

PHILIPPINE NATIONAL STANDARD

**PNS/BAFS 281: 2025
ICS 67.120.30**

Giant Freshwater Prawns Hatchery and Nursery — Code of Practice — Good Aquaculture Practices (GAqP)



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Aquaculture Practices (GAqP)
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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) Revision of scope;

- b) Revision of the Normative References and Terms and Definitions;
- c) Addition of 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 and nursery operators;
- f) Inclusion of the list of banned antimicrobials in food-producing animals;
- g) Inclusion of the recommended optimum ranges of water quality parameters for giant freshwater prawns for larval and nursery rearing farms; and
- h) Update on the recommended stocking densities for giant freshwater prawns for larval and nursery rearing farms.

This document cancels and replaces PNS/BAFS 281:2018 (Code of Good Aquaculture Practices [GAqP] on Hatchery for Freshwater Prawn) 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 all stages of culture practices in freshwater prawn hatchery and nursery operations, including broodstock collection and management, and the harvesting, packing, handling, and transport of larvae, and post larvae in order to produce good quality seed stock for nursery and/or grow-out culture. 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

broodstock

sub-adult or adult animal, either male or female, that shall be used for breeding purposes (Bureau of Fisheries and Aquatic Resources [BFAR]-DA, 2009, *modified*)

3.2

feed

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

3.2.1**natural food**

any live food item, usually plankton, administered to the early stages (i.e., hatchlings, larvae, postlarvae) in the life cycle of aquatic animals (New, 2002, *modified*)

3.2.2**formulated feed**

any formulated/artificially prepared food (e.g., egg custard for larval stages) or supplemental feed (containing single material) or complete feed made to contain multiple dry and/or wet ingredients based on the nutritional requirements of the animal. Artificial feed or diets may be made in farm using simple, small-scale equipment or in bulk, in the case of commercial-scale production. Formulated/artificial feeds are fed to the animal to maintain life, promote growth, production and reproduction (New, 2002, *modified*)

Admitted term: artificial fee/diet

3.3**hatchery**

facility where eggs are hatched and reared to the postlarval stage (BFAR-DA, 2023, *modified*)

3.4**larvae**

newly hatched from eggs which consist of 11 stages and are reared in brackishwater (10-15 ppt) (New, 2002)

3.5**nursery**

facility where postlarvae are reared to a larger size before stocking in grow-out ponds or net pens under controlled conditions to improve their survival and growth (BFAR-DA, 2023)

3.6**postlarvae (PL)**

developmental stage of freshwater prawn following the completion of the 11 larval stages. Postlarvae resemble miniature adult prawns and are physiologically adapted to freshwater rearing conditions. This stage marks the transition from hatchery to nursery or grow-out culture. (Food and Agriculture Organization of the United Nations [FAO-UN], 202; New, 2002)

3.7**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 (Codex Alimentarius Commission [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 giant freshwater prawn hatchery and nursery. This document shall be used independently and serves as the basis for inspecting freshwater prawn hatcheries and nurseries 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 hatcheries and nurseries 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 and nursery 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, or business permit from the LGU, etc.) and ownership of the farm area (e.g., legal rights and its location map) shall be made available.

5.1.5 Hatchery and nursery should have access to transportation both inside and outside the farm, for quick operations and transport.

5.1.6 Hatchery and nursery should have sufficient supply of freshwater and brackish water or seawater where the risk of pollution or contamination can be controlled or mitigated to an acceptable level.

5.2 Lay-out and design

5.2.1 Hatchery and nursery facilities should be used for aquaculture purposes only.

- 5.2.2** Hatchery and nursery 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 well-installed and constructed to prevent contamination of the hatchery and nursery.
- 5.2.4** Area for cooking and dining shall be separated from the hatchery and nursery facilities.
- 5.2.5** Equipment and hatchery and nursery facilities should be designed to minimize physical damage to prawns during larval rearing and harvesting.
- 5.2.6** Vehicles, equipment, and other implements used for feed, stocks, and harvested postlarvae, should be designed to allow adequate cleaning and disinfection.
- 5.2.7** Settling tanks and/or filtration systems shall be available to ensure good water quality, while reservoirs should be available to ensure sufficient water supply.
- 5.2.8** Sedimentation or treatment ponds or tanks for effluent shall be available.
- 5.2.9** Buffer zone shall be observed in accordance with existing national 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, fertilizer, 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 and nursery.
- 6.1.5** A designated quarantine facility should be established and maintained for the treatment of all diseased shrimp and crab.

6.1.6 Machines used in the hatchery and nursery 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 contamination from fecal and other hazardous substances.

6.2.2 Hatchery and nursery facilities and their surroundings, equipment, and implements shall be maintained in a hygienic 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 and nursery 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

6.3.1 Waste disposal should be conducted daily and responsibly in accordance with applicable waste management regulations. The hatchery and nursery facility 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 Farm Management

8.1 Hatchery and nursery 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 and nursery facilities should minimize risk for cross-contamination.
- 8.1.3** Hatchery and nursery 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 prohibited chemicals or biological substances), shall not be used in hatchery and nursery preparation.

