

## CODES OF CONDUCT FOR AQUACULTURE IN MANGROVES

The following Codes and Guidelines were presented during the Consultation to be used as references for the development of the Regional Code of Practice for the Responsible Aquaculture in Mangrove Ecosystems.

**1995: FAO Code of Conduct for Responsible Fisheries**

**1999: Codes of Practice for Responsible Shrimp Farming (Global Aquaculture Alliance)**

**1999: Marine Shrimp Culture Industry of Thailand: Operating Guidelines for Shrimp Farms**

**2000: The Bangkok Declaration and Strategy**

**2001: Environmental Code of Practice for Australian Farmers**

**2001: SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia - Responsible Aquaculture**

**2002: Code of Practice for Sustainable Shrimp Farming (Philippines)**

**2004: Code of Conduct for the Management and Sustainable Use of Mangrove Ecosystems (World Bank, ISME, etc.)**

### **1995: FAO Code of Conduct for Responsible Fisheries**

**Articles 9.1.3** States should produce and regularly update aquaculture development strategies and plans...to ensure that [it] is ecologically sustainable and to allow the rational use of resources shared by aquaculture and other activities.

**Article 9.1.4** States should ensure that livelihoods of local communities, and their access to fishing grounds, are not negatively affected by aquaculture developments.

### **1999: Codes of Practice for Responsible Shrimp Farming (*Global Aquaculture Alliance, St. Louis, Missouri, USA, 1999*)**

#### ***Guiding Principles for Responsible Aquaculture***

Companies and individuals engaged in shrimp farming, singularly and collectively:

1. Shall coordinate and collaborate with national, regional, and local governments in the development and implementation of policies, regulations, and procedures necessary and practicable to achieve environmental, economic, and social sustainability of aquaculture operations;
2. Shall utilize only those sites for aquaculture facilities whose characteristics are compatible with long term sustainable operation while acceptable ecological effects, particularly avoiding unnecessary destruction of mangroves and other environmentally significant flora and fauna;

3. Shall design and operate aquaculture facilities in a manner that conserve water resources, including underground sources of freshwater;
4. Shall design and operate aquaculture facilities in a manner that minimizes effects of effluent on surface and ground water quality and sustains ecological diversity;
5. Shall strive for continuing improvements in feed use and shall use therapeutic agents judiciously in accordance with appropriate regulations and only when needed based on common sense and best scientific judgment;
6. Shall take all reasonable measures necessary to avoid disease outbreak among culture species, between local farm sites, and across geographic areas;
7. Shall take reasonable steps to ascertain that permissible introductions of exotic species are done in a responsible and acceptable manner and in accordance with appropriate regulations;
8. Shall cooperate with others in the industry in research and technological and educational activities intended to improve the environmental compatibility of aquaculture;
9. Shall strive to benefit local economies and community life through diversification of the local economy, promotion of employment, contributions to the tax base and infrastructure, and respect for artisanal fisheries, forestry, and agriculture.

**1999: Marine Shrimp Culture Industry of Thailand: Operating Guidelines for Shrimp Farms (*Siri Tookwinas, et. al., 1999*)**

**2000: The Bangkok Declaration and Strategy**

***The Declaration***

- 18.18 the aquaculture sector should continue to be developed towards its full potential, making a net contribution to global food availability, household food security, economic growth, trade and improved standards;
- 18.19 the practice of aquaculture should be pursued as an integral component of development, contributing towards sustainable livelihoods for poor sectors of the community, promoting human development and enhancing social well-being;
- 18.20 aquaculture policies and regulations should promote practical and economically viable farming and management practices that are environmentally responsible and socially acceptable;
- 18.21 national aquaculture development processes should be transparent and should take place within the framework of relevant national policies, regional and international agreements, treaties and conventions;
- 18.22 in pursuing development, States, the private sector, and other legitimate stakeholders should cooperate to promote the responsible growth of aquaculture;
- 18.23 strengthened regional and inter-regional cooperation should increase the efficiency and effectiveness of aquaculture development efforts; and
- 18.24 all parties formulating improved policies and implementing practices for aquaculture development should consider and where appropriate, build on the FAO Code of Conduct for Responsible Fisheries.

## ***Strategy for Aquaculture Development Beyond 2000***

Key elements:

- 1.1 Investing in people through education and training
- 1.2 Investing in research and development
- 1.3 Improving information flow and communication
- 1.4 Improving food security and alleviating poverty
- 1.5 Improving environmental sustainability
- 1.6 Integrating aquaculture into rural development
- 1.7 Investing in aquaculture development
- 1.8 Strengthening institutional support
- 1.9 Applying innovations in aquaculture
- 1.10 Improving culture-based fisheries and enhancements
- 1.11 Managing aquatic animal health
- 1.12 Improving nutrition in aquaculture
- 1.13 Applying genetics to aquaculture
- 1.14 Applying biotechnology
- 1.15 Improving food quality and safety
- 1.16 Promoting market development and trade
- 1.17 Supporting strong regional and inter-regional cooperation

## ***2001: Environmental Code of Practice for Australian Farmers (Australian Prawn Farmer's Association, South Brisbane, Queensland, Australia, September 2001)***

*Includes:*

### **Potential Environmental Impacts**

Water Quality

Aquatic Flora and Fauna

Terrestrial Flora and Fauna

Tidal Hydrology

Groundwater

Odour

Noise

### **Appropriate Management Practices**

Site Selection

Farm Design and Planning

Construction

Pond Management

Operational Erosion Control

Pond Effluent Management

Sediment Management

Noise

Odours

Chemical Use

Environmental Contingency Plans

Predator Management

Prawn Feed Packaging

General Domestic and Office Wastes

Energy Use

Training

### **2001: SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia - Responsible Aquaculture (SEAFDEC Aquaculture Department, 2001)**

#### Article 9: Aquaculture Development

Article 9.1.3 (4) Given the importance of mangroves, States and regional institutions should prepare regional guidelines for the responsible use of mangroves for aquaculture. States should ensure coordination among departments, agencies, and other units that have jurisdiction and stake in mangroves.

