

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

1 Scope

This Code of Good Aquaculture Practices (GAqP) for shrimp and mangrove crabs covers practices that aim to prevent or minimize the risk associated with aquaculture production in brackish waters (i.e. ponds and tanks). This Code applies to aquaculture facilities, intended for shrimp and crab culture. This Code addresses food safety, 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 documents (including any amendments) applies.

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2022). Veterinary Drug Residues in Food — Maximum Residue Limits (PNS/BAFS 48:2022).

DENR. (2019). DENR Administrative Order No. 2019-09: Updated national list of threatened Philippine fauna and their categories. https://bmb.gov.ph/downloads/WRD/WC/WC2020/stat_and_lists_of_wildlife/fauna/dao-2019-09.pdf

3 Terms and Definitions

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

3.1**aquaculture facilities**

include permanent or semi-permanent systems or structures for breeding, treatment and raising of organisms. Aquaculture facilities may exist both in marine waters, inland water environments, and as terrestrial production systems (Food and Agriculture Organization of the United Nations, n.d.; DA-BAFS, 2024)

3.2**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). It is also defined as an overall program that uses a combination of physical barriers and directed actions in a specific way

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

that should prevent the introduction of, or limit the spread of infectious disease (ASEAN Sectoral Working Group for Livestock; DA-BAFS, 2024)

3.3**chemicals**

any substance either natural or synthetic that can affect the live aquatic organism, its pathogens, and the water, equipment used for production or the land within the aquaculture establishment (CAC, 2020, *modified*)

3.4**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 (DA-BAFS, 2024)

3.5**diseased shrimp and crab**

a crustaceans on or in which pathological changes or other morphological changes or abnormalities that affect safety and quality are apparent (CAC, 2020, *modified*)

3.6**feed additive**

chemicals other than nutrients for shrimp and crab that are approved for addition to their feed (CAC, 2020, *modified*)

3.7**grow-out**

stage in aquaculture where aquatic organisms are raised from juvenile stages to market size

3.8**nursery**

facility where post larvae fish, group of shellfish fry or fingerlings 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)

3.9**veterinary drug**

any substance applied or administered to any food producing animal, such as meat or milk producing animals, poultry, fish, or bees, whether used for therapeutic, prophylactic, or diagnostic purposes or for modification of physiological functions or behavior (CAC, 2020)

3.10

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

integrated framing

4 Use

This Standard adheres to the principles outlined in PNS/BAFS 135:2024 (Good Aquaculture Practices — Code of Practice). It specifically establishes requirements for shrimp and crab farming. This document shall be used independently and serves as the basis for inspecting-shrimp and crab farms for GAqP certification under 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 135:2024 shall apply.

5 Site Selection**5.1 Location**

5.1.1 Certificate of Non-Coverage (CNC) or Environmental Compliance Certificate (ECC) shall be made available prior to the establishment of the aquaculture facility.

5.1.2 Aquaculture facilities 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.

5.1.3 Proof of legal rights, privileges, or ownership of the farm area License To Operate [LTO] or business permit from the Local Government Unit [LGU] and its location map shall be available.

5.2 Lay-out and design

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

5.2.2 Wild and domesticated animals should not be allowed in the production area or its vicinity to prevent fecal and other hazardous contaminations. However, they may be permitted under strict conditions, provided that measures are in place to prevent contamination.

5.2.3 Farm design and layout should prevent cross contamination and damage to existing aquatic habitats.

5.2.4 Drainage system of septic tanks and toilet facilities should be well installed and constructed to prevent contamination of farm facilities.

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

5.2.5 Equipment should be designed to ensure minimal physical damage to shrimp and crabs during growing and harvesting and to allow for adequate cleaning and disinfection.

5.2.6 Paraphernalia, equipment, and vehicles for feed, stocks, and harvested shrimp and crabs, should be designed to allow adequate cleaning and disinfection.

5.2.7 Reservoir ponds and tanks for incoming water should be available. However, a reservoir ponds and tanks may not be necessary if the aquaculture facilities have adequate measures in place to ensure sufficient water supply and proper water management.