- 8.1.6** Fertilizers, prebiotics, and probiotics shall be used in accordance with the manufacturer's instructions.
- 8.2 Water management**
- 8.2.1** Water used for hatchery and nursery should be properly filtered, settled, disinfected, aerated, and maintained as suitable for the production of seedstock.
- 8.2.2** Incoming water shall pass through installed screens or filters to prevent the entry of undesirable species.
- 8.2.3** The recommended optimum ranges of water quality parameters, as shown in Annex B (Recommended optimum ranges of water quality parameters for the hatchery and nursery of giant freshwater prawns), should be maintained and regularly monitored to ensure suitability for culture.
- 8.2.4** Water quality shall be periodically examined for hazards.
- 8.3 Broodstock management**
- 8.3.1** Stocking density should be optimum to the species and to the culture system involved, as specified in Annex C (Recommended range stocking density for giant freshwater prawns for larval and nursery rearing).
- 8.3.2** Only healthy and disease-free broodstock shall be used.
- 8.3.3** Good quality broodstock should be used for breeding and seed propagation.
- 8.3.4** All broodstock to be used in the hatchery and nursery shall be acquired consistent with the applicable laws and regulations.
- 8.3.5** Broodstock, imported or collected from the wild or pond, shall be held in a quarantine facility upon arrival and screened for diseases prior to transfer to breeding and spawning facilities.
- 8.3.6** Genetic background of wild, captive-propagated, and imported broodstock shall be available for traceability.
- 8.3.7** The use of genetically-modified broodstock shall be allowed with the approval of the competent authorities.
- 8.4 Feeds and feeding (For larvae and broodstock)**
- 8.4.1** Operators should implement efficient feeding management by administering appropriate types of feed based on the culture system and its life stage/s.

- 8.4.2** Hatchery and nursery operations should include procedures for avoiding feed contamination.
- 8.4.3** Commercial formulated feeds shall be obtained from companies registered by the competent authority, in compliance with existing regulations and in conformity with established standards.
- 8.4.4** Feed ingredients, additives, premixes, and compound feeding stuff shall be obtained from a company registered and monitored by the competent authorities.
- 8.4.5** Non-commercial feeds, such as but not limited to live feeds, farm-formulated feeds, and natural food, should be of good quality and suitable for the requirements of the prawn.
- 8.4.6** If farm-made feeds or fresh diets are used, the protocol on the preparation and administration of such shall be provided.
- 8.4.7** Farm-made aquafeeds should meet the nutrient requirements of prawns as presented in the International Aquaculture Feed Formulation Database (IAFFD).
- 8.4.8** Live, fresh, frozen, and natural feeds should be of good quality and should be free of pathogens and contaminants.
- 8.4.9** Live feeds and natural food shall comply with the health certification from in-country trans-boundary movement from the competent authority.
- 8.4.10** Medicated and non-medicated feeds should be stored separately to minimize the risk of feeding to non-target animals.
- 8.4.11** Feed additives and veterinary drugs shall comply with the existing regulations and conform with the existing standards.
- 8.4.12** Only registered probiotics and other biological inputs shall be used in the hatchery and nursery.
- 8.4.13** Feeding practices should minimize the risk for biological, chemical, and physical contamination of feeds and animals.
- 8.4.14** Feeding practices should prioritize the maintenance of water quality to prevent nutrient overloading and minimize waste.
- 8.4.15** 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.

8.5 Harvest, postharvest, and transport**8.5.1 Harvest**

8.5.1.1 Harvesting equipment and implements shall be cleaned, sanitized, and stored properly.

8.5.1.2 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.

8.5.1.3 Harvested postlarvae should be quickly and hygienically handled, using practices that do not cause contamination, physical damage, and prolonged stress.

8.5.2 Packing and Transport

8.5.2.1 Packing containers, equipment, density, and protocol should be appropriate to the size of broodstock, postlarvae, and juvenile, and the duration and means of transport.

8.5.2.2 Broodstock and postlarvae 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.

8.5.2.3 Broodstock should be transported using oxygenated bags or a portable aeration system, with provision of shelters (e.g., polyvinyl chloride [PVC], bamboo).

8.5.2.5 Postlarvae and juveniles should be transported using oxygenated bags with provision of shelters (e.g., nets).

8.5.2.6 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** Prawn broodstock, postlarvae, and juvenile, 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 hatchery and nursery 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** A quarantine protocol shall be established and implemented to control the spread of diseases.
- 9.13** Diseased postlarvae and broodstock shall be disposed of immediately and properly.
- 9.14** Transport of postlarvae and broodstock 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 and nursery activities shall be limited within the designated area for hatchery and nursery use based on the approved zoning plan to ensure sustainable resource utilization and maintain the carrying capacity of the ecosystem.
- 10.2** Hatchery and nursery 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 prawn 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 and nursery 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 and nursery 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

Annex B
(Informative)

Recommended optimum ranges of water quality parameters for giant freshwater prawns for larval and nursery rearing (Civin-Aralar, et al., 2011; SEAFDEC, 2025)

Parameters	Value
Temperature	28–31 °C
Salinity	12 ppt
Dissolved oxygen	>3 ppm
pH	7.2–8.5
Ammonia	<0.10 ppm

Annex C
(Informative)

Recommended stocking densities for giant freshwater prawns for larval and nursery rearing (Civin-Aralar, et al., 2011; SEAFDEC, 2025)

Life stage	Stocking density
Broodstock	4 female:1 male
Larval	50–100 larvae/L
Nursery	Ponds (no aeration & substrates): 1000 PL/m ²
	Ponds (with aeration & substrates) : 2000 PL/m ²
	Tanks: 1000 PL/m ²
	Cages: 1000 PL/m ²

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