

PHILIPPINE NATIONAL STANDARD

**PNS/BAFS 280: 2025
ICS 67.120.30**

Penaeid Shrimp and Mangrove Crabs Hatchery — Code of Practice — Good Aquaculture Practices (GAqP)



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Penaeid Shrimp and Mangrove Crabs Hatchery — Code of Practice — Good
Aquaculture Practices (GAqP)
PNS/BAFS 280:2025
ICS 67.120.30

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Foreword

The Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA) was mandated under Section 61 (Bureau of Agriculture and Fisheries Standards) and 62 (Coverage) of Republic Act (RA) No. 8435 (Agriculture and Fisheries Modernization Act [AFMA] of 1997) and Section 16 (Specific Responsibilities of the Department of Agriculture) of RA No. 10611 (Food Safety Act [FSA] of 2013) to set, develop, and implement science-based food safety standards for fresh plants, animals, fisheries, and aquaculture foods including those for organic agriculture. In addition, Rule 16.6 of the Implementing Rules and Regulations (IRR) of RA 10611 further elaborates the role of BAFS in adopting, and/or amending/revising food safety standards and codes of practice for primary and postharvest foods.

As part of its standards development process, the BAFS-Standards Development Division (SDD) subjects the existing Philippine National Standards (PNS) to a review every five years after their promulgation. In 2024, the BAFS-SDD identified the following Good Aquaculture Practices (GAqP)-related for review since these are considered aged and of the same commodity group.

1. Penaeid Shrimp and Mangrove Crabs Grow-Out — Code of Practice — Good Aquaculture Practices;
2. Penaeid Shrimp and Mangrove Crabs Hatchery — Code of Practice — Good Aquaculture Practices; and
3. Giant Freshwater Prawn Hatchery and Nursery — Code of Practice — Good Aquaculture Practices.

In 2024, to accelerate the review of these aged PNS, the DA-BAFS conducted a Table Review, which aims to re-evaluate and validate whether the provisions of the existing PNS are still relevant and effective for current regulatory and market requirements. This allows the Bureau to check and, if necessary, revise or amend the standards, particularly those that pose a risk to consumer safety and could become barriers to trade. The Table Review determined that the aforementioned PNS needs revision, given the significant updates to its scope and several of its critical provisions.

The revision was guided by the Technical Working Group (TWG) officially created under Special Order (SO) No. 745, series of 2025 (Composition of Technical Working Group [TWG] and Project Management Team [PMT] for the Development of the Philippine National Standards [PNS] for Agricultural and Fishery Products and Machinery). The TWG was composed of representatives from the relevant government agencies, academe/research institutions, private sector organizations, and Civil Society Organizations (CSO). The draft PNS underwent a series of TWG writeshops and stakeholder consultations conducted via online platforms before its endorsement to the DA Secretary.

This Standard includes the following significant changes compared to the previous version:

- a) Inclusion of mangrove crab hatchery scope;

- b) Revision of the Normative References and Terms and Definitions;
- c) Addition of the Clause “Use”;
- d) Update on the clauses and provisions aligned with the modifications made to PNS/BAFS 135: 2025 (Good aquaculture practices — Code of Practice);
- e) Update on the specific requirements under each clause to improve clarity, relevance, and practical applicability for hatchery operators; and
- f) Inclusion of the list of banned antimicrobials in food-producing animals.

This document cancels and replaces PNS/BAFS 280:2019 (Code of Good Aquaculture Practices [GAqP] for Hatchery for Shrimp), which has been technically revised. This document was written in accordance with the formatting and editorial rules of the Standardization Guide No.1 (Writing the PNS) developed by the SDD of the BAFS-DA.

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1 Scope

This Code of Good Aquaculture Practices (GAqP) covers the culture practices in penaeid shrimp and mangrove crabs hatchery, including harvesting, collecting, packaging, and handling of larvae and postlarvae or crablets up to transportation and distribution. This Code addresses animal health and welfare, environmental integrity, and socio-economic welfare, and consists of compliance with legal requirements.

