

PHILIPPINE NATIONAL STANDARD

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Code of Good Aquaculture Practices (GAqP) for Shrimp and Crab



BUREAU OF AGRICULTURE AND FISHERIES STANDARDS

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Foreword

The Philippine National Standard (PNS) on the Code of Good Aquaculture Practices (GAqP) for Shrimp and Crab intends to provide practices to prevent or reduce the risk of hazards occurring during aquaculture production, harvesting, postharvest handling of shrimp and crab and ensuring aquatic animal health and welfare. This contains practices adopted from ASEAN Good Aquaculture Practices for Shrimp Farming and Good Aquaculture Practice Farmers Guidance Workbook of BFAR developed under European Union (EU) Trade Related Technical Assistance (TRTA) Program.

This Code was accomplished by the Bureau of Agriculture and Fisheries Standards (BAFS) in collaboration with a multi-stakeholder Technical Working Group composed of representatives coming from the Bureau of Fisheries and Aquatic Resources (BFAR) and its concerned Regional Fisheries Offices and National Centers, Southeast Asian Fisheries Development Center – Aquaculture Department (SEAFDEC-AQD), Central Luzon State University-Freshwater Aquaculture Center (CLSU-FAC), Department of Science and Technology – Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD), Tambuyog Development Center Incorporated and from the private sectors, with BAFS as secretariat. The Technical Working Group was created as per Department of Agriculture Special Order No. 848 series of 2016.

This document shall serve as an official reference for the Philippine Good Aquaculture Practices for Shrimp and Crab; aiming to provide greater confidence in consumers' expectations that the Philippine shrimp and crab products are safe, sound and fit for human consumption.

1 Scope

This Code of Good Aquaculture Practices (GAqP) for shrimp and crab covers practices that aim to prevent or minimize the risk associated with aquaculture production in brackish waters. This Code covers the following aspects of aquaculture production namely: a) food safety, b) animal health and welfare, c) environmental integrity, and d) socio-economic.

This Code applies to aquaculture farms or projects, such as, but not limited to, hatcheries, nurseries, and grow-out intended for shrimp and mangrove crab culture.

This Code consists of minimum compliance requirements.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the references, only the edition cited applies. For undated references, the latest edition of the referenced document (including amendment) applies.

- a) ASEAN Good Aquaculture Practices (GAqP) for Shrimp Farming
- b) Good Aquaculture Practice Farmers Guidance Workbook

3. Definition of Terms

3.1

aquaculture farm

refers to an aquaculture production establishment (either land- or water-based); usually consisting of holding facilities (tanks, ponds, raceways, pens, cages), plant (buildings, storage, processing), service equipment and stock

3.2

biosecurity

refers to set of practices that will reduce the probability of pathogen introduction and its subsequent spread from one place to another

3.3

chemicals

refer to any substance either natural or synthetic that can affect the live fish, its pathogens, and the water, equipment used for production or the land within the aquaculture establishment

3.4

competent authority

refers to the bureau or agency mandated by law with responsibility and competence for ensuring and supervising the implementation of sanitary and phytosanitary (SPS) measures

3.5**diseased crustaceans**

refers to a crustaceans on or in which pathological changes or other abnormalities that affect safety and quality are apparent

3.6**extensive farming**

refers to raising crustaceans under conditions of little or incomplete control over the growing process and production conditions where their growth is dependent upon endogenously supplied nutrient inputs

3.7**feed additive**

refers to chemicals other than nutrients for crustaceans that are approved for addition to their feed

3.8**aquaculture feed**

refers to fodder intended for crustaceans in aquaculture establishments, in any form and of any composition

3.9**hatchery**

refers to a [water-based or] land-based structure growing or culturing crustacean for breeding and fish seed production

3.10**intensive farming**

refers to raising crustacean under controlled growing process and production conditions where their growth is completely dependent on externally supplied fish feed

3.11**semi-intensive farming**

refers to raising crustacean under conditions of partial control over the growing process and production conditions where their growth is dependent upon endogenously supplied nutrients and externally supplied shrimp and crab feeds

3.12**veterinary drug**

refers to any substance applied or administered to crustaceans whether used for therapeutic, prophylactic or diagnostic purposes or for modification of physiological functions or behavior

4. Site Selection**4.1 Location**

4.1.1 Aquaculture farms should be located in area where risk of pollution or contamination can be controlled or mitigated to an acceptable level.

