# Shrimp Farm Inspection Protocol

| HACCP Step 1 - Activity Description | |
|---|---|
| **Facility**:<br>CCA/CPL Marine Development Center | **Site**:<br>Fish Hatchery |
| **Project Coordinator**:<br>Robert Adami | **Project Description**:<br>Exotic Shrimp Farm Inspections |
| **Site Manager**:<br>Robert Vega | |
| **Address**:<br>4300 Waldron Rd.<br>Corpus Christi, Texas 78418 | |
| **Phone**:<br>361-939-8745 | |

| **Project Description**<br>**(Who, What, Where, When, How & Why)** |
|---|
| Texas Parks and Wildlife Department (TPWD) routinely inspects exotic shrimp farm operations to inspect shrimp for diseases and viruses. TPWD inspects shrimp at least two times per year, or more if the facility is discharging effluent into public waters. A minimum of 50 shrimp are inspected on site at the privately owned facilities to verify disease free status before effluent can be discharged into state waters. |

# Shrimp Farm Inspection Protocol

| HACCP Step 2 - Potential Hazard Identification |
| --- |
| **Vertebrates:** |
| **Invertebrates**:<br>exotic species |
| **Plants:** |
| **Other Biologics**:<br>diseases |
| **Others:** |

# Shrimp Farm Inspection Protocol

## HACCP Step 3 - Flow Diagram

| | |
|---|---|
| **Task # 1** | Inspect hatchery post larvae |

| | |
|---|---|
| **Task # 2** | Raceways/ponds are stocked with exotic species |

| | |
|---|---|
| **Task # 3** | Inspect shrimp in raceways/ponds once shrimp are greater than 1 gram in weight |

| | |
|---|---|
| **Task # 4** | Inspect screens in raceways/ponds if the facility wants to discharge water from the facility |

| | |
|---|---|
| **Task # 5** | Inspect shrimp in raceways/ponds before harvest |

| | |
|---|---|
| **Task # 6** | Ensure harvest equipment is escape proof |

| | |
|---|---|
| **Task # 7** | Harvest shrimp to slush ice container |

# Shrimp Farm Inspection Protocol

| HACCP Step 4 - Hazard Analysis | | | | | |
|---|---|---|---|---|---|
| **Task** | **Hazard** | **Probable?** | **Justification** | **Control Measures** | **CCP?** |
| Inspect hatchery post larvae | Other Biologic: diseases | Yes | Possibly contaminated post larval shrimp in the hatchery. | Post larval shrimp are contained in escape proof tanks/raceways. | Yes |
| | Invertebrate: exotic species | Yes | Since exotic shrimp are being cultured, chance for escapement exist. | Ensure containment screens are not damaged and/or standpipes are leak proof. | Yes |
| Raceways/ponds are stocked with exotic species | Other Biologic: diseases | Yes | Diseases may already be present in the stock and/or diseases could be brought in by birds or water. | Monitor shrimp stock as they grow to different stages of development. | Yes |
| | Invertebrate: exotic species | Yes | Exotic shrimp are stocked in the raceways/ponds. | Monitor the screens routinely during the day. | Yes |
| Inspect shrimp in raceways/ponds once shrimp are greater than 1 gram in weight | Other Biologic: diseases | Yes | Diseases could potentially arise at any time during the culture cycle. | Try and keep birds away and monitor screens to ensure adequate protection is maintained. | Yes |
| | Invertebrate: exotic species | Yes | Exotic species are probable in all stages of the pond | Ensure screen size is smaller than specimen size at | Yes |

# Shrimp Farm Inspection Protocol

| | | | | | |
|---|---|---|---|---|---|
| | | | culture cycle. | each phase of culture. | |
| Inspect screens in raceways/ponds if the facility wants to discharge water from the facility | Other Biologic: diseases | Yes | Shrimp can harbor diseases at any phase of production. | Monitor shrimp activity and maintain secure pond screens. | Yes |
| | Invertebrate: exotic species | Yes | Exotic species are being cultured. | Ensure drain valves are shut and secure and pond screens are secure and undamaged. | Yes |
| Inspect shrimp in raceways/ponds before harvest | Other Biologic: diseases | Yes | Exotic shrimp may contract diseases at any time. | Inspect shrimp for established clinical signs of disease. | Yes |
| | Invertebrate: exotic species | Yes | Exotic shrimp can contract diseases at any time during the culture period. | Ensure containment screens are in place and undamaged. | Yes |
| Ensure harvest equipment is escape proof | Other Biologic: diseases | Yes | Exotic shrimp can contract diseases at anytime during the culture period. | Ensure harvester is secure and there is no damage to the screens or any part of the harvesting machine. | Yes |
| | Invertebrate: exotic species | Yes | Exotic shrimp are held throughout the culture period. | Ensure all equipment is escape proof. | Yes |
| Harvest shrimp to | Other Biologic: diseases | Yes | Exotic shrimp can | Shrimp can be | Yes |