2 Normative References

The following documents are referred to in the text in such a way that some or all their contents constitute the requirements of this document. The latest edition of the referenced document (including any amendments) applies.

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2022a). Establishment of traceability systems for cultured finfishes and crustaceans — Guidelines (PNS/BAFS 338:2022). <https://bafs.da.gov.ph/index.php/approved-philippine-national-standards/>

BAFS-DA. (2022b). Veterinary drug residues in food — Maximum Residue Limit (MRL) (PNS/BAFS 48:2022). <https://bafs.da.gov.ph/index.php/approved-philippine-national-standards/>

3 Terms and Definitions

For the purposes of this Standard, the following terms and definitions apply:

3.1

biosecurity

set of management and physical measures designed to reduce the risk of introduction, establishment and spread of animal diseases, infections, or infestations to, from and within an animal population (World Organization for Animal Health [WOAH], 2018; BAFS-DA, 2025).

3.2

broodstock

sub-adult animal either male or female, that shall be used for breeding purposes (Bureau of Fisheries and Aquatic Resources [BFAR]-DA, 2022)

3.3

competent authority

official government agency having jurisdiction (Codex Alimentarius Commission [CAC], 2006). Also 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, regulations, or standards (BAFS-DA, 2025)

3.4
disease

any adverse condition due to biotic (living or infectious) agents or abiotic (non-living) agents that adversely affects culture performance (Lightner, 1996)

3.5
feed

any single or multiple edible plants or animal materials, whether processed, semi-processed, or live and raw, which are intended to be fed to domesticated animals to meet the nutrient requirements in order to maintain life, promote growth, production, and reproduction without any additional substance except water (BAFS-DA, 2015, *modified*)

3.6
hatchery

facility for producing shrimp fry or crablets and may consist of areas for broodstock conditioning, maturation, spawning, hatching, and larval rearing facilities, feed preparation/production and storage, life support systems, waste water treatment, and packing area (Kungvankij et al., 1986, *modified*)

3.7
larvae

newly hatched from eggs which consist of nauplii, zoea, and mysis for shrimp; and zoea and megalopa for crabs (Kungvankij et al., 1986, *modified*)

3.8
post larvae (PL)

stage of development of shrimps and crab upon metamorphosing into fry or juvenile shrimp, and crablet stage, respectively (BFAR-DA, 2009, *modified*)

3.9
veterinary drug

any substance applied or administered to any farmed aquatic organisms, whether used for therapeutic, prophylactic, or diagnostic purposes, or for modification of physiological functions or behavior (CAC, 2020, *modified*)

4 **Use**

This Standard adheres to the principles outlined in PNS/BAFS 135:2025 (Good Aquaculture Practices — Code of Practice). It specifically establishes requirements for penaeid shrimp and mangrove crab hatchery. This document shall be used independently and serves as the basis for inspecting

shrimp and mangrove crab hatcheries for GAqP certification under the relevant regulations of the competent authority.

Other farmed species shall be assessed against existing species-specific GAqP standards. In the absence of such standards, the general provisions of PNS/BAFS 135:2025 shall apply.

5 Site Selection

5.1 Location

5.1.1 The site of hatchery and nursery facilities shall be evaluated and permitted based on its distance to ecologically sensitive or protected areas such as mangrove forests, coral reefs, and other biodiversity hotspots. The hatchery and nursery shall also adhere to zoning laws set by Local Government Units (LGU).

5.1.2 All existing, new, and expanding hatchery farms shall secure and present a valid Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC) in accordance with national regulations.

5.1.3 Hatchery should be located in environmentally suitable and sustainable areas where the risk of contamination is minimized or where sources of pollution can be controlled or mitigated according to national law and regulations.

5.1.4 Proof of registration (e.g., License To Operate [LTO], or business permit from the LGU, etc.) and ownership of the hatchery area (e.g., legal rights and its location map) shall be made available.

5.1.5 Hatchery should have access to transportation both inside and outside the site, for quick operations and transport of larvae, post larvae, and crablets.