4.1.2 Proof of compliance with existing environmental regulations by the competent authority should be available.

4.1.3 Proof of legal rights, privileges or ownership of the farm area (license to operate or business permit from the local government unit) and its location map.

4.2 Lay-out and design

4.2.1 Aquaculture farm should be designed with proper space for its facilities and should integrate bio-security measures to prevent cross contamination and threat to security.

4.2.2 Integrated farming may be allowed provided measures are in place to avoid contamination.

4.2.3 The design of culture facilities should meet the biological needs of shrimps and crabs from grow-out to harvest.

4.2.4 Reservoir pond for incoming water and settling pond for effluents should be available.

4.2.5 Buffer zone should be observed in accordance with existing regulation.

5 Facilities and sanitation

5.1 Facilities

5.1.1 Facilities for disposal of solid and liquid wastes should be available in a suitable area and should be compliant with existing regulation.

5.1.2 Fuel, chemical substances (sanitizer, fertilizer and reagents), feed and veterinary drugs should be stored separately in a safe condition.

5.2 Sanitation

5.2.1 Aquaculture farm facilities and their surroundings should be maintained in a clean and hygienic condition.

5.2.2 Containers, equipment and farm facilities should be maintained in good condition for ease in cleaning and sanitizing.

5.2.3 Adequate procedures for cleaning and disinfection of vehicles, containers, equipment and farm facilities should be in place and implemented.

5.3 Waste removal

5.3.1 Waste should be properly segregated and removed at least once a day.

5.3.2 Waste containers and the waste storage premises should be cleaned and sanitized after each use.

5.3.3 Waste should be stored such that it is not a source of contamination.

5.3.4 Organic waste after harvest should be disposed of properly to prevent contamination.

6 Farm management

6.1 Aquaculture Farm preparation

6.1.1 Aquaculture farm preparation practices should minimize risk for cross-contamination.

6.1.2 Prohibited chemicals or biological substances should not be used in aquaculture farm preparation.

6.1.3 Fertilizers, prebiotics, probiotics and chemicals should be used in accordance with the instructions on the manufacturers label or as advised by the competent authority.

6.2 Water management

6.2.1 Water for culture should be of a quality suitable for the production of shrimp and crab which are safe for human consumption. Water should conform with the existing standard set by the competent authority.

6.2.2 Water should be properly screened, settled, aerated and maintained as suitable for cultured stock.

6.2.3 Water quality should be regularly monitored to ensure suitability and safety.

6.3 Stocking Density

Stocking density should be optimum to the species and to the culture system as specified in Annex A.

7 Feeds and feeding

7.1 Origin of feed and feed substances

7.1.1 Commercial feeds, feed ingredients, additives and premixes should be obtained from a company registered and monitored by the competent authority.

7.1.2 Imported feeds should be obtained from a company registered and monitored by the competent authority in compliance with existing regulations and in conformity with the existing standards.

7.1.3 Live feeds and natural food should comply with the health certification from in-country trans-boundary movement from the competent authority.

7.2 Feed quality

7.2.1 The content of additives and veterinary drugs should comply with the existing regulations and conform to existing standards.

7.2.2 Packages should be properly labeled with the description of composition, storage conditions, expiry date, feeding rate and other necessary guidance in English language.

7.2.3 Feeds should be applied on a first-in, first-out bases.

7.3 Feeding

7.3.1 Feeding practices should minimize the risk for biological, chemical and physical contaminations of feeds and crustaceans.

7.3.2 Feeding practices should ensure the maintenance of water and sediment quality.

7.3.3 Live feeds and natural food should be of good quality, healthy and safe.

7.4 Use of non-pelleted/fresh feed

If non-pelleted feeds or fresh feeds (e.g. trash fish, chicken entrails) are used in the farm as aquaculture feed, the protocol on the administration should be provided.