| | | | | | |
|---|---|---|---|---|---|
| slush ice container | | | harbor diseases at any time during the production and harvest cycle. | random sampled as they go into the slush ice filled transport tote. | |
| | Invertebrate: exotic species | Yes | Exotic shrimp are in the culture pond. | Ensure harvester drops shrimp into the slush ice container and not onto the ground or drain canal area. | Yes |

# Shrimp Farm Inspection Protocol

## HACCP Step 5 - HACCP Plan

### Critical Control Point #1:
### Task # 1: Inspect hatchery post larvae

**Significant Hazards:**
Other Biologic: diseases

**Control Measures:**
Post larval shrimp are contained in escape proof tanks/raceways.

**Limits for Control Measures**:
Collect  50 post larval shrimp from each culture unit.

**Monitoring: What?**
Monitoring for shrimp diseases of concern.

**Monitoring: How?**
Physical collection of 50 shrimp from each culture unit are collected and submitted to the Texas Veterinary Medical Diagnostic Laboratory for diseases of concern.

**Monitoring: Frequency?**
Once a month.

**Monitoring: Who?**
Shrimp inspector

**Evaluation & Corrective Actions**:
If there is a disease, the facility is immediately put under quarantine.

**Supporting Documentation**: TPWD department rules and regulations.

### Critical Control Point #2:
### Task # 1: Inspect hatchery post larvae

**Significant Hazards:**
Invertebrate: exotic species

**Control Measures:**
Ensure containment screens are not damaged and/or standpipes are leak proof.

**Limits for Control Measures**:
Collect  50 post larval shrimp from each culture unit.

**Monitoring: What?**
Monitoring for shrimp diseases of concern.

**Monitoring: How?**
Physical collection of 50 shrimp from each culture unit are collected and submitted to the Texas Veterinary Medical Diagnostic Laboratory for diseases of concern.

**Monitoring: Frequency?**
Once a month.

**Monitoring: Who?**
Shrimp inspector

**Evaluation & Corrective Actions**:

If there is a disease, the facility is immediately put under quarantine.

**Supporting Documentation**: TPWD department rules and regulations.

## Critical Control Point #3:
## Task # 2: Raceways/ponds are stocked with exotic species

**Significant Hazards:**
Other Biologic: diseases

**Control Measures:**
Monitor shrimp stock as they grow to different stages of development.

**Limits for Control Measures**:
Monitor for diseases.

**Monitoring: What?**
Shrimp are visually inspected.

**Monitoring: How?**
Visual inspection of the shrimp, pond side, 50 per pond.

**Monitoring: Frequency?**
Monitor shrimp when they get to 1 gram, when they want to exchange water, and at harvest.

**Monitoring: Who?**
Inspector

**Evaluation & Corrective Actions**:
Facility can be quarantined.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #4:
## Task # 2: Raceways/ponds are stocked with exotic species

**Significant Hazards:**
Invertebrate: exotic species

**Control Measures:**
Monitor the screens routinely during the day.

**Limits for Control Measures**:
Check screens for any defects, holes, weakness, etc.

**Monitoring: What?**
Screening material is inspected.

**Monitoring: How?**
Visual inspection of the screening material.

**Monitoring: Frequency?**
Screens are checked as the shrimp are inspected.

**Monitoring: Who?**

Inspector

**Evaluation & Corrective Actions**:
Pond draining can not start until screens are properly maintained.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #5:
## Task # 3: Inspect shrimp in raceways/ponds once shrimp are greater than 1 gram in weight