5.1.6 Hatchery shall have a distinct separation from the grow-out ponds and shall integrate biosecurity measures to prevent cross-contamination.

5.2 Lay-out and design

5.2.1 Hatchery facilities should be used primarily for aquaculture purposes only.

5.2.2 Hatchery design and layout shall integrate biosecurity measures to prevent cross-contamination, disease outbreak, and damage to existing aquatic habitats.

5.2.3 Toilet facilities and septic systems should be properly installed and constructed to prevent contamination of farm facilities.

- 5.2.4** Equipment and hatchery facilities should be designed to minimize physical damage to shrimp and crabs during larval rearing and harvesting.
- 5.2.5** Vehicles, equipment, and other implements used for feed, stocks, and harvested shrimp and crabs, should be designed to allow adequate cleaning and disinfection.
- 5.2.6** Settling tanks and filtration systems shall be available to ensure good water quality, while reservoirs should be available to ensure sufficient water supply.
- 5.2.7** Sedimentation or treatment ponds for effluent shall be made available.
- 5.2.8** Buffer zones shall be observed in accordance with existing regulations.

6 Facilities, Sanitation, and Waste Management

6.1 Facilities

- 6.1.1** Disposal facilities for wastes should be in suitable and confined areas.
- 6.1.2** Fuel, chemical substances (e.g., sanitizer, fertilizers, and reagents), and veterinary drugs should be stored in a storage facility and separated according to the manufacturer's instructions and as specified on the label.
- 6.1.3** Regular repair and maintenance should be undertaken to preserve the good physical condition of the facility.
- 6.1.4** Appropriate life support systems shall be provided in the hatchery tanks.
- 6.1.5** A designated quarantine facility should be established and maintained for the treatment of all diseased shrimp and crabs.
- 6.1.6** Machines used in the hatchery should be in good condition, and used lubricants shall be placed in an appropriate container and discarded properly.
- 6.1.7** A safe and reliable electrical system shall be installed to provide a steady and sufficient power supply.

6.2 Sanitation

- 6.2.1** Wild and domesticated animals shall not be allowed in the production area or its vicinity to prevent contaminants (e.g., feces, parasites, pathogens, and other disease vectors).
- 6.2.2** Hatchery facilities, their surroundings, equipment, and implements shall be maintained in a clean, hygienic, and good condition to prevent contamination.

- 6.2.3** Adequate procedures for cleaning and disinfection of transport vehicles, containers, and equipment shall be in place and implemented.
- 6.2.4** Bathrooms and toilets shall be hygienically maintained to prevent contamination of the hatchery facilities.
- 6.2.5** Cleaning materials and disinfectants shall be handled properly to prevent contamination and avoid environmental hazards.
- 6.2.6** Operators shall manage pests (i.e., rodents, insects, mites, etc.) using safe and responsible methods. Pesticides should only be used when necessary, following proper instructions to protect farm workers, farmed aquatic animals, and the environment.

6.3 Waste management

Waste disposal should be conducted daily and responsibly in accordance with applicable waste management regulations. The hatchery shall take appropriate measures to:

- a) dispose wastes in compliance with environmental laws; and
- b) immediately dispose of dead aquatic organisms in a hygienic manner.

7 Personnel Health and Hygiene

- 7.1** Workers should be trained on farm-level hygienic practices to ensure awareness of their roles and responsibilities for protecting aquaculture products from contamination and deterioration throughout the production cycle. This includes the following protocol:
- 7.1.1** Training on Occupational Health and Safety (OH&S) should be conducted for the workers to ensure safer farm work conditions.
- 7.1.2** Workers should wear suitable and appropriate working clothes and protective gear. In areas and conditions where risk is high, protective gear shall be used.
- 7.1.3** Workers shall wash their hands each time before commencing work.
- 7.1.4** An adequate quantity of first aid kits should be available and easily accessible at the production area, and laborers should be able to demonstrate awareness of and apply various first aid measures.
- 7.1.5** Workers should cover wounds with waterproof bandages and wear clean, waterproof gloves or boots when applicable.