8 Shrimp and crab health management

8.1 Farm operation should follow existing protocol on aquatic animal health.

8.2 Shrimp and crab intended for farming and restocking should be clinically healthy.

8.3 A suitable risk-based animal health surveillance scheme by the fish farmer according to aquatic animal health plan recommended by the competent authority should be in place.

8.4 Surveillance program should be in place for diseases of shrimp and crab.

8.5 Measures for the notification and control of diseases of shrimp and crab should be in place.

8.6 Shrimp, crab and products placed on the market should be safe for human consumption.

8.7 A designated quarantine facility should be maintained for treatment of ill diseased shrimp and crab. Handling and disposal of diseased shrimp, crab and eggs for disease control purposes should follow existing protocol of competent authority.

9 Chemical and biological substances use

9.1 Substances requiring prescription should be procured under adequate supervision by qualified experts and used by a trained technician authorized by the competent authority. Non-prescription substances should be used according to manufacturer's instructions and as specified on the label.

9.2 Drug residues should not be present in the body of shrimp and crab by observing withdrawal period to ensure that the maximum residue level (MRL) is acceptable based on the standards set by Codex or trading partners

9.3 Veterinary drugs, medicated feeds, chemical and biological substances should be obtained from registered and authorized manufacturers and suppliers and should be used only when necessary.

9.4 Veterinary drugs, medicated feeds, chemical and biological substances should be only those permitted and registered according to existing regulations.

10 Harvesting and transport

10.1 Harvesting

10.1.1 Harvesting equipment (e.g. containers) and paraphernalia should ensure the quality of the products.

10.1.2 Harvesting should be planned in advance and timed to prevent shrimp and crab from being exposed to high temperatures.

10.1.3 Harvested shrimps should be properly chilled.

10.1.4 Practices should ensure that the viability of live shrimp and crab is not affected by physical damage or stress.

10.1.5 Shrimp and crab should be quickly and hygienically handled, using practices that do not cause physical damage to the product.

10.2 Post-harvest handling and transport

10.2.1 Post-harvesting equipment and paraphernalia should be easy to clean and kept in clean condition.

10.2.2 Operations such as sorting, weighing, washing, draining, packaging should be carried out quickly, hygienically and without damage to the product.

10.2.3 Food additives and chemicals, which are used in contact with products, should comply with prevailing legal requirements.

10.2.4 Transport should be carried out in clean and easy to clean facilities (boxes, containers, vehicle etc.).

10.2.5 Live shrimp and crab should be transported under physical conditions which do not adversely affect their quality.

10.2.6 Fresh shrimp should be transported and maintained at a temperature of 0-4°C.

11 Biodiversity

11.1 Escapees and captive stocks

Screens, barriers and containment ponds where applicable, should be available and limit the incidence of escape to the natural environment of cultured species of at acceptable level of risk.

11.2 Predator control

The use of lethal methods in eradicating non-shrimp and crab predators, especially those classified as vulnerable by the International Union for Conservation of Nature and Natural Resources (IUCN) should be avoided.

12 Animal welfare

12.1 Growth and survival

A suitable and healthy environment should be maintained to promote good growth and survival.

13 Personnel health and hygiene

13.1 Workers should be trained on farm level hygienic practices to ensure they are aware of their roles and responsibilities for protecting aquaculture products from contamination and deterioration throughout the production cycle.

13.2 Personnel should be physically fit to work in the aquaculture facilities and those personnel who could contaminate the products should not be allowed.

13.3 Workers should wear suitable and appropriate working clothes.

13.4 Smoking, spitting or drinking alcohol in the working and storage premises shall not be allowed.

14 Traceability and record keeping

14.1 Adequate records should be kept on aquaculture farm management activities (e.g. preparations and water quality controls).

14.2 Adequate records should be kept on the origin and the type of shrimp post larvae and crablets used.

14.3 Adequate records should be kept on the date, type, origin and use of feeds and feed ingredients.

14.4 Traceability records for animal health and movement of shrimp and crab should be completed and maintained.

14.5 Records on harvesting should be maintained for traceability purposes.

14.6 Adequate records on the buyers of final products should be kept (one-step-forward traceability).

14.7 All records should be kept, maintained and made accessible during culture and for at least 24 months after harvesting.