**Significant Hazards:**
Other Biologic: diseases

**Control Measures:**
Try and keep birds away and monitor screens to ensure adequate protection is maintained.

**Limits for Control Measures**:
Check shrimp health when they attain 1 gram weight.

**Monitoring: What?**
Shrimp are visually inspected for visible signs of disease and behavior.

**Monitoring: How?**
The shrimp are visually inspected.

**Monitoring: Frequency?**
Once shrimp reach the 1 gram mark, when the ponds need to be drained and at harvest.

**Monitoring: Who?**
Inspector

**Evaluation & Corrective Actions**:
The facility can be quarantined.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #6:
## Task # 3: Inspect shrimp in raceways/ponds once shrimp are greater than 1 gram in weight

**Significant Hazards:**
Invertebrate: exotic species

**Control Measures:**
Ensure screen size is smaller than specimen size at each phase of culture.

**Limits for Control Measures**:
Check shrimp health when they attain 1 gram weight.

**Monitoring: What?**
Pond screens are inspected to see if proper size for size of shrimp being cultured.

**Monitoring: How?**
Screen is checked to ensure no escapements are possible.

**Monitoring: Frequency?**
Screens are checked when shrimp are being inspected.

**Monitoring: Who?**
Inspector

**Evaluation & Corrective Actions**:
The facility can be quarantined.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #7:
## Task # 4: Inspect screens in raceways/ponds if the facility wants to discharge water from the facility

**Significant Hazards:**
Other Biologic: diseases

**Control Measures:**
Monitor shrimp activity and maintain secure pond screens.

**Limits for Control Measures**:
Check screens for breaks, weakness prior to discharge.

**Monitoring: What?**
Screens are monitored to ensure no escapements are possible.

**Monitoring: How?**
Visual inspections while shrimp are being inspected.

**Monitoring: Frequency?**
The screens are checked when an inspection is requested due to the need of water exchanges.

**Monitoring: Who?**
Inspector.

**Evaluation & Corrective Actions**:
The facility can be quarantined.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #8:
## Task # 4: Inspect screens in raceways/ponds if the facility wants to discharge water from the facility

**Significant Hazards:**
Invertebrate: exotic species

**Control Measures:**
Ensure drain valves are shut and secure and pond screens are secure and undamaged.

# Shrimp Farm Inspection Protocol

**Limits for Control Measures**:
Ensure drain valves are shut and secure and ponds screens are secure and undamaged.

**Monitoring: What?**
Valves are shut and pond screens are secure prior to inspections.

**Monitoring: How?**
Visual inspections prior to inspections.

**Monitoring: Frequency?**
The screens, valves are checked prior to an inspection before water exchanges can take place.

**Monitoring: Who?**
Inspector.

**Evaluation & Corrective Actions**:
The facility can be quarantined.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #9:
## Task # 5: Inspect shrimp in raceways/ponds before harvest

**Significant Hazards:**
Other Biologic: diseases

**Control Measures:**
Inspect shrimp for established clinical signs of disease.

**Limits for Control Measures**:
Inspect shrimp for established clinical signs of disease.

**Monitoring: What?**
Shrimp are checked for clinical signs of disease.

**Monitoring: How?**
Visual inspection.

**Monitoring: Frequency?**
Shrimp are inspected once they attain a one gram weight, prior to water exchanges and/or harvest.

**Monitoring: Who?**
Inspector

**Evaluation & Corrective Actions**:
The facility can be quarantined.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #10:
## Task # 5: Inspect shrimp in raceways/ponds before harvest

**Significant Hazards:**

Invertebrate: exotic species

**Control Measures:**
Ensure containment screens are in place and undamaged.

**Limits for Control Measures**:
Ensure containment screens are in place and undamaged prior to harvest.

**Monitoring: What?**
Pond screens are checked to prevent escapement.

**Monitoring: How?**
Visual inspection.

**Monitoring: Frequency?**
Screens are inspected before a pond can be harvested.

**Monitoring: Who?**
Inspector

**Evaluation & Corrective Actions**:
The facility can be quarantined.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #11:
## Task # 6: Ensure harvest equipment is escape proof

**Significant Hazards:**
Other Biologic: diseases

**Control Measures:**
Ensure harvester is secure and there is no damage to the screens or any part of the harvesting machine.

