

Division of Aquaculture

Best Management Practices for Shrimp Farms



Overview

- Florida Aquaculture
- **Aquaculture Certificate of Registration and Best Management Practices (BMP) Program**
- BMPs for Shrimp Farms

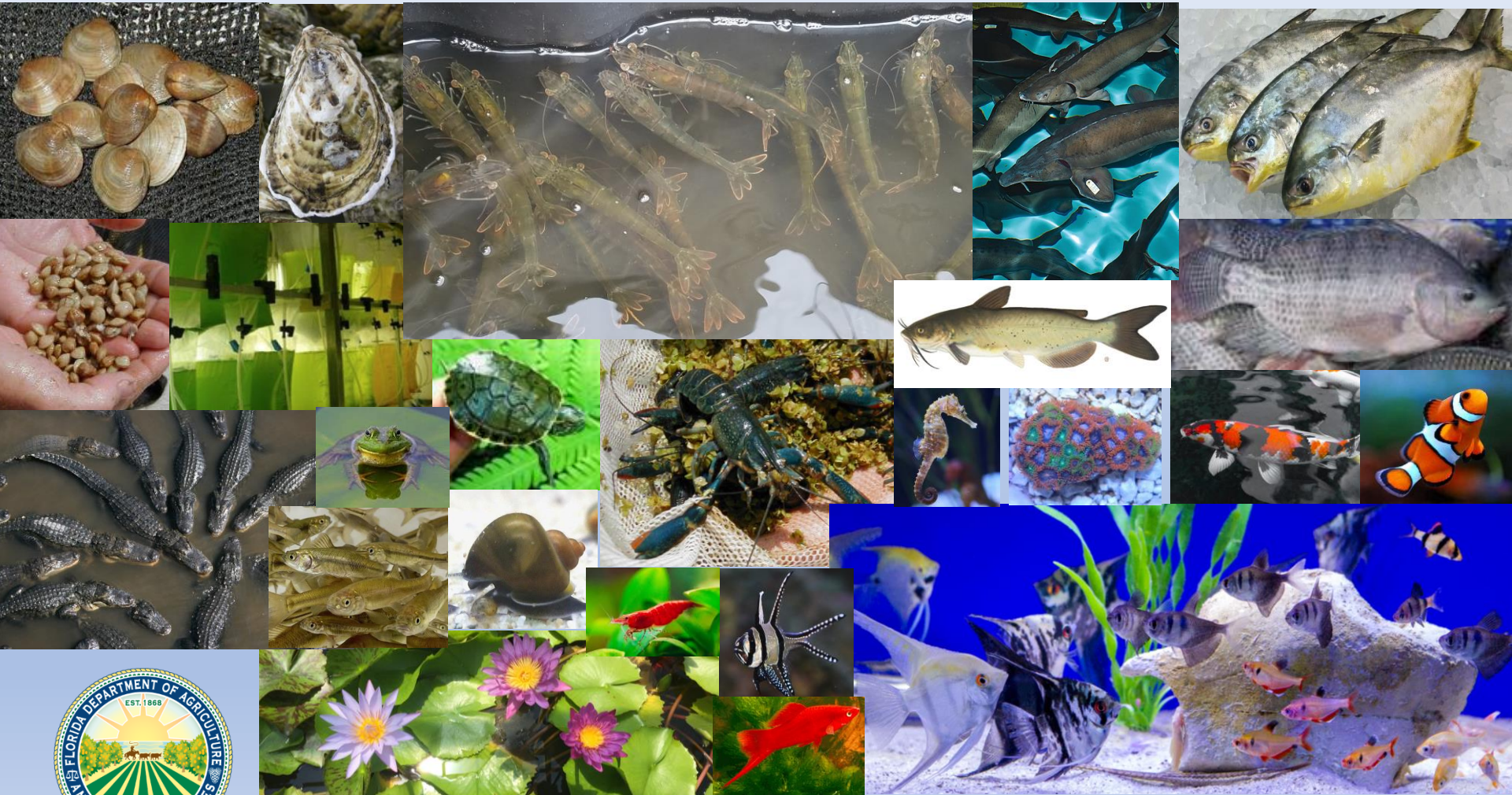


Florida's Aquaculture Industry

- ~1,500 species or varieties of fish, mollusks, crustaceans, aquatic plants and reptiles
- Annual Sales: ~\$100 million farm-gate value
- Species raised for ornamental, food and bait markets as well as stocking, conservation, research and educational purposes



Diversity of Industry



Division of Aquaculture Programs



Aquaculture
Certificate of
Registration
and Best
Management
Practices



Shellfish
Harvesting
Area
Classification



Sovereignty
Submerged
Land Leasing



Shellfish
Processing
Facility
Certification



Florida Aquaculture Policy Act

(Chapter 597 Florida Statutes)

- Established intent of Legislature to enhance the **growth of aquaculture while protecting Florida's environment.**
- Designation of FDACS as the regulatory agency of aquaculture in Florida.
 - **“Aquaculture is Agriculture”**



Florida Aquaculture Policy Act

(Chapter 597 Florida Statutes)

- Established:
 - Aquaculture Best Management Practices Program pursuant to Rule 5L-3 F.A.C.
- Authorized creation:
 - Aquaculture Certificate of Registration



Florida Rule 5L-3 F.A.C.

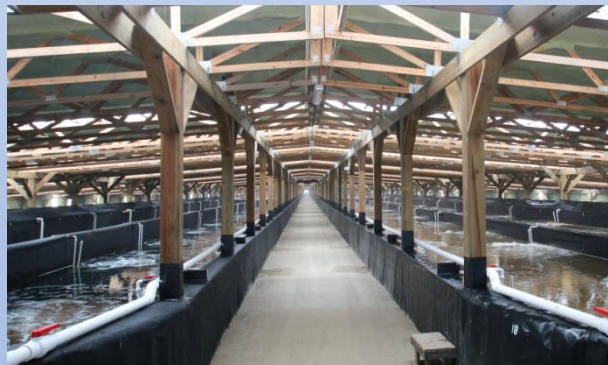
Aquaculture Best Management Practices

- 5L-3.001 Purpose
- 5L-3.002 Definitions
- 5L-3.003 Requirement for an Aquaculture Certificate of Registration
- 5L-3.004 Aquaculture Best Management Practices Manual
- 5L-3.005 Aquaculture Certificate of Registration
- 5L-3.006 Minimal Impact Aquaculture Facilities
- 5L-3.007 Failure to Comply With the Best Management Practices



Becoming Aquaculture Certified

- All producers engaged in commercial aquaculture in Florida must be “annually” certified by FDACS
- Must implement & maintain compliance with all applicable BMPs



Aquaculture Certificate of Registration Application

- Complete Application
- \$100 application fee
 - \$100 annual renewal fee there after
 - HET if applicable
 - Primary & secondary schools (fee is waived)
- Certification valid July 1- June 30



Florida Department of Agriculture and Consumer Services
Division of Aquaculture

Submit \$100 Application Fee Online at www.FDACS.gov
-or-
Make Check or Money Order Payable to FDACS and Submit with Application to:
FDACS
P.O. Box 6710
Tallahassee, FL 32314-6710

AQUACULTURE CERTIFICATE OF REGISTRATION APPLICATION
Section 597.004, Florida Statutes

WILTON SIMPSON
COMMISSIONER

Aquaculture Certification Number: _____
Renewals Only

Applicant Name(s): _____
Required

Company/Organization Name: _____
Optional: Must be a registered corporation

Complete Mailing Address: _____
Required

Telephone Number: _____ Email Address: _____
Required

Certificate coverage being applied for: Check and complete applicable options (upland facility and/or submerged land lease(s)).

Upland Facility Location: _____
facility address

County of Facility: _____ The upland facility is located on property that I OWN or RENT
county of facility

Production Facility Description(s): Please include type(s) of production units, size, quantity, and anticipated production below:

Submerged Land Lease(s): _____
List applicable submerged land lease number(s) to be covered by this certificate.

*If applicable, be sure to include completed authorized user agreement form(s) with the application.
All applicants listing shellfish (oysters, clams or any other bivalve) as a product must also include a current Shellfish Harvester Education Training Certificate with the application.*

Please List the Aquaculture Products Being Produced Below: See attached Taxonomic List of Aquaculture Products

By signing this document, I attest that the statements made herein regarding my business, legal property, production facilities and products are accurate and truthful. I certify that I and additional applicants listed above are 18 years old or older and I have authority to sign on their behalf. This application serves as notice of intent to comply with applicable Aquaculture Best Management Practices (Chapter 5L-3, F.A.C.) or interim permitting measures. The \$100 annual certification fee is enclosed.

