

Preface

Prepared by the Agriculture, Fisheries and Conservation Department (AFCD) for fish farms joining the voluntary Accredited Fish Farm Scheme (AFFS), the Aquaculture Manual aims to provide information on the AFFS, as well as details on farm management, good aquaculture practices, and technical support offered by the AFCD. Various types of record sheet samples are also set out in the enclosures for the reference of fish farms.

The Manual is issued by the AFCD to fish farms joining the voluntary AFFS. If found, please return to Agriculture, Fisheries and Conservation Department, 5/F, Cheung Sha Wan Government Offices, 303 Cheung Sha Wan Road, Kowloon, Hong Kong.

Contents

1.	Basic Requirements of Joining the AFFS	3
2.	Implementation Details of the AFFS	5
3.	Farm Management	. 14
	Technical Support	
	Enclosure 1	
	Appendix 1 to Enclosure 1	. 27
	Enclosure 2	. 28
	Enclosure 3	. 29
	Enclosure 4	. 30
	Enclosure 5	. 33

1. Basic Requirements of Joining the AFFS

- 1.1 Aquaculture farms (farms) joining the AFFS must comply with requirements listed in the Manual.
- 1.2 Registered farms must be cooperative and allow inspections conducted by the AFCD or its appointed personnel from time to time.
- 1.3 Farms must allow the sampling of feed, drugs, water and other environmental samples by the AFCD or its appointed personnel for testing purposes. The frequency, type and number of samples are determined by the AFCD, but they will not exceed the number required for monitoring and testing.
- 1.4 Registered farms must allow the sampling of aquatic products by the AFCD or its appointed personnel for testing purposes. The frequency, type and number of samples are determined by the AFCD, but they will not exceed the number required for monitoring and testing.
- 1.5 Aquatic products adopting the label of AFFS can be distributed through the Fish Marketing Organization or directly sold from farms. The AFCD will sample the products before they are sold to ensure the qualification of products. Retailers who are selling AFFS aquatic products directly supplied by farms must obtain written approval from the AFCD before displaying the AFFS trademark in their retail locations.

- 1.6 In case the production process could not meet the requirements or that the aquatic products fail relevant tests, AFFS farms must suspend the sale of aquatic products sold under the AFFS according to the instructions from the AFCD.
- 1.7 Registered AFFS farms that violate the requirements listed in the Manual will have their AFFS registration cancelled. Deregistered farms cannot sell their aquatic products under the AFFS brand and are not eligible for re-registration of the AFFS for one year.

2. Implementation Details of the AFFS

2.1 The AFCD will evaluate farms and aquatic products based on farm management, farming methods and aquaculture food safety for the long-term monitoring of aquatic products. AFFS farms producing hairy crabs must also comply with additional requirements listed in Enclosure 1.

Farm Registration System

- 2.2 Farms that participate in the AFFS must first meet the requirements listed in "Operational and Hygienic Requirements for Farms" in section 3.1 of the Manual. The AFCD will send its staff to conduct an on-site assessment to ensure that the farm meets the above requirements before the registration as an Accredited Fish Farm is confirmed. For related procedures, please refer to Figure 1 in Enclosure 2.
- 2.3 In the case that successfully registered Accredited Fish Farms violate the requirements listed in the Manual, the AFCD will initiate the deregistration in accordance with the procedures set out in Figure 2 of Enclosure 2.
- 2.4 In the case that successfully registered Accredited Fish Farms repeatedly violate the requirements listed in the Manual, or under other special circumstances, the AFCD can consider the immediate

deregistration upon the issuance of written notice stating the reason of cancellation.

Aquatic Fry Registration System

- 2.5 Registered farms must notify the AFCD for inspection within 14 days after the release of aquatic fry (other than hairy crab fry) or on the first inspection day after obtaining the aquatic fry. Receipts of fry purchase or personal statements on the source of fry (signed by witness) must be provided for registration. For relevant procedures, please refer to Enclosure 3. This procedure does not apply to hairy crab fry. For the release of hairy crab fry, please refer to the registration system for hairy crab fry in subsections A6-A13 of Enclosure 1.
- 2.6 Unregistered aquatic fry cannot be sold under the AFFS brand in the future.
- 2.7 The rearing period of registered aquatic fry shall be no less than 180 days or half of the growth period depending on the species of aquatic products, whichever is shorter. Otherwise, the batch of aquatic products cannot be sold under the AFFS brand. Adding or mixing of unregistered same species aquatic products to the registered aquatic fry is prohibited, i.e. adding or mixing of

unregistered same species aquatic products to the rearing cage, tank or pond of registered aquatic fry is prohibited.

During the rearing period, adding different batches of registered aquatic fry in the same non-separable water body, different batches of aquatic fry must be visually distinguishable, otherwise, the calculation of the rearing period of the registered aquatic fry in the same water body will start from the last time when the aquatic fry was released. (Mixed culture of registered aquatic fry does not apply to hairy crab fry.)

2.8 Existing aquatic products (other than hairy crabs) of newly registered farms can apply for fry post-registration within 14 days after first farm registration. The post-registration of aquatic fry is only applicable to first registrations, exclusive of hairy crab fry. The rearing period of post-registered existing aquatic fry shall be no less than 180 days after the farm registration or half of the growth period depending on the species of aquatic products, whichever is shorter. Otherwise, the batch of aquatic products cannot be sold under the AFFS brand in the future.

AFFS Quality Assurance System

2.9 The quality assurance system established by the AFFS is a key factor contributing to consumer confidence towards AFFS products. The examination executed comprises two levels, the regular monitoring of farms, and test of aquatic products before sale. The hygiene, management, use of drugs and feed additives, as well as the health condition of aquatic products and water quality during the rearing period are also closely monitored. Detailed quality test items and standards are clearly set out in Enclosure 4.

Inspection and Monitoring of Farms

2.10 Registered farms must comply with rules listed in Chapter 3 "Farm Management" to fill in and keep the farm operations record provided by the AFCD or adopt a recording format with prior approval from the AFCD (e.g. computer records in a specified format). The content mainly involves items such as the number of aquatic products purchased/sold, feeding records, health conditions of aquatic products, medication records and hygiene inspection records. Relevant records must be submitted to the AFCD personnel during inspections. The AFCD will conduct inspections on registered farms from time to time. The number and frequency of inspections are determined by the AFCD with the aim to check the health conditions and management records of the farms. For water quality monitoring, the AFCD will collect water samples from time to time for various analyses, such as pH, dissolved oxygen concentration, nutrients, *Escherichia coli* (*E. coli*) and *Vibrio cholerae* (*V. cholerae*). The items for analysis are determined by the AFCD depending on the situation. The AFCD will also conduct health checks for aquatic products and provide technical advice and veterinary support services when needed.

2.11 The AFCD staff will conduct inspections on registered farms to ensure the compliance of rules listed in Chapter 3. In case of violations, the AFCD may cancel the farm registration according to the procedures set out in Figure 2 of Enclosure 2. Deregistered farms are not eligible for re-registration of the AFFS for one year.

Quality Assurance System for Aquatic products

2.12 The AFCD will collect samples of aquatic products in mid-season for mid-term heavy metal testing based on the maximum level of metal stated in the schedule of the Food Adulteration (Metallic Contamination) (Amendment) Regulation 2018 (Cap. 132V). Regular reviews must be conducted if the initial heavy metal content of aquatic products exceed the above-mentioned reference value in mid-season to ensure that aquatic products are sold in compliance with the standards set out in Cap. 132V, Laws of Hong Kong. The AFCD will issue warnings to relevant farms, carry out investigations and provide advice to the farms, urging them to make appropriate changes to the current mode of operations to reduce further accumulation of heavy metals in aquatic products.

2.13 The AFCD will increase mid-season test items for aquatic products as needed. Test items may include substances with potential food safety risks in aquatic products.

Pre-sale Tests of Aquatic products

2.14 Registered farms must notify the AFCD no less than 14 days and no more than 30 days before harvest or sale of registered aquatic products. Otherwise, the AFCD cannot conduct tests on aquatic products and such products cannot be sold under the AFFS brand. The harvest of the hairy crabs must be arranged in accordance with sections 17-26 of Enclosure 1. The AFCD will collect samples from farms for final testing. The sampling indicators are as follows:

Fish	Shrimp	Crab	Shellfish
1	20	5	3 kg

- 2.15 The actual sampling quantity must meet the sample size requirements of the laboratory tests. Only qualified aquatic products can be sold under the AFFS brand.
- 2.16 Farms must also submit a complete medication record for the entire rearing period during sampling. Drugs and feed additives listed in section 3.2.2 of the Manual cannot be applied after the sampling for final testing except with the consent of the AFCD.
- 2.17 To be qualified, aquatic product samples must pass the various quality tests of the AFFS, the standards of which can be referred to in Enclosure 4. The amount of drug residues must not exceed relevant European Union standard EEC No. 2377/90 and its amendments, and the content of malachite green and heavy metals must comply with the standards set out in the Harmful Substances in Food Regulations (Cap. 132AF) and Food Adulteration (Metallic Contamination) Regulations (Cap. 132V) of Laws of Hong Kong. Freshwater fish products must also pass the tests for muddy smell. If aquatic products are found to exceed the abovementioned standards, the AFCD staff will inform the farms of the postponement of the date of sale and carry out re-sampling and re-

testing. Aquatic products can only be sold when all test results meet the standard requirements. In addition to the required food safety standard tests listed in the AFFS Aquaculture Manual, food safety standard tests on hairy crabs must also be executed in accordance with the additional requirements in Enclosure 1.

- 2.18 The AFCD staff will collect aquaculture water samples from farms for bacterial testing no less than 14 days and no more than 30 days before the sale of the products. The *E. coli* levels in seawater samples must be less than 610 CFU per 100 mL and free of pathogenic *V. cholerae* types O1 and O139. As for pond water samples, the *E. coli* levels must not exceed 1,000 CFU per 100 mL and must be free of pathogenic *V. cholerae* types O1 and O139.
- 2.19 The AFCD will increase the test items and adjust the accepted quality level according to risk assessment results and the actual situation.
- 2.20 The AFCD reserves the right to request the re-sampling and postponement of the date of sale based on laboratory test results and the drugs and feed additives used after sampling. If food safety problems in samples are found to be irreversible within a short period of time, farms are required to destroy the same batch of aquatic products.
- 2.21 After confirming that aquatic products are qualified under the AFFS certification requirements, the AFCD will issue a certificate

12

of compliance for aquatic products. The products can then be sold with the traceable AFFS QR code label for identification within the validity period of the certificate. The certificate of compliance of non-frozen aquatic products is valid for 60 days, while frozen aquatic products must complete the freezing process within the validity period of the certificate.

- 2.22 The AFCD reserves the right to distribute information to the Fish Marketing Organization on qualified aquatic products entitled to be marketed under the AFFS brand and their source farms.
- 2.23 For the flow from fry registration to the sale of aquatic products, please refer to Enclosure 3.

3. Farm Management

For Good Aquaculture Practices, please refer to the booklets listed in Enclosure 5. The following are mandatory requirements for AFFS farms:

3.1 **Operational and Hygienic Requirements for Farms**

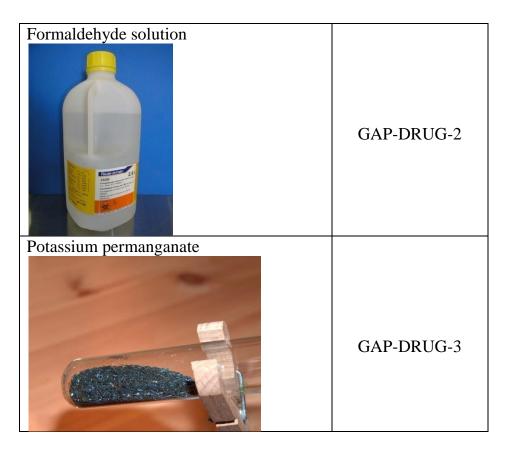
- 3.1.1. Newly purchased aquatic fry must be inspected by the AFCD staff and reared separately from existing aquatic products in the farm for the first 30 days.
- 3.1.2. Feed containers must be kept clean and should be cleaned daily.Other fishing gear should also be cleaned once or more per week.
- 3.1.3. With the exception for use as switched feed for fingerlings, fish paste cannot be used as feed.
- 3.1.4. The health condition of aquatic products must be regularly monitored. Aquatic products with symptoms must be quarantined.
- 3.1.5. Farms must be equipped with carcass-discarding facilities (e.g. covered collection bins). Carcasses of aquatic products must be sprinkled with bleach and wrapped in plastic bags for proper disposal.