7.1.6 Smoking, spitting, or drinking alcoholic beverages in the working and storage premises shall not be allowed.

7.2 Workers should undergo an annual medical examination to ensure they are fit to work.

7.3 Workers who have shown signs of medical problems or conditions that may pose health risks shall be excluded from handling fishery products until deemed certified fit to resume work.

8 Hatchery Management

8.1 Hatchery preparation and operation

8.1.1 A written protocol for hatchery and nursery operations shall be adopted or developed, and implemented consistent with the existing standard established and be implemented accordingly.

8.1.2 Practices for the preparation of hatchery facilities should minimize risk for cross-contamination.

8.1.3 Hatchery facilities and implements shall be disinfected after every operation and prepared properly prior to use.

8.1.4 Biosecurity measures against the entry of pathogens shall be undertaken at all times.

8.1.5 Prohibited chemicals or biological substances listed in Annex A (List of banned antimicrobials in food-producing animals) shall not be used in hatchery preparation and operation.

8.1.6 Fertilizers, prebiotics, and probiotics shall be used in accordance with the manufacturer's instructions.

8.1.7 Good quality broodstocks should be used for breeding and seed propagation.

8.1.8 All broodstocks, whether collected or sourced, shall be in accordance with national laws and regulations where they exist.

8.1.9 Only healthy and disease-free broodstock shall be used.

8.1.10 Broodstock collected from the wild or pond (for crabs) shall be held in a quarantine facility upon arrival and be screened for diseases prior to transfer to breeding and spawning facilities.

8.1.11 Stocking density for broodstock that are not yet ready for spawning should be optimum.

8.2 Water management

8.2.1 Water used for hatchery should be properly filtered, settled, disinfected, aerated, and maintained as suitable for the breeding and production of shrimp and crab seed stock.

8.2.2 Incoming water shall pass through installed screens or filters to prevent the entry of undesirable species.

8.2.3 The water quality parameters should be maintained and regularly monitored to ensure suitability for culture.

8.2.4 Water quality shall be periodically examined for hazards.

8.3 Feeds and feeding (For larvae and broodstock)

8.3.1 Operators should implement efficient feeding management by administering appropriate types of feed based on the culture system and its life stage/s.

8.3.2 Hatchery operations should include procedures for avoiding feed contamination.

8.3.3 Commercial formulated feeds shall be obtained from companies registered by the competent authority, in compliance with existing regulations and in conformity with established standards.

8.3.4 Feed ingredients, additives, premixes, and compound feeding stuff shall be obtained from a company registered and monitored by the competent authorities.

8.3.5 Non-commercial feeds, such as but not limited to live fresh, frozen, farm-formulated feeds, and natural food, should be of good quality and suitable for the requirements of broodstock and larvae.

8.3.6 If farm-made feeds or fresh diets are used, the protocol on the preparation and administration of such shall be provided.

8.3.7 Farm-made aquafeeds should meet the nutrient requirements of shrimp and crabs as presented in the International Aquaculture Feed Formulation Database (IAFFD).

8.3.8 Live, fresh, frozen, and natural feeds should be of good quality and should be free of pathogens and contaminants.

- 8.3.9** Live feeds and natural food shall comply with the health certification from in-country trans-boundary movement from the competent authority.
- 8.3.10** Medicated and non-medicated feeds should be stored separately to minimize the risk of feeding to non-target animals.
- 8.3.11** Feed additives and veterinary drugs shall comply with the existing regulations and conform with the existing standards.
- 8.3.12** Only registered probiotics and other biological inputs shall be used in the hatchery.
- 8.3.13** Feeding practices should minimize the risk for biological, chemical, and physical contaminations of feeds and animals.
- 8.3.14** Feeding practices should prioritize the maintenance of water and sediment quality to prevent nutrient overloading and minimize waste.
- 8.3.15** Feeds should be stored properly in a designated area, which is cool and dry to prevent spoilage, mold growth, and contamination. It should be organized to facilitate a first-in, first-out (FIFO) release and use.
- 8.4 Harvest, packing, and transport**
- 8.4.1 Harvest**
- 8.4.1.1** Harvesting equipment and implements shall be cleaned, sanitized, and stored properly.
- 8.4.1.2** Harvesting (either total or partial) should be planned in advance and should be done during the cooler time of the day to minimize stress and mortality of the postlarvae and crablets.
- 8.4.1.3** Harvested postlarvae and crablets should be quickly and hygienically handled, using practices that do not cause contamination, physical damage, and prolonged stress.
- 8.4.2 Packing and transport**
- 8.4.2.1** Packing containers, equipment, density, and protocol should be appropriate to the size of broodstock, postlarvae, and crablets, and the duration and means of transport.
- 8.4.2.2** Broodstock, postlarvae, and crablets should be transported and handled under conditions which ensure their welfare, specifically to prevent physical damage, stress, or other factors that could adversely affect their viability and quality.