5.2.8 Settling ponds for effluent shall be available.

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

5.2.10 Aquaculture facilities should be designed, operated, and maintained in ways that prevent contamination from workers, sewage/toilets, domestic animals, machinery oil/fuel, and other possible sources in order to maintain hygienic conditions

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

6 Facilities, Sanitation, and Waste Management

6.1 Facilities

6.1.1 Disposal facilities for solid and liquid wastes should be in suitable and confined area, and waste disposal shall be in compliance with existing regulations.

6.1.2 Fuel and chemical substances (sanitizer, fertilizer and reagents), veterinary drugs should be stored in a dedicated storage facility and separated according to 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 Diseased or dead shrimp and crabs should be collected immediately and disposed of properly through the establishment of a mortality pit.

6.1.5 Machines used in the facility shall be in good condition and used lubricants shall be placed in an appropriate container and discarded properly.

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

6.1.6 There shall be a safe electrical system on the farm.

6.2 Sanitation

6.2.1 Aquaculture facilities and its surroundings should be maintained in a clean and hygienic condition.

6.2.2 Containers, equipment, and facilities should be maintained in good condition to avoid contamination.

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

6.2.4 Cleaning materials and disinfectants should be properly handled and disposed to prevent contamination or pose no environmental hazards.

6.3 Waste Management

6.3.1 Waste disposal should be conducted daily and responsibly in accordance with applicable sanitation regulations. The farm should take appropriate measures to:

- a) dispose of solid wastes and garbage in an environmentally sound way; and
- b) dispose of dead shrimp and crab in a hygienic manner especially after disease outbreak.

6.3.2 Waste should be properly stored, segregated (i.e., biodegradable, recyclable), and disposed to avoid contamination in accordance with local regulations.

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

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

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

7.1.2 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.

7.1.3 Workers should wear suitable and appropriate working clothes and protective gears. In areas and conditions where risk is high, protective gears shall be used.

7.1.4 Workers shall wash their hands each time before commencing work.

7.1.5 Wounds should be covered with waterproof bandages and clean, waterproof gloves or boots.

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

8 Farm Management

8.1 Aquaculture facility preparation

8.1.1 Practices for the preparation of aquaculture facilities should minimize risk for cross-contamination.

8.1.2 Prohibited chemicals or biological substances listed in Annex A (List of banned antimicrobials in food-producing animals) shall not be used in aquaculture facility preparation.

8.1.3 Fertilizers, prebiotics, and probiotics should be used in accordance with the manufacturer's instruction and/or recommendation of the competent authority.

8.1.4 Farmers should regularly monitor soil quality parameters to ensure that it is within optimal range.

8.2 Water management

8.2.1 Water used for land-based aquaculture should be properly filtered, settled, aerated, and maintained as suitable for the production of shrimp and crabs which is safe for human consumption.

8.2.2 Basic water quality parameters should conform with the existing standards set by the competent authority and be regularly monitored to ensure suitability and safety. The optimum water quality parameters/requirements for shrimp and crab are presented in Annex B.

8.3 Stock Management

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

Stocking density should be optimum to the species and to the culture system as specified in Annex C (Recommended range stocking density for crab and shrimp grow-out farms).

8.4 Feeds and Feeding

8.4.1 If commercial feed is used, aquaculture operations should include procedures for avoiding feed contamination.

8.4.2 Commercial feeds, feed ingredients, additives, premixes and compound feeding stuff should be obtained from a company registered and monitored by the competent authorities.

8.4.3 Samples of commercial feeds should be inspected, monitored, and tested for aflatoxin and chloramphenicol by the competent authority.

8.4.4 Imported formulated feeds shall be obtained from a company registered by the competent authority in compliance with existing regulations and in conformity with the existing standards.

8.4.5 Feeds should be stored properly in a separate facility, 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.

8.4.6 Medicated and non-medicated feeds should be stored separately to minimize the risk of feeding to non-target animals.

8.4.7 The content of additives and veterinary drugs should comply with the existing regulations and conforms with the existing standards.