3.2 Medication Standards

3.2.1. Except for drugs and feed additives listed in section 3.2.2, farms cannot use any drugs and feed additives without prior instructions from the AFCD and registered veterinary surgeon.

Drugs / Feed Additives	Guideline
Vitamin	Not applicable
Allicin	Not applicable
Hydrogen peroxide	GAP-DRUG-1

3.2.2. Farms can use the following drugs and feed additives on their own while complying with specified guidelines (if applicable).



- 3.2.3. Farms must keep an inventory record of drugs and feed additives.
- 3.2.4. Farms must keep a record of the use of drugs and feed additives for the submission to the AFCD staff during inspections.
- 3.2.5. The AFCD will update and add in the latest drug information on a regular basis. For enquiries, please contact the AFCD before the use of drugs.

3.3 **Farm Operations Record**

3.3.1. Farms must exercise proper management, as well as fill in and keep the farm operations record provided by the AFCD or adopt a recording format with prior approval from the AFCD (e.g. computer records in a specified format). The content mainly involves items such as the number of aquatic products purchased/sold, feeding records, health conditions of aquatic products, medication records and hygiene inspection records. Relevant records must be submitted to the AFCD personnel during inspections.

4. Technical Support

4.1 Feel free to contact the following AFCD sections for free information and technical services:

Sections	Tel. No.
Inland Culture Development Section	2471 9142
• Provide technical assistance and conduct	
rearing tests for persons engaging in inland	
aquaculture; collect aquacultural data for	
relevant statistical surveys.	
Mariculture Development Section	2150 7083
• Provide technical assistance and conduct	
rearing tests for persons engaging in	
mariculture.	
Aquaculture Environment Section	2150 7124/ 2150 7085
• Responsible for the red tide monitoring and	/ 9166 3472
management programme.	
• Conduct regular water quality monitoring	
in fish culture zones; special water quality	
monitoring will be conducted if	
constructions are carried out near fish	
culture zones; investigate the death reports	
of fish reared in the zone and complaints	
concerning water quality variations.	
Aquaculture Management Section	2150 7089
• Provide fish disease diagnosis service	
• Execute the Fish Health Inspection	
Programme	

<u>Enclosure 1</u> <u>Additional Requirements for Hairy Crab Rearing under</u> <u>the "Accredited Fish Farm Scheme"</u>

In addition to the requirements listed in the AFFS Aquaculture Manual, hairy crab farms under the "Accredited Fish Farm Scheme" must comply with the following additional requirements:

Requirements for Farm Registration

- A1. Farms must comply with the key rearing conditions for adult crabs in (NY/T5065-2001) section 6 of "Technical Specifications for Green Food Chinese Mitten Crab Farming" under the Agricultural Standard of People's Republic of China.
- A2. The water quality of farms must be suitable for hairy crab rearing. For key Water Quality Objectives (WQO), the farms must fulfil the objectives including, but not limited to the following:

i.Dissolved oxygen	More than 5 mg/l
ii.pH value	7.0 - 9.0

- A3. Farms must be equipped with proper fencing. Any cracks must be repaired in a timely manner.
- A4. If hairy crabs are reared in fishponds, waterweeds must be planted in the rearing area. The waterweeds must cover

one-third of the total farming area. If hairy crabs are reared in farms other than fishponds, the farms must be equipped with suitable facilities to keep hairy crabs.

A5. Farms that cannot provide the above-mentioned basic farming facilities will not be allowed to participate in the AFFS, and the AFCD will not proceed with the registration of hairy crab farms.

Hairy Crab Fry Registration System

- A6. A reasonable stocking density must be maintained in the release of hairy crab fry. With reference to (NY/T5065-2001), the suggested stocking density is 5,000-9,000 hairy crabs per 10,000 square meters. The actual stocking density can be decided depending on the individual farm environment. However, under normal circumstances, the stocking density should not exceed 30,000 hairy crabs per 10,000 square meters.
- A7. Farms must register with the AFCD and provide the below information no less than 7 days prior to the release of hairy crab fry:
 - i. Size and quantity of the crab fry;
 - ii. Information on farms and exporters supplying crab fry (including location, firm-name, information on registration/recordation by

20

relevant bureaux (if applicable).