8.4.2.3 Local Transport Permit (LTP) and health certificate shall be secured from the issuing competent authority prior to transport.

9 Animal Health and Welfare

9.1 Operators shall develop and implement an aquatic animal health plan, following the existing protocols of the competent authorities for the health and management of aquatic animals.

9.2 Operators shall develop and implement biosecurity measures to effectively manage animal health and prevent the introduction and spread within the farm. Recommended health plan and protocol of the competent authority may be used as reference.

9.3 Operators shall adhere to the risk-based animal health surveillance program, which includes both passive and active schemes conducted by the competent authority, to ensure effective monitoring and management of aquatic animal health.

9.4 Operators should develop and implement handling protocols during sampling for the general condition of the stocks and harvesting to promote aquatic animal welfare.

9.5 Operators should maintain a suitable culture environment throughout the production cycle of the species being raised to promote aquatic animal welfare.

9.6 Operators should have training for animal welfare on farmed aquatic animals.

9.7 Shrimp and crabs broodstock, spawners, postlarvae, and crablets, wild-sourced or captive, should be of good quality and clinically healthy, as confirmed through screening and testing by the competent authority and its recognized laboratories before stocking.

9.8 Veterinary drugs and chemicals shall be used in a responsible manner and in accordance with applicable national legislation or relevant international agreements or guidelines that ensure effectiveness for animal health with consideration of public safety and protection of the environment.

9.9 Substances requiring prescription shall only be used under supervision by a qualified expert. Non-prescription substances should be used according to the manufacturer's instructions and as specified on the label.

9.10 Treatment and control of diseases using authorized veterinary drugs shall be carried out only based on a proper diagnosis.

- 9.11** For hatcheries administering chemicals, withdrawal periods shall be followed. Veterinary drug residues shall be within the limits set in the PNS/BAFS 48:2022 (Veterinary Drug Residues in Food — Maximum Residue Limits).
- 9.12** Preventive measures and control of disease outbreaks shall be in place including proper waste disposal of diseased shrimp and crabs.
- 9.13** In cases of disease outbreak, hatchery operators shall immediately inform the competent authority.
- 9.14** A quarantine protocol shall be established and implemented to control the spread of diseases.
- 9.15** In cases of disease outbreak, hatchery operators shall disinfect the affected tank prior to release to their effluent/ treatment pond. A dry-up period should be observed to break the cycle of disease.
- 9.16** Diseased broodstock, larvae, fry, or crablets shall be disposed of immediately and properly.
- 9.17** Disposal of broodstock, larvae, fry, or crablets for disease control purposes shall be authorized by the competent authority, and measures for the notification and control of diseases of aquatic animal origin shall be effectively implemented.
- 9.18** Newly acquired broodstock or spawner shall be quarantined and tested free of disease before use in accordance with the existing national regulation. In cases where the larvae and post larvae show any sign of disease and/or poor health, the disease diagnosis and corresponding quarantine protocols shall be carried out.
- 9.19** Stocking density for the hatchery should be appropriate based on its life stage/s.
- 9.20** Larvae and postlarvae health shall be monitored before harvest. Health certificates and laboratory results issued by the competent authority shall be presented to the buyer or grower.
- 9.21** Transport of broodstock, spawners, postlarvae, and crablets shall be in accordance with the existing national regulations to prevent the introduction or transfer of diseases and infectious agents pathogenic to shrimp and crabs.