Signature: _____ Date: _____

F&A Use Only

Org. Code: 42 15 02 00 000
EO: A2 \$100.00
Object Code: 001231
Fund Code: 2321001

FDACS 15106 Rev. 06/22
Page 1 of 3

Species Cultured

TAXONOMIC LIST OF AQUACULTURE PRODUCTS

Select the taxonomic families that you are culturing at your aquaculture facility. If you are culturing a species that does not fall into any of the taxonomic categories listed, please write in the genus, species and common name in the Other Categories section at the bottom of page 3.

FISH

Order Acipenseriformes

- Acipenseridae – sturgeon
- Polyodontidae – paddlefishes

Order Albuliformes

- Albulidae – bonefishes

Order Amiiformes

- Amidae – bowfins

Order Anabantiformes

- Anabantidae – climbing gourami

Order Anguilliformes

- Anguillidae – freshwater eels

Order Atheriniformes

- Bedotiidae – Madagascar rainbowfishes
- Melanotaeniidae – rainbowfishes
- Pseudomugilidae – blue eye rainbowfishes
- Telmatherinidae – Celebes rainbowfishes

Order Belontiiformes

- Hemirhamphidae – halfbeaks

Order Characiformes

- Characidae – characins (e.g., pacu, tetras, tambaquí, silver dollars)
- Gasteropelecidae – freshwater hatchetfish

Order Cypriniformes

- Cobitidae – loaches
- Cyprinidae – carps and minnows (e.g., koi, goldfish, barbs, danios, rasboras, redtail black sharks, rainbow sharks, red fin shark, shiners)

Order Cyprinodontiformes

- Antherinidae – silversides
- Aplocheilidae – African annuals
- Cyprinodontidae – killifishes (e.g., Florida flagfish)
- Fundulidae – topminnows (e.g., mummichog, golden topminnow)
- Poeciliidae – livebearers (e.g., guppy, swordtail, platy, variatus, molly, gambusia)

Order Esociformes

- Esocidae – pikes

Order Gasterosteiformes

- Syngnathidae – pipefish, sea horses

Order Gymnotiformes

- Apteronotidae – ghost knifefishes

Order Mugiliformes

- Mugilidae – mullet

Order Myliobatiformes

- Potamotrygonidae – freshwater stingray

Order Osteoglossiformes

- Osteoglossidae – arawacas

Order Perciformes

- Apogonidae – cardinalfishes (e.g., Banggai cardinalfish)
- Belontiidae – gouramies (e.g., paradise fish, blue gourami, pearl gourami, moonlight gourami, Siamese fighting fish)
- Blenniidae – combtooth blennies
- Carangidae – jacks, pompano
- Centrarchidae – sunfishes (e.g., bass, bluegill, crappie)
- Centropomidae – snooks
- Cichlidae – cichlids (e.g., angelfish, discus, oscars, blue rams, African cichlids, tilapia, convict)
- Coryphænidae – dolphinfishes
- Eleotridae – gudgeons, sleepers
- Gobiidae – gobies (e.g., neon goby, zebra goby)
- Grammatidae – basslets (e.g., royal gramma)
- Haemulidae – grunts, pigfish
- Helostomatidae – kissing gourami
- Latidae – Nile perch, bangamundi
- Labridae – tripletails
- Lufjanidae – snappers
- Moronidae (Percichthyidae) – temperate basses (e.g., sunshine bass, hybrid striped bass)
- Oplethognathidae – jawfishes
- Percidae – North American perches
- Percichthyidae – Australian perches (e.g., Murray cod, Chinese perch)
- Pomacanthidae – marine angelfishes (e.g., Centropyge)
- Pomacentridae – damselfishes and clownfishes
- Pseudochromidae – dotybacks
- Rachycentridae – oobias
- Solaenidae – drums (e.g., redfish, spotted sea trout)
- Serranidae – sea basses (e.g., grouper, Anthias)
- Sparidae – pinfish, pogies
- Terapontidae – tigerperches or grunners

Order Pleuronectiformes

- Bothidae – lefteye flounders
- Paralichthyidae – flounders (e.g., southern flounder)

Order Salmoniformes

- Salmonidae – trout

Order Siluriformes

- Aspredinidae – banjo catfishes
- Auchenipteridae – wood cats
- Bagridae – naked or bagrid catfishes
- Callichthyidae – plated catfishes
- Ictaluridae – freshwater catfishes (e.g., channel catfish)
- Loricariidae – suckermouth catfishes
- Moichokidae – upside-down catfishes
- Pangasidae – pangasid catfishes (e.g., iridescent shark)
- Pimelodidae – long-whiskered catfishes