- A8. Farms must provide the AFCD with the following information no less than **48 hours** prior to the release of hairy crab fry:
 - i. The exact date and time when the hairy crab fry is released;
 - ii. Name and contact details of the person-in-charge of the release of crab fry, and
 - iii. A copy of the health certificate including the items on dioxin test, or a copy of the dioxin test result provided by an accredited laboratory.
- A9. The release of fry in the farm must be video-recorded. The time and location of the release of fry and the quantity of fry released must be clearly presented in the video record. The video record must be submitted to the AFCD within the following working day after the release of fry.
- A10. The AFCD reserves the right to send its staff to conduct inspections on the release of fry and conduct detailed surveys without prior notice.
- A11. If the AFCD inspection staff finds that the actual situation of the release of fry does not match the information provided earlier, the AFCD will not confirm the crab fry released this time. Hairy crab fry that is not registered and confirmed will not be certified after rearing to marketable size. Also, they cannot be sold under the AFFS brand. The

AFCD will require the farm to explain the difference between the actual situation of the release of fry and the information provided. If the farm fails to provide a reasonable explanation that the AFCD is satisfied with, the AFCD will consider deregistering the farm. Farms that have been deregistered are not eligible for re-registration of the AFFS for one year.

- A12. Arrangements on fry post-registration specified in sections
 2.5 and 2.8 of the AFFS Aquaculture Manual does not apply
 to hairy crab rearing.
- A13. If the hairy crab fry has not been registered with the AFCD as required and has not been successfully registered, the hairy crabs will not be certified and issued a certificate of compliance after rearing to marketable size. Also, the products cannot be attached with the AFFS label for marketing.

Rearing Period of Hairy Crab Fry

- A14. The rearing period of hairy crab fry in registered farms cannot be less than 180 days.
- A15. In the same non-separable water body, if the crab fry is released more than once, the calculation of the rearing

22

period of the crab fry in the same water body will start from the last time when the crab fry was released.

A16. Hairy crab fry which fails to meet the above rearing period requirements will not be certified and issued a certificate of compliance after rearing to marketable size. Also, the products cannot be attached with the AFFS label for marketing.

Food Safety Standards

- A17. In addition to the required food safety standard tests listed in the AFFS Aquaculture Manual, the AFCD will conduct additional food safety tests on the hairy crabs in response to the requirements set out by the Centre for Food Safety (CFS) under the Food and Environmental Hygiene Department (FEHD) or other food safety risk factors. The CFS/FEHD's test items and standards/action level for hairy crabs are set out in Appendix 1.
- A18. Hairy crabs that fail to pass any of the food safety standard tests will not be certified and issued a certificate of compliance. Also, the products cannot be attached with the AFFS label for marketing.

Inventory and Batch Management

- A19. The AFCD will estimate the hairy crab production of the farms based on the registered and confirmed quantity of crab fry released and the continuous monitoring data. After the hairy crabs have passed all food safety tests, provided that there is no violation of other certification conditions, the AFCD will issue a certificate of compliance based on the estimated hairy crab production.
- A20. Farms can purchase QR code labels from the AFCD/Fish Marketing Organization based on the number of registered aquatic products of the relevant batch clearly specified on the certificate of compliance. A QR code label is only applicable to the specific batch of hairy crabs stated in the corresponding certificate of compliance. Each QR code label applies to one hairy crab only.
- A21. Farms must obtain a certificate of compliance issued by the AFCD before harvesting hairy crabs for sale. Under special circumstances, prior approval must be obtained from the AFCD if the farms need to harvest hairy crabs for purposes other than sale. Detailed quantities and transaction records of hairy crabs harvested for purposes other than sale must

also be provided. The AFCD will deduct the stock inventory of hairy crabs according to the number of hairy crabs harvested for purposes other than sale.

- A22. Farms must notify the AFCD of the exact date and time of harvest as well as the name and contact details of the person-in-charge of the harvest no less than **3 days** before harvest. The AFCD reserves the right to send its staff to conduct inspections on the harvest and conduct detailed surveys without prior notice.
- A23. The harvesting process in the farm must be video-recorded. The time and location of the harvest and the number of hairy crabs harvested must be clearly presented in the video record. The video record must be submitted to the AFCD within the following working day after harvest.
- A24. If a farm does not notify the AFCD before harvest or does not harvest at the date and time notified to the AFCD, the AFCD will immediately cancel the farm's certificate of compliance of the same batch of hairy crabs. Hairy crabs in the same water body will not be certified and issued a certificate of compliance. Also, the products cannot be attached with the AFFS label for marketing. If the farm fails to provide a reasonable explanation that the AFCD is

satisfied with, the AFCD will consider deregistering the farm. Farms that have been deregistered are not eligible for re-registration of the AFFS for one year.