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

8.4.9 Feeding practices should prioritize the maintenance of water and sediment quality to prevent nutrient overloading and minimize waste.

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

8.4.14 If non-pelleted feeds or fresh feeds (trash fish, molluscs, chicken entrails, mussel meat etc.) are used, the protocol on the preparation and administration of such shall be provided.

8.4.11 Probiotics and other biological inputs shall be registered with, and approved by, the relevant competent authorities.

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

8.4.12 Farm-made aquafeeds should all meet the nutrient requirements of shrimp and crab as presented in Annex C (Nutrient requirements for shrimp and crab).

8.4.13 Farmers should administer the appropriate type of feeds according to the culture system used and conduct periodic sampling of the stocks for proper feed management.

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

8.4.15 Feed packaging should be properly labeled with the description of composition, storage conditions, manufacturing date, expiry date, feeding rate and other necessary information and guidance in adequate language.

8.5 Harvest, Postharvest, and Transport

8.5.1 Harvest

8.5.1.1 Harvesting and postharvesting equipment and paraphernalia should be cleaned and sanitized. Such equipment should be stored properly.

8.5.1.2 Harvesting (total or selective) should be planned in advance and should be done early in the morning or during the cooler time of the day to avoid stress and mortality of the shrimp and crabs.

8.5.1.3 Harvested aquatic animals should be quickly and hygienically handled, using practices that do not cause contamination and physical damage to the product.

8.5.1.4 For shrimp products intended to be sold chilled or frozen, practices should ensure rapid and humane slaughtering of harvested shrimp to minimize stress and preserve the quality of the product.

8.5.1.5 Water and ice used during harvesting should be of quality suitable for the production of food.

8.5.2 Postharvest

8.5.2.1 Postharvest operations should be carried out quickly, hygienically and without damage to the product.

8.5.2.2 Feed additives and chemicals, which are used in contact with products, shall be in compliance with prevailing legal requirements

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

8.5.2.3 Postharvest wastes should be collected in designated areas and disposed of properly to minimize risk of cross contamination.

8.5.2.4 Clean and uncontaminated water should be available and used in sufficient amount for handling and cleaning operations.

8.5.2.5 Ice shall be made from potable water and sourced from approved establishment by the competent authority.

8.5.2.6 Ice should be received, handled and stored under good sanitary conditions, which minimize risks of contamination.

8.5.2.7 Prior transport, harvested shrimp should be properly chilled and maintained at a temperature range of 0°C to 4°C to preserve freshness, quality, and safety. For live crabs, they should be maintained in a cool (24-28 C) and moist condition.

8.5.8 Shrimp and crabs placed on the market for further processing before human consumption should be disease-free.

8.5.3 Transport

8.5.3.1 Shrimp and crabs should be transported in clean, sanitized, and well-maintained materials, with protocols to prevent contamination from environmental sources such as air, soil, water, oil, and chemicals.

8.5.3.2 Live shrimp and crabs should be transported under conditions which recognize their welfare and do not adversely affect their viability. For live shrimp, aerated seawater tanks should be used during transport. For live crabs, well-ventilated containers should be used. The crabs should be transported in moist condition preferably with the addition of a small chunk of ice to maintain 24-28°C. Crabs should be packed as close to each other to prevent them from moving and getting damaged.

8.5.3.3 Shrimp and crabs s intended to be sold chilled for human consumption should be transported in compliance with the existing PNS on shrimp and crab.

8.5.3.4 Containers used for transporting shrimp and crabs with ice should be designed to allow melted water to drain away from the product, ensuring optimal quality and hygiene.

8.5.3.5 All prohibited additives and chemicals shall not be used in contact with live, chilled, or frozen shrimp and crabs.

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

9 Animal Health and Welfare

9.1 Farm operators should 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 Disposal of shrimp and crabs for disease control purposes should be authorized by the competent authority, and measures for the notification and control of diseases of aquatic animal origin should be effectively implemented.

9.3 Farm 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 Shrimp and crabs, wild-sourced or captive propagated by registered hatcheries, should be of good quality and clinically healthy, as confirmed through screening and testing by the competent authority and its recognized laboratories before stocking.