AMPHIBIANS

- Amphiumidae – amphiuma
- Leptodactylidae – Central/South American frogs
- Pipidae – dwarf clawed frogs
- Ranidae – true frogs (e.g., bullfrog, pickerel frog)
- Salamandridae – newts and salamanders
- Sirenidae – sirens

CNIDIARIANS (CORALS)

- Order Actiniaria – sea anemones
- Order Alcyonacea – soft corals
- Order Antipatharia – black corals
- Order Corallimorpha – coral-like anemones
- Order Gorgonacea – sea fans
- Order Milleporina – fire corals
- Order Scleractinia – stony corals
- Order Styliactinia – lace corals
- Ulmaridae – jellyfishes
- Order Zoanthidea – zoanthids

CRUSTACEANS

Class Branchiopoda

- Artemiidae – brine shrimp
- Daphniidae – daphnia

Class Malacostraca

- Atyidae – freshwater shrimps
- Cambaridae – crayfish
- Hippolytidae – peppermint shrimp
- Merippidae – stone crabs
- Mysidacea – mysids
- Nephropidae – clawed lobsters
- Palaemonidae – prawns (e.g., Macrobrachium spp., ghost shrimp, grass shrimp)
- Palinuridae – spiny lobsters
- Parastacidae – Cherax spp.
- Penaeidae – marine shrimps, (e.g., Litopenaeus, Farfantepenaeus and Penaeus spp.)
- Portunidae – swimming crabs (e.g., blue crab)
- Stenopodidae – coral shrimps
- Xanthidae – mud crabs

ECHINODERMS

- Echinoidea – sea urchins
- Holothuroidea – sea cucumbers

Questions?
Contact the Aquaculture Certification
Program at: (860) 617-7800

MOLLUSCS

Class Gastropoda

- Ampullaridae – apple snails
- Strombidae – conchs
- Order Nudibranchia – sea slugs

Class Bivalvia

- Arcidae – arks
- Ostreidae – oysters
- Pectinidae – scallops
- Veneridae – hard clams, sunray venus dams

PLANTS

- Freshwater plants
- Marine plants (e.g., seagrass, mangrove)
- Microalgae (e.g., phytoplankton, spirulina)
- Macroalgae (e.g., chaetomorpha, ulva, gracilaria)

REPTILES

Order Testudines

- Chelidae – Austro-South American side-neck turtles
- Chelydridae – snapping turtles
- Emydidae – pond turtles/siders
- Geoemydidae – Eurasian pond and river turtles
- Kinosternidae – mud and musk turtles
- Pelomedusidae – African side-neck turtles
- Trionychidae – soft-shelled turtles

Order Crocodylia

- Alligatorinae – alligators and caimans
- Crocodylinae – crocodiles

ROTIFERS

COPEPODS

SPONGES

LIVE ROCK

TRANSGENIC ORGANISMS

If you are culturing a transgenic organism, please write in the genus, species, and common name below:

OTHER CATEGORIES

If you are culturing a species that does not fall into any of the taxonomic categories listed, please write in the genus, species and common name below:



Additional Requirements

Facility Plan

- Facility description
- Detailed Site sketch
- Species cultured
- Intended markets
- Timeline (construction/production)
- BMPs to be implemented

INITIAL
ONSITE
VISIT



Additional items

Property ownership verification or lease agreement.

Specific local permits *if applicable*

Wetland determination/delineation *if applicable*.



Aquaculture Certificate of Registration



WILTON SIMPSON
COMMISSIONER

Florida Department of Agriculture and Consumer Services
Division of Aquaculture

AQUACULTURE CERTIFICATE OF REGISTRATION

Section 597.004, F.S.

600 South Calhoun Street, Suite 217
Tallahassee, FL 32399

(850) 617-7600

Certificate Number: AQ0123456

Issued to:

SAMPLE CERTIFICATE (Company Name)

Certificate Holder Name(s)

XXX Street Name

City, FL Zip Code

Facility Location:

Lease Only and/or Facility Location

XX-AQ-XXXX (Lease #s if applicable)

This certificate expires: June 30, 2024

Fee Paid:

THIS IS TO CERTIFY that the aquaculture operation shown above and its products have been registered per the requirements of the Florida Aquaculture Policy Act, Chapter 597, Florida Statutes.