15 Labor and community

15.1 Child labor

Proactive anti-child labor policy should exist in the farm and shall be compliant with the existing regulation.

15.2 Anti-discrimination or unequal treatment of employee policy

15.2.1 Workers should not be discriminated against on the basis of gender, race, religion, culture and age.

15.3 Training on safety

Safety procedures and orientation prior to the start of work should be available at the farm.

15.4 First aid and safety measures

15.4.1 First aid kit should be available in the farm; and

15.4.2 Laborers should be able to demonstrate awareness on the different first aid and safety measures.

15.4.3 Electrical connections, hazardous materials, farm inputs and implements which may pose danger, toxification, untoward accidents or eventual deaths to workers should strictly undergo regular inspections, inventory, check-up, repairs and replacements as necessary.

15.5 Wages and working hours

15.5.1 Workers should receive fair treatment and salary consistent with existing laws and other regulations.

15.6 Living conditions for employees

15.6.1 Living quarters of stay-in laborers, technicians and aides should be safe and clean.

15.6.2 Potable water and clean toilets should be made available.

15.6.3 Basic amenities should be provided to farm workers.

15.7 Social aspects

15.7.1 Farm operation shall demonstrate equal rights on public land and water use for local communities following national laws and regulations.

15.7.2 Farms should minimize the potential adverse impact on the local community during all phases of farm operation.

15.7.3 Farms owners and workers should maintain a harmonious relationship with the community.

Annex A

Recommended Range Stocking Density for Crab and Shrimp Grow-out Farms

Species	Culture System Stocking	Density ^a
1. Mangrove Crab		
<i>a. Scylla serrata</i> <i>b. S. olivacea</i> <i>c. S. tranquebarica</i> <i>d. S. paramamosain</i>	Extensive ^b	500-1000 pcs/ha
2. Shrimp		
<i>a. Penaeus monodon</i>	Extensive	1 - 5 PL/m ²
	Semi-intensive	6 - 15 PL/m ²
	Intensive	16-30 PL/m ²
<i>b. Penaeus vannamei</i>	Extensive ^c	5-10 PL/ m ²
	Semi-intensive ^d	11 - 30 PL/ m ²
	Intensive ^e	31-60 PL/ m ²
^a depending on the culture practices and other parameters for aquaculture ^b aquasilviculture and polyculture with fish ^c polyculture with 5,000 pcs/ha of tilapia ^d greenwater technology with 650-1000 pcs @50g of Tilapia in a middle pen ^e reservoir with greenwater technology		

Bibliography

- BFAR Fisheries Administrative Order 214 s.2001. Code of Practice for Aquaculture. Bureau of Fisheries and Aquatic Resources. Department of Agriculture. Quezon City, Philippines.
- CAC RCP 52-2003 Amended 2-2013. Recommended Code of Practice for Fish and Fishery Products. Codex Alimentarius Commission. Rome, Italy.
- FAO, 2011. Technical Guidelines on Aquaculture Certification. Food and Agriculture Organization of the United Nation. Rome, Italy.
- FAO, 2011. Code of Conduct for Responsible Fisheries. Food and Agriculture Organization of the United Nation. Rome, Italy.
- FAO Technical Paper 567, 2011. Mud Crab Aquaculture – A Practical Manual. Fisheries and Aquaculture Department. Fisheries and Aquaculture Organization. Rome, Italy.2011
- PNS/BAFS 135:2014. Philippine National Standard on the Code of Good Aquaculture Practices (GAqP). Bureau Agriculture and Fisheries Standards. Department of Agriculture. Quezon City, Philippines.
- PNS/BAFS 177:2016. Philippine National Standard for Live Mangrove Crab. Bureau Agriculture and Fisheries Standards. Department of Agriculture. Quezon City, Philippines.
- Presidential Decree No.442, As Amended. 1974. A Decree Instituting A Labor Code Thereby Revising and Consolidating Labor and Social Laws to Afford Protection to Labor, Promote Employment and Human Resources Development and Insure Industrial Peace Based On Social Justice. Philippines.

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Department of Agriculture
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