9.5 All veterinary drugs and chemicals for use in aquaculture shall comply with national regulations, as well as international guidelines, if applicable. If veterinary drugs and chemical treatment is necessary, farm operators shall follow the instructions on the manufacturers label or as advised by competent authority.

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

9.7 Veterinary drugs, medicated feeds, chemicals and biological substances should be properly stored according to instructions.

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

9.9 Treatment and control of diseases with authorized veterinary drugs shall be carried out only on the basis of a proper diagnosis.

9.10 Withdrawal periods and residues should be verified by adequate testing.

9.11 A quarantine protocol should be established and implemented to aquaculture facilities with suspected outbreaks for the treatment and containment of diseased shrimp and crabs.

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**
*Working Draft**As of April 25, 2025*

9.12 Proper handling and disposal procedures for diseased shrimp and crabs shall be implemented to ensure effective disease control and prevent the spread of pathogens. A designated quarantine facility should be maintained for treatment of ill diseased shrimp and crab. Handling and disposal of diseased shrimp and crabs for disease control purposes should follow the existing protocol of competent authority.

9.13 For farms administering chemicals, withdrawal period 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).

9.14 Movement of shrimp and crabs should take place in accordance with existing national regulations to prevent introduction or transfer of diseases and infectious agents pathogenic to shrimp and crabs while avoiding unwarranted sanitary measures.

9.15 Farm operators should formulate and implement biosecurity measures, in adherence to the recommended protocol of the competent authority, to prevent introduction of disease into the farm and/or control its spread within the farm.

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

9.17 Farm operators should develop and implement handling protocols during sampling, harvesting, quarantine, and disease treatment to promote aquatic animal welfare.

9.18 Use of species in polyculture or integrated multitrophic aquaculture system should be carefully considered in order to reduce potential risk of disease transmission.

10 Environmental Integrity and Sustainability

The site of aquaculture facilities shall be evaluated and permitted based on its proximity to ecologically sensitive or protected areas such as mangrove forests, coral reefs, and other biodiversity hotspots. The farm shall also adhere to zoning laws set by local government units (LGUs). Secure SAPA from EMB (verify with DENR-EMB)

10.1 Screens and barriers should be available to limit the incidence of escape to the natural environment of cultured species.

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**
*Working Draft**As of April 25, 2025*

- 513 **10.2** Aquaculture activities shall be limited to a maximum of 10% of the total
514 aquaculture area to ensure sustainable resource utilization and maintain
515 the carrying capacity of the ecosystem.
516
- 517 **10.3** Trapping devices should be installed in areas where potential escapes
518 could happen to reduce the risk of such an event.
519
- 520 **10.4** The use of lethal methods to eradicate predators, particularly those
521 classified as vulnerable, threatened, or endangered under DENR
522 Administrative Order No. 2019-09 (Updated National List of Threatened
523 Philippine Fauna and their Categories), and relevant international
524 conventions, including the International Union for Conservation of Nature
525 (IUCN) Red List, shall be prohibited.
526
- 527 **10.5** Location of aquaculture farm should be in accordance with local and
528 national plans and regulations on environmental protection.
529
- 530 **10.6** Effective mitigation measures should be taken if the current practices are
531 damaging habitat/environment.
532
- 533 **10.7** Rehabilitation of damaged natural surroundings caused by aquaculture
534 operations should be encouraged.
535
- 536 **10.8** Measures should be adopted to promote efficient water management and
537 use, as well as proper management of effluents to reduce impacts on
538 surrounding land, and water resources.
539
- 540 **10.9** Where possible, good quality, hatchery produced stocks should be used
541 for culture. When wild-sourced stocks are used, they should be collected
542 using responsible practices or in accordance with national laws and
543 regulations where they exist.
544
- 545 **10.10** Exotic species cultured in controlled conditions shall be used when the
546 competent authority has conducted a risk assessment and determined
547 that their introduction poses an acceptable level of risk to the natural
548 environment, biodiversity, and ecosystem health.
549
- 550 **10.11** Any exotic species shall be disposed of in a manner that prevents their
551 release into the natural environment
552
- 553 **10.12** Where genetic material of an aquatic organism is to be altered in a way
554 that does not occur naturally, science-based risk assessment shall be
555 done to address possible risks on a case-by-case basis.
556
- 557 **10.13** Farm workers and managers should be trained in environmental
558 management and mitigation of impact to ensure they are aware of their
559 responsibilities in protecting the environments.