Certification of this aquaculture operation in no way implies endorsement by the Florida Department of Agriculture and Consumer Services as to the quality or authenticity of this product, nor does it exclude this operation from having to obtain the required regulatory permits and/or licenses. Certification does acknowledge that the commodity is an agriculture product.



AQ Certificate



State of Florida
Aquaculture Certificate
of Registration

AQ1234567

EXP 6/30/24

Company Name

FirstName LastName

1234 Facility Lane, Tallahassee, FL 32399

12-AQ-3456

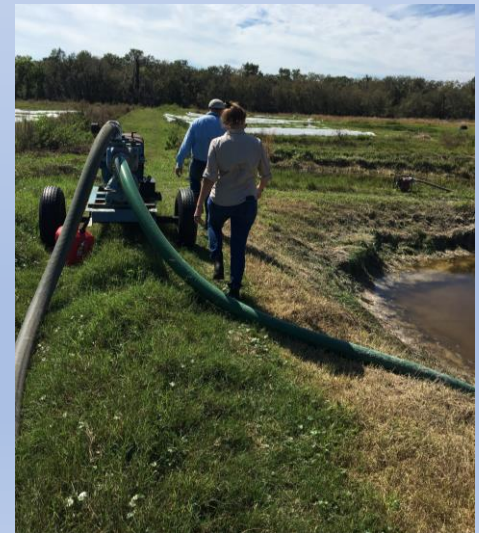
AQ Card

Routine Site Inspections

Periodic facility inspection

Inspectors confirm BMP compliance of:

- Animal type, source and containment
- Water source and flow
- Water discharge/effluent treatment
- Wetland and offsite impacts
- Documentation/Receipts
 - Species purchases, transfers
 - Health Records
 - Applicable permits/licenses
 - Sales invoices and receipts



Best Management Practices Manual Sections

- Compliance Monitoring
- Federal Permitting
- Water Resources
- Construction
- Containment
- Marine Net Pens and Cages
- Penaeid Shrimp Culture
- Sturgeon Culture
- Shellfish Culture
- Live Rock and Marine Life Culture
- Aquatic Plants
- Florida Largemouth Bass Culture
- Aquatic Organism Health Management
- Disposal of Dead Animals
- Preventing Wildlife Depredation
- Shipment, Transportation and Sales
- Aquatic Chemical and Drug Handling
- Aquatic Animal Welfare
- Appendix



BMPs for Shrimp Farms

- Water Resources
- Construction
- Containment
- Penaeid Shrimp Culture
- Aquatic Organism Health Management
- Disposal of Dead Animals
- Preventing Wildlife Depredation
- Shipment, Transportation and Sale
- Aquaculture Chemical and Drug Handling

Water Resources

- **Water Supply Considerations**

- Well Permit (new construction) – WMD or delegated agency
- CUP (consumptive use permit) – WMD

- **Saltwater Sources**

- Water Management District for permitting requirements
- Surface withdraw or well; trucked in/treated
- Saline water can not be discharged to freshwater environments
- When utilizing a near shore saline water source, the intake and discharge pipes should be located so as not to interfere with navigation.



Water Resources

- **Recirculating Water Systems**

- Effluent volume typically less than other production methods; nutrient concentration usually greater (Bioflac, multi-tropic systems)

- **Water Conservation & Reuse**

- Maintaining freeboard, perimeter ditches
- Water Reuse practices/Recirculation Systems

- **Effluent Management / Disposal**

- Percolation/retention of production water on site (if permissible)
- Waste Hauler
- Injection Well



Construction BMPs

- If not zoned “agriculture/ag use”
 - must comply with local construction & zoning regulations or obtain a variance
 - Local setbacks
- Wetlands Protection
- Elimination/Reduction of Wetland Impacts
- Floodplain Issues
- Excavated Pond BMPs / Fill removal



VIII. Penaeid Shrimp Culture BMPs



Penaeid Shrimp Containment

- All holding, transport, and culture systems at land-based facilities must be designed, operated and maintained to prevent the escape of cultured aquatic species
- Systems designed to accommodate rainfall events / prevent stormwater causing escape



Penaeid Shrimp Containment

- Selling or using live, nonnative penaeid shrimp as bait is prohibited
- Sales of live nonnative penaeid shrimp must be accompanied with a written statement informing the purchaser that selling or using live, nonnative penaeid shrimp as bait is prohibited and the release of nonnative species is prohibited by Rule 68-5.001, F.A.C.