**Limits for Control Measures**:
Ensure harvest equipment is secure and undamaged.

**Monitoring: What?**
Equipment is checked to prevent escapement.

**Monitoring: How?**
Equipment is monitored prior to harvest.

**Monitoring: Frequency?**
Equipment is monitored before and during the harvest.

**Monitoring: Who?**
Inspector/Owner-Manager

**Evaluation & Corrective Actions**:
Harvest can be stopped immediately.

**Supporting Documentation**: TPWD rules and regulations.

## Critical Control Point #12:

# Shrimp Farm Inspection Protocol

## Task # 6: Ensure harvest equipment is escape proof

**Significant Hazards:**
Invertebrate: exotic species

**Control Measures:**
Ensure all equipment is escape proof.

**Limits for Control Measures**:
Ensure harvest equipment is secure and undamaged.

**Monitoring: What?**
Equipment is checked to prevent escapement.

**Monitoring: How?**
Equipment is monitored prior to harvest.

**Monitoring: Frequency?**
Equipment is monitored before and during the harvest.

**Monitoring: Who?**
Inspector/Owner-Manager

**Evaluation & Corrective Actions**:
Harvest can be stopped immediately.

**Supporting Documentation**: TPWD rules and regulations.

## **Critical Control Point** #13:
## Task # 7: Harvest shrimp to slush ice container

**Significant Hazards:**
Other Biologic: diseases

**Control Measures:**
Shrimp can be random sampled as they go into the slush ice filled transport tote.

**Limits for Control Measures**:
Shrimp can be randomly sampled as they enter the slush ice totes.

**Monitoring: What?**
Shrimp are inspected for diseases.

**Monitoring: How?**
Visual inspection as shrimp enter the ice tote.

**Monitoring: Frequency?**
Shrimp can be randomly checked as the harvest is going on.

**Monitoring: Who?**
Inspector/Owner-Manager

**Evaluation & Corrective Actions**:
Facility can be quarantined.

**Supporting Documentation**: TPWD rules and regulations.

# Shrimp Farm Inspection Protocol

| |
|---|
| **Critical Control Point** #14:<br>Task # 7: Harvest shrimp to slush ice container |
| **Significant Hazards:**<br>Invertebrate: exotic species |
| **Control Measures:**<br>Ensure harvester drops shrimp into the slush ice container and not onto the ground or drain canal area. |
| **Limits for Control Measures**:<br>Ensure harvest machine drops shrimp into the ice totes and not the ground or near discharge area. |
| **Monitoring: What?**<br>Harvest machine drop tube is placed inside of the ice tote and secured. |
| **Monitoring: How?**<br>Visual inspection of the drop tube at the tote. |
| **Monitoring: Frequency?**<br>Drop tube can be monitored throughout the harvest. |
| **Monitoring: Who?**<br>Inspector/Owner-Manager |
| **Evaluation & Corrective Actions**:<br>The harvest can be stopped until drop tube is secured. |
| **Supporting Documentation**: TPWD rules and regulations. |
| |
| |

| | |
|---|---|
| **Facility**:<br>CCA/CPL Marine Development Center | **Activity**:<br>Exotic Shrimp Farm Inspections |
| **Address**:<br>4300 Waldron Rd.<br>Corpus Christi, Texas 78418 | |
| **Signature**: | **Date**: |

# Shrimp Farm Inspection Protocol

## HACCP Checklist:
## Exotic Shrimp Farm Inspections

**Facility** CCA/CPL Marine Development Center

**Site** Fish Hatchery

**Coordinator** Robert Adami

**Manager** Robert Vega

**Address** 4300 Waldron Rd., Corpus Christi, Texas 78418

☐ **Task # 1: Inspect hatchery post larvae**
**CRITICAL CONTROL POINT**

- ☐ Hazards were contained
  Hazards: Other Biologic: diseases
- ☐ Control measures were implemented
  Control Measures: Post larval shrimp are contained in escape proof tanks/raceways.
- ☐ Control limits were maintained
  Control Limits: Collect 50 post larval shrimp from each culture unit.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: If there is a disease, the facility is immediately put under quarantine.

- ☐ Hazards were contained
  Hazards: Invertebrate: exotic species
- ☐ Control measures were implemented
  Control Measures: Ensure containment screens are not damaged and/or standpipes are leak proof.
- ☐ Control limits were maintained
  Control Limits: Collect 50 post larval shrimp from each culture unit.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: If there is a disease, the facility is immediately put under quarantine.

☐ **Task # 2: Raceways/ponds are stocked with exotic species**
**CRITICAL CONTROL POINT**

- ☐ Hazards were contained
  Hazards: Other Biologic: diseases
- ☐ Control measures were implemented
  Control Measures: Monitor shrimp stock as they grow to different stages of development.
- ☐ Control limits were maintained
  Control Limits: Monitor for diseases.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: Facility can be quarantined.

