
</tr>
</tbody>
</table>
Antibiotic residues monitoring program

- Hatcheries
  - Run by coastal aquaculture research and development bureau
- Farms
- Processing plants
  - Run by Fish inspection division
Challenges and Opportunities

Adoption of new technology

- New commercial species: White shrimp, Taiwanese abalone
- SPF broodstock
- Bio-security

Organic and probiotic

- Avoid chemicals and drugs, switch to probiotic, herb.

Responsible producers

- Environmentally friendly: closed system, biofilter
- Community friendly