**2002: Code of Practice for Sustainable Shrimp Farming (Bureau of Fisheries and Aquatic Resources, Philippines, July 2002)**

The Code addresses the following issues:

1. Guiding Principles for Responsible Aquaculture
2. Mangroves
3. Site Evaluation
4. Design and Construction
5. Feeds and Feed Use
6. Shrimp Health Management
7. Therapeutic Agents and Other Chemicals
8. General Pond Operations
9. Effluents and Solid Wastes
10. Community and Employee Relations

**Guiding Principles for Responsible Aquaculture**

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3. Shall design and operate aquaculture facilities in a manner that conserve water resources, including underground sources of freshwater;
4. Shall design and operate aquaculture facilities in a manner that minimizes effects of effluent on surface and ground water quality and sustains ecological diversity;
5. Shall strive for continuing improvements in feed use and shall use therapeutic agents judiciously in accordance with appropriate regulations and only when needed based on common sense and best scientific judgment;
6. Shall take all reasonable measures necessary to avoid disease outbreak among culture species, between local farm sites, and across geographic areas;
7. Shall take reasonable steps to ascertain that permissible introductions of exotic species are done in a responsible and acceptable manner and in accordance with appropriate regulations;
8. Shall cooperate with others in the industry in research and technological and educational activities intended to improve the environmental compatibility of aquaculture;

9. Shall strive to benefit local economies and community life through diversification of the local economy, promotion of employment, contributions to the tax base and infrastructure, and respect for artisanal fisheries, forestry, and agriculture.

#### **2004: Code of Conduct for the Management and Sustainable Use of Mangrove Ecosystems (World Bank, etc.)**

##### *States should*

**11.3** not sanction further conversion of mangroves and associated tidal flats for commercial aquaculture and should take measures to restore abandoned aquaculture sites

**11.4** recognize that mangrove ecosystems are not the most suitable sites for pond construction and that responsible aquaculture in mangroves should not destroy mangroves any further

**11.4a** aquaculture in ponds converted from mangroves is sustainable due to potential acid sulphate soil conditions, or because it causes the irreplaceable loss of coastal habitats which are important transitional environments and critical for coastal productivity and ecological processes

**11.4b** stop further expansion of shrimp farming into mangrove areas because [of] severe socioeconomic problems, such as dislocation of poor coastal communities

#### **2004: Code of Conduct for the Management and Sustainable Use of Mangrove Ecosystems (World Bank, etc.)**

##### *States should promote/require*

**11.5** integrated mangrove aquaculture systems which are non-destructive and small-scale, environmentally and socio economically sustainable to support livelihoods of poor communities:

- mudcrab fattening or growout in mangrove pens, cages
- fish cage/bivalve culture in mangrove waterways
- mixed shrimp-mangrove-crab-cockle system
- oyster rearing
- integrated mangrove fish/shrimp farms, silvofisheries or tambaks

**11.6** full and independent EIA for commercial aquaculture, including assessment of impact on mangrove ecosystem, potential negative impacts on livelihoods of local communities, recurrent environment monitoring of aquaculture operations

**11.7** mangrove buffer zones in aquaculture areas to support ecological functions

#### **2004: Code of Conduct for the Management and Sustainable Use of Mangrove Ecosystems (World Bank, etc.)**

##### *States should*

**11.8** ban/strictly regulate aquaculture introductions of exotic/alien species likely to disperse in mangrove waterways with unpredictable consequences

**11.9** encourage development of local Codes of Conduct for coastal aquaculture

**11.10** abandoned or underutilized shrimp/fish ponds should be rehabilitated back to mangroves by restoring natural hydrology for natural recolonisation and/or by planting

**11.11** mitigate against potential harmful impacts on mangroves:

- habitat loss
- pollution
- associated species as fish feed
- escapees of farmed animals, including exotic species
- transfer of diseases from farmed to wild populations
- bycatch destruction
- hydrological alteration

## **SEAFDEC RESOLUTION AND PLAN OF ACTION**

**2001: Resolution on Sustainable Fisheries for Food Security for the ASEAN Region (SEAFDEC, November 2004)**

9. Work towards the conservation and rehabilitation of aquatic habitats essential to enhancing fisheries resources;
10. Mitigate the potential impacts on the environment and biodiversity, including the spreading of aquatic animal diseases, caused by the uncontrolled introduction and transfer of non-indigenous and exotic aquatic species;
- .....
12. Increase aquaculture production in a sustainable and environment-friendly manner by ensuring a stable supply of quality seeds and feeds, effectively controlling disease, promoting good farm management and transferring appropriate technology;
13. Promote aquaculture for rural development, which is compatible with the rational use of land and water resources, to increase fish supply and improve the livelihoods of rural people;

**Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region (SEAFDEC, November 2004)**

### **B. AQUACULTURE**

1. Ensure that national policies and regulatory frameworks on aquaculture development are directed toward sustainability and avoidance of conflicts by incorporating consultations with stakeholder groups, implementing aquaculture zoning, considering social and environmental impact, and also regulating rights of access to, and use of, open water sites for mariculture.
2. Ensure production of high quality seeds on a consistent and sustainable basis by providing government support for public and private hatchery development and research, developing domesticated broodstocks and fish reproductive technologies, and promoting responsible collection and use of wild broodstock and seed.