Effluent Treatment

- Offsite discharge to waters of the state must:
 - comply with Effluent treatment BMPs (Chapter IV)
 - Sufficient mesh screening at all discharge control points
 - Use redundant barrier, containment or disinfecting procedures
 - Be approved to discharge



Penaeid Shrimp Health

- All live penaeid shrimp, regardless of life stage, sold to an aquaculture certified Florida facility/operator must be accompanied by diagnostic results from an accredited laboratory.
 - Diagnostic results are valid for 30 days following testing.
 - Diagnostic results must identify the type of tissue sampled, the type of test performed for each pathogen and the dates of such testing for all notifiable or reportable pathogens for penaeid shrimp as determined by the WOA, USDA APHIS VS or the State Veterinarian.



Current Pathogen List

- Acute hepatopancreatic necrosis disease (AHPND)
- Decapod iridescent virus 1 (DIV1/SHIV)
- Infectious hypodermal and haematopoietic necrosis (IHHNV)
- Infectious myonecrosis (IMNV)
- Necrotising hepatopancreatitis (Hepatobacter Penaei) (NHP)
- Taura syndrome (TSV)
- White spot disease (WSSV)
- Yellow head disease (YHV)



Penaeid Shrimp Health

(continued)

- All live penaeid shrimp, regardless of life stage, and gametes transferred to a certified Florida aquaculture facility must be accompanied by a signed Official Certificate of Veterinary Inspection (OCVI) from a licensed and accredited veterinarian.
 - An OCVI is a legible certificate made on an official form from the animal's state (or country) of origin, issued and signed by veterinarians licensed and accredited in the animal's state of origin for the purpose of certifying the test requirements and health status of specific animals for movement.
- OCVIs and diagnostic results must be submitted to FDACS for approval a minimum of two business days prior to shipment. Submit documents to FDACS via email at Aquaculture_Health@FDACS.gov



Penaeid Shrimp Health

(continued)

- Native shrimp obtained for broodstock must be isolated from the remaining stocks in the hatchery until their health status is verified.
- All health management documentation and records must be retained for at least two years by certified aquaculturists. These records will be made available for inspection by FDACS request.



Penaeid Shrimp Health

(continued)

- Certified aquaculturists and/or their aquatic animal health professional will notify the FDACS Division of Animal Industry, State Veterinarian's Office, at (850)-410-0900, or after hours at 1-800-342-5869, or by email at RAD@FDACS.gov in the event of a suspected or confirmed finding of any notifiable or reportable pathogen as determined by the World Organisation for Animal Health (WOAH), USDA APHIS VS, or the State Veterinarian. Reporting must be done within 24 hours of the suspicion of disease.



Additional BMPs

- Health Management
- Animal Welfare
- Disposal of Dead Animals
- Preventing Wildlife Depredation
- Chemical and Drug Handling



Aquaculture Product Labeling

- Aquaculture products must be identified with an Aquaculture Certificate of Registration number **while possessed, transported or sold from harvest to point of sale**.

Receipts, bills of sale, bills of lading or other such manifest must show:



BILL OF SALE

Must be fully completed

- Date of sale
- Name and address of seller
- Seller's Aquaculture Certificate of Registration Number (*if a FL aquaculture facility*)
- Name and address of purchaser
- Purchaser's Aquaculture Certificate of Registration Number (*if a FL aquaculture facility*)
- Species identification and quantity of the aquaculture product
- Product's origin



Aquaculture Product Labeling

Containers may have required information listed on an attached packing list, affixed with a tag, printed on box, etc.

- Aquaculture products must be transported in containers that separate aquaculture products from wild stocks. **597.004(4)(a), F.S.**
- Containers must be identified by tags or labels and contain the following information: **597.004(4)(b), F.S.**
 - Source location
 - Name and address
 - AQ number
 - Species identification
 - Quantity in container
 - Date of Harvest



Administrative Actions for Non-compliance

Rule 5L-3.007

- Facilities/producers found to be in violation of BMP rules require corrective action.
- Minor issues often corrected while inspector onsite.
- Notice of Non-Compliance (NNC) issued typically as first step.
- If not resolved within 60 days, further administrative action taken, including fines and/or revocation of certificate.



Summary

- Florida Aquaculture
- **Aquaculture Certificate of Registration and Best Management Practices (BMP) Program**
- BMPs for Shrimp Farms



Serina Rocco

**Environmental Administrator
FDACS-Division of Aquaculture**

Serina.Rocco@FDACS.gov

<https://www.fdacs.gov/Divisions-Offices/Aquaculture>

QUESTIONS???