- A25. Except for special arrangements approved by the AFCD, the registration of the release of crab fry will automatically lapse 365 days after the release. The AFCD will not conduct food safety standard tests on hairy crabs raised from crab fry with an invalid registration, and these hairy crabs will not be certified and issued a certificate of compliance. Also, the products cannot be attached with the AFFS label for marketing.
- A26. The AFCD reserves the right to change the number of registered aquatic products of the relevant batch or cancel the certificate of compliance after it has been issued depending on the actual situation (e.g. sudden change in water quality before harvest resulting in massive hairy crab kills after the certificate of compliance has been issued, or misuse of drugs on hairy crabs in harvest farms after the certificate of compliance has been issued).

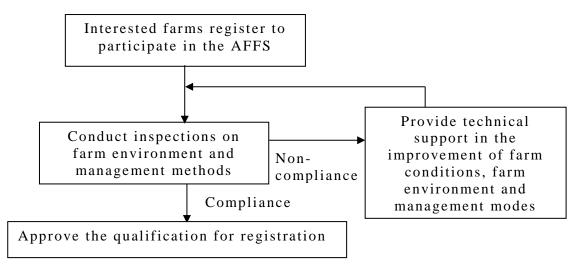
<u>Appendix 1 to Enclosure 1</u>

<u>The CFS/FEHD's Test Items and Standards/Action Level for</u> <u>Hairy Crabs</u>

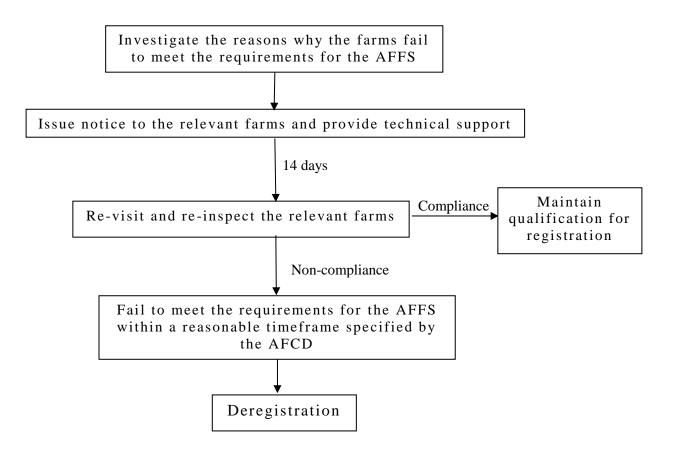
Items	Standards/Action Level
Dioxins and dioxin-	Action level (the sum of dioxins and DL-
like polychlorinated	PCBs in food samples shall not exceed 6.5
biphenyls (DL-	pg TEQ/g (wet weight))
PCBs)	
Colouring matter	Colouring Matter in Food Regulations
	(Cap. 132H)
Veterinary drug	Harmful Substances in Food Regulations
residues and	(Cap. 132AF)
synthetic hormones	
Pesticide Residues	Pesticide Residues in Food Regulation
	(Cap. 132CM)
Metallic	Food Adulteration (Metallic
Contamination	Contamination) Regulations (Cap. 132V)