10 Environmental Integrity and Sustainability

- 10.1** Hatchery activities shall be limited within the designated area for hatchery use based on the approved zoning plan to ensure sustainable resource utilization and maintain the carrying capacity of the ecosystem.
- 10.2** Hatchery workers and operators should be trained in environmental management and mitigation of impact to ensure they are aware of their responsibilities in protecting the environment.
- 10.3** In collecting spawners and broodstock from the wild, responsible practices shall be in accordance with existing laws and regulations.
- 10.4** Use and production of genetically-modified shrimp and crabs shall be subjected to existing national regulations.
- 10.5** Trapping devices should be installed in areas where potential escapees could occur to reduce the risk of such an event.
- 10.6** Measures should be adopted to promote efficient water management and use, as well as proper management of effluents to reduce impacts and shall comply with existing regulations on surrounding land, and water resources.
- 10.7** In cases of disease occurrences, treatment of effluent water prior to release shall be implemented and recorded.
- 10.8** Discharge water from the hatchery shall be held in effluent, sedimentation, or treatment pond or tank and shall comply with relevant national laws and regulations.
- 10.9** Regular monitoring of hatchery and nursery facility environmental quality shall be carried out, and a Self-Monitoring Report (SMR) should be accomplished in accordance with existing regulations.

11 Socio-Economic Aspects

- 11.1** Workers shall receive fair treatment, salaries, mandatory benefits, and incentives consistent with existing laws and regulations, or any related agreements between the employer and the workers.
- 11.2** Living quarters of stay-in labor should be safe, clean, in good habitable condition, and convenient.
- 11.3** Potable water in adequate supply and appropriate suitable toilet facilities should be available and properly maintained.

- 11.4** Hatchery operations shall observe the rights of host local communities minimizing potential adverse impacts on public land, infrastructures, fishing grounds, and water resources, following existing laws and regulations.
- 11.5** Workers shall not be discriminated against based on gender, race, religion, culture, age, etc.
- 11.6** Harmonious, productive, and mutually beneficial relationships with the local community should be maintained to foster responsible business social responsibility.
- 11.7** A proactive anti-child labor policy should exist in the farm and shall be compliant with the existing regulation and other applicable regulations.

12 Traceability and Record Keeping

For traceability purposes, the records specified in Annex A of PNS/BAFS 338:2022 (Establishment of Traceability System for Cultured Finfishes and Crustaceans – Guidelines), among other relevant records, should be kept and maintained for at least 24 months.

Annex A
(Normative)

List of banned antimicrobials in food-producing animals (BAFS-DA, 2025)

Regulations	Title
BFAR Administrative Circular No. 256, series of 2015	Declaring malachite green and gentian violet as health hazards and prohibiting their use in food fish production and trade
DA Administrative Order (AO) No. 14, series of 2003	Ban on the use in food animals of beta-agonist drugs used in humans as bronchodilator and tocolytic agents
Department of Health (DOH) and DA Joint AO No. 2, series of 2000	Declaring ban/phase out of the use of nitrofurans in food-producing animals
DOH AO No. 4-A and DA AO No. 1, series of 2000	Banning and withdrawal of olaquinox and carbadox from the market
DOH AO No. 91 and DA AO No. 60, series of 2000	Declaring ban on the use of chloramphenicol in food-producing animals
DA Administrative Order (AO) No. 14, series of 2003	Banning on the use in food animals of beta-agonist drugs used in humans as bronchodilator and tocolytic agents

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**Department of Agriculture (DA)
Bureau of Agriculture and Fisheries Standards (BAFS)**

**Technical Working Group (TWG) for the Philippine National Standard (PNS) on
Penaeid Shrimp and Mangrove Crabs Hatchery — Code of Practice — Good
Aquaculture Practices (GAqP)**

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