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

11 Socio-Economic Aspects

11.1 Workers should receive fair treatment, salaries, mandatory benefits, and incentives consistent with national rates and in accordance with existing laws, regulations, and any related agreements or arrangements between the employer and the workers.

11.2 Living quarters of stay-in labor should be safe, clean, 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 Aquaculture facility operations should 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 should not be discriminated against on the basis of gender, race, religion, culture, age, etc.

11.6 Training on Occupational Health and Safety (OH&S) should be conducted for the workers to ensure safer farm work conditions.

11.7 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.

11.8 Harmonious, productive and mutually beneficial relationship with the local community should be maintained to foster responsible business social responsibility.

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

11.10 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.

12 Traceability and Record Keeping

12.1 Records of the following records should be kept and maintained for at least 24 months for traceability purposes:

a) preparation and water quality controls;

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices***Working Draft**As of April 25, 2025*

- b) origin, species, and the age or size of shrimp post larvae and crablets;*
- c) date, type, origin and use of feeds, feed ingredients, and other farm inputs (e.g. fertilizer)*
- d) animal health and movement of shrimp and crab*
- e) production and harvest data*
- f) buyers of final products (one-step- forward traceability)*

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

**Annex A
(Normative)**

List of banned antimicrobials in food-producing animals

Regulations	
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

**Shrimp and Crabs — Code of Practice —
Good Aquaculture Practices**

*Working Draft
As of April 25, 2025*

Annex C
(Informative)

Recommended range stocking density for crab and shrimp grow-out farms

Species	Culture System Stocking	Density ^a
1. Mangrove Crab		
a. <i>Scylla serrata</i> ; b. <i>S. olivacea</i> ; c. <i>S. tranquebarica</i> ; and d. <i>S. paramamosain</i>	Extensive ^b	500–1000 pcs/ha
2. Shrimp		
a. <i>Penaeus monodon</i>	Extensive	1–5 PL/m ²
	Semi-intensive	6–15 PL/m ²
	Intensive	16–30 PL/m ²
b. <i>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

Association of Southeast Asian Nations. (2022). ASEAN standard on ASEAN good aquaculture practices for food fish. <https://asean.org/wp-content/uploads/2022/11/10.-ASEAN-Standard-on-ASEAN-Good-Aquaculture-Practices-for-Food-Fish-Adopted.pdf>

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2022). Veterinary Drug Residues in Food — Maximum Residue Limits (PNS/BAFS 48:2022).

Codex Alimentarius Commission. (2006). Principles for traceability/product tracing as a tool within a food inspection and certification system (CXG 60-2006). https://www.fao.org/fao-who-codexalimentarius/sh-proxy/tr/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B60-2006%252FCXG_060e.pdf

Codex Alimentarius Commission (CAC). (2020). Code of Practice (COP) for fish and fishery products (CXC 52-2003, rev. 2020). https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXC%2B52-2003%252FCXC_052e.pdf

Department of Environment and Natural Resources. (2019). DENR Administrative Order No. 2019-09: Updated national list of threatened Philippine fauna and their categories. https://bmb.gov.ph/downloads/WRD/WC/WC2020/stat_and_lists_of_wildlife/funa/dao-2019-09.pdf

Food and Agriculture Organization of the United Nations. (n.d.). Fishery management. ASFA: Thesaurus of aquatic sciences and fisheries terminology. https://agrovoc.fao.org/skosmosAsfa/asfa/en/page/c_cbafa2e3?clang=vi

World Organization for Animal Health. (2018). Biosecurity. https://www.woah.org/fileadmin/Home/eng/Health_standards/tahc/2018/en_glossaire.htm#:~:text=biosecurity,and%20within%20an%20animal%20population.