<u>Enclosure 2</u> <u>Farm Registration and Deregistration Procedures</u>

1. Farm Registration

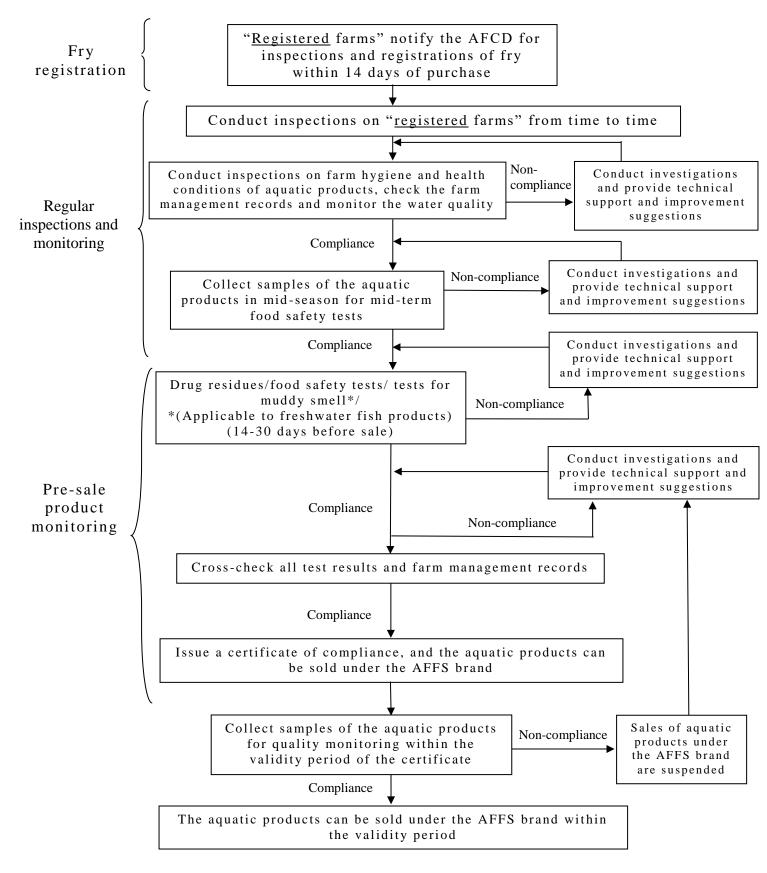


2. Farm Deregistration



Enclosure 3

Registration and Quality Assurance System for Aquatic Fry



Enclosure 4

Items	Types	Upper limit (mg/kg)
Antimony	Fish	1
	Crabs, prawns and	1
	shrimps	
	Oysters	1
Arsenic (inorganic	Aquatic animals (other	0.5
arsenic)	than fish)	
	Fish	0.1
Cadmium	Fish	0.1
	Crustaceans	2
	Bivalve molluscs	2
Chromium	Fish	1
	Crabs, prawns and	1
	shrimps	
	Oysters	1
Lead	Fish	0.3
	Crustaceans	0.5
	Bivalve molluscs	1.5
Mercury	Fish	0.5
(Methylmercury)		
Mercury (total	Aquatic animals (other	0.5
mercury)	than fish)	

Quality Test Items and Standards

Enclosure 4

Quality Test Items and Standards

Items	Upper limit
Microbes	
E. coli levels in seawater	610 CFU / 100 mL
Pathogenic V. cholerae types O1 and	Zero Tolerance
O139 levels in seawater	
Malachite green (sum of malachite	Zero Tolerance
green and leucomalachite green)	
Drug residues	
Amoxicillin	50 µg/kg
Ampicillin	50 µg/kg
Benzylpenicillin	50 µg/kg
Procaine benzylpenicillin	50 µg/kg
Cloxacillin	300 µg/kg
Cypermethrin	50 µg/kg
alpha-Cypermethrin	50 µg/kg
Danofloxacin	100 µg/kg
Deltamethrin	30 µg/kg
Difloxacin	300 µg/kg
Enrofloxacin	100 µg/kg
Erythromycin	200 µg/kg
Florfenicol	1000 µg/kg
Flumequine	500 µg/kg
Lincomycin	100 µg/kg
Neomycin	500 µg/kg
Oxacillin	300 µg/kg
Oxolinic acid	100 µg/kg
Oxytetracycline	100 µg/kg
Chlortetracycline	100 µg/kg
Tetracycline	100 µg/kg
Sarafloxacin	10 µg/kg
Sulfonamides	100 µg/kg
Thiamphenicol	50 μg/kg
Trimethoprim	50 µg/kg

Chloramphenicol	Zero Tolerance	
Furazolidone (nitrofuran metabolites)	Zero Tolerance	
Furaltadone (nitrofuran metabolites)	Zero Tolerance	
Doxycycline	100 µg/kg	
Dicloxacillin	300 µg/kg	
Pesticides		
DDT	500 µg/kg	
НСН	100 µg/kg	
Tests for muddy smell (Applicable to freshwater fish products)		
2-Methylisoborneol	1.31 ug per kg	
Geosmin	3.38 ug per kg	

<u>Enclosure 5</u> <u>Booklets on Good Aquaculture Practices</u>