- ☐ Hazards were contained
  Hazards: Invertebrate: exotic species
- ☐ Control measures were implemented
  Control Measures: Monitor the screens routinely during the day.
- ☐ Control limits were maintained
  Control Limits: Check screens for any defects, holes, weakness, etc.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: Pond draining can not start until screens are properly maintained.

☐ **Task # 3: Inspect shrimp in raceways/ponds once shrimp are greater than 1 gram in weight**
**CRITICAL CONTROL POINT**

- ☐ Hazards were contained
  Hazards: Other Biologic: diseases
- ☐ Control measures were implemented
  Control Measures: Try and keep birds away and monitor screens to ensure adequate protection is maintained.
- ☐ Control limits were maintained
  Control Limits: Check shrimp health when they attain 1 gram weight.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: The facility can be quarantined.

- ☐ Hazards were contained
  Hazards: Invertebrate: exotic species

- ☐ Control measures were implemented
  Control Measures: Ensure screen size is smaller than specimen size at each phase of culture.
- ☐ Control limits were maintained
  Control Limits: Check shrimp health when they attain 1 gram weight.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: The facility can be quarantined.

☐ **Task # 4: Inspect screens in raceways/ponds if the facility wants to discharge water from the facility**
**CRITICAL CONTROL POINT**

- ☐ Hazards were contained
  Hazards: Other Biologic: diseases
- ☐ Control measures were implemented
  Control Measures: Monitor shrimp activity and maintain secure pond screens.
- ☐ Control limits were maintained
  Control Limits: Check screens for breaks, weakness prior to discharge.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: The facility can be quarantined.

- ☐ Hazards were contained
  Hazards: Invertebrate: exotic species
- ☐ Control measures were implemented
  Control Measures: Ensure drain valves are shut and secure and pond screens are secure and undamaged.
- ☐ Control limits were maintained
  Control Limits: Ensure drain valves are shut and secure and ponds screens are secure and undamaged.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: The facility can be quarantined.

☐ **Task # 5: Inspect shrimp in raceways/ponds before harvest**
**CRITICAL CONTROL POINT**

- ☐ Hazards were contained

Hazards: Other Biologic: diseases

- ☐ Control measures were implemented
  Control Measures: Inspect shrimp for established clinical signs of disease.
- ☐ Control limits were maintained
  Control Limits: Inspect shrimp for established clinical signs of disease.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: The facility can be quarantined.

- ☐ Hazards were contained
  Hazards: Invertebrate: exotic species
- ☐ Control measures were implemented
  Control Measures: Ensure containment screens are in place and undamaged.
- ☐ Control limits were maintained
  Control Limits: Ensure containment screens are in place and undamaged prior to harvest.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: The facility can be quarantined.

☐ **Task # 6: Ensure harvest equipment is escape proof CRITICAL CONTROL POINT**

- ☐ Hazards were contained
  Hazards: Other Biologic: diseases
- ☐ Control measures were implemented
  Control Measures: Ensure harvester is secure and there is no damage to the screens or any part of the harvesting machine.
- ☐ Control limits were maintained
  Control Limits: Ensure harvest equipment is secure and undamaged.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: Harvest can be stopped immediately.

- ☐ Hazards were contained
  Hazards: Invertebrate: exotic species
- ☐ Control measures were implemented

Control Measures: Ensure all equipment is escape proof.

- ☐ Control limits were maintained
  Control Limits: Ensure harvest equipment is secure and undamaged.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: Harvest can be stopped immediately.

☐ **Task # 7: Harvest shrimp to slush ice container**
**CRITICAL CONTROL POINT**

- ☐ Hazards were contained
  Hazards: Other Biologic: diseases
- ☐ Control measures were implemented
  Control Measures: Shrimp can be random sampled as they go into the slush ice filled transport tote.
- ☐ Control limits were maintained
  Control Limits: Shrimp can be randomly sampled as they enter the slush ice totes.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: Facility can be quarantined.

- ☐ Hazards were contained
  Hazards: Invertebrate: exotic species
- ☐ Control measures were implemented
  Control Measures: Ensure harvester drops shrimp into the slush ice container and not onto the ground or drain canal area.
- ☐ Control limits were maintained
  Control Limits: Ensure harvest machine drops shirmp into the ice totes and not the ground or near discharge area.
- ☐ Corrective actions were (performed if necessary)
  Corrective Actions: The harvest can be stopped until drop tube is secured.