**Molluscan Shellfish Tank Hazard Analysis Critical Control Point (HACCP) Plan**

Company: ABC Restaurant

123 Main Street

King County, WA

* Variance request – submitted with fee and completed HACCP plan

HACCP plan must include:

* Operating Standards
* HACCP worksheet identifying hazards
* Critical Control Points established with corrective action procedures
* Daily record keeping log sheet
* Design diagram of shellfish tank
* Provide UV light specifications based on tank size and water flow rate

**Live Molluscan Shellfish Tank Operating Standards**

**Receiving & Handling Molluscan Shellfish**

* ***Approved Source***: Shellfish must be obtained from an approved source, be properly tagged, transported at an ambient temperature of 45°F, and received with an internal temperature of 50°F or less.
* ***Shellstock Condition***: Shellstock must be living, clean, free of mud, and have no broken shells. Dead shellfish that do not close their shells when tapped or shellfish with broken shells must be discarded.
* ***Commingling***:
  + Tanks must be washed, rinsed, and sanitized using routine food contact surface sanitizers before use or after being used for anything other than storing molluscan shellstock.
  + Molluscan shellfish must not be stored in the same tank with any other fish including crustacean such as lobsters, crabs, and shrimp.
  + Different lots of molluscan shellfish with different shipper’s tags, harvest dates, or harvest areas cannot be stored in the same tank unless they are in separate containers such as mesh bags and are identifiable so they can be properly traced through their shellfish tags.

**Operation and Maintenance**

* ***Operation Manual***: The food establishment must have an operation manual, maintenance instructions, and maintenance logs. If these are not available from the tank manufacturer or maintenance company, the operator must prepare the materials following available guidance.
* ***Staff Training:*** Procedures for cleaning the tank, filters, and UV disinfection system must be provided.
* ***Chemicals***: Any substances added to the tank water, such as defoamers, must be food grade and used according to label directions.
* ***UV Disinfection System***: The UV disinfection system is one of the primary critical control points when using a wet storage tank. For this reason, ensure:
  + The UV light is labeled to indicate the date the bulb must be changed. Bulbs should be changed at least once a year unless manufacturer directions state otherwise.
  + A spare UV bulb is readily available in case the bulb fails prematurely.
  + The UV disinfection system is cleaned every 8 weeks or according to specifications.
  + The UV wattage is matched to the proper flow rate to ensure efficient disinfection.
* ***Source Water****:* Saltwater used in the tank must be from an approved shellfish growing areaor made using potable water from an approved public water system and mixed with commercial marine salts. Water, nets, or other equipment from tanks used to store other fish must not enter the shellstock wet storage tank.

***Daily Maintenance***

* Check that the water temperature in the tank is 45°F or colder.
* Visual check to ensure the UV bulb is operational.
* Check the water quality to see if it is cloudy, foamy, or colored. Tank water should be clear.
* Remove any dead shellstock from the tank.
* Record information as required on monitoring log including any needed corrective action.

***Weekly Maintenance***

* Clean the tank once a week, or according to manufacturer or maintenance company specifications. This does not require the removal of shellstock as effective cleaning can be done with shellstock in the tank. Partial (50%) water changes should be done weekly, with water being replaced with new saltwater.
* Bio filters and filter pads should be gently rinsed with saltwater to remove particles. Carbon filters should be replaced.
* Check the remaining hours of life on the UV bulb.

**Live Molluscan Shellfish Tank - HACCP Worksheet**

Company: ABC Restaurant

123 Main St King County, WA

The hazards in molluscan shellfish tanks are primarily biological and include Vibrio species and norovirus. These hazards are a concern because molluscan shellfish are filter feeders and can accumulate pathogenic microorganisms present in water.

Critical Control Points, (CCPs) identify the most important food safety controls measures.

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| **Critical**  **Control**  **Point (CCP)** | **Significant**  **Hazard(s)** | **Critical Limits**  **for each Control**  **Point** | **What** | **How** | **Frequency** | **Who** | **Corrective Action(s)** | **Record Keeping** | **Verification** |
| Water Temperature **CCP1** | **Biological/**  **Bacterial**  Vibrio  parahaemolyticus | 45 F degrees or below | Water Temp | Tank Thermometer | Daily | Food Worker | Lower temp, inspect product. Call for maintenance if temp doesn’t normalize.  Relocate product to working cooler. | Daily  Shellfish Tank Log | Weekly |
| UV light  **CCP2** | **Biological/Viral**  Norovirus | UV light must be always on | Check Light | Visual Inspection | Daily | Food Worker | Replace Bulb | Daily  Shellfish Tank Log | Weekly |

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| **The following items must be in the tank design:**  **Input Line**  To avoid backflow, hoses or other input lines cannot be submerged in tank water.  **Wet Storage Tank**  The tank must be durable, non-absorbent, non-toxic, and easily cleanable. There should be no plumbing dead ends that would inhibit cleaning and disinfection. The tank must provide at least 100 gallons water per 75 pounds of shellstock. Water pump flow rate must not exceed the maximum flow rate listed by the UV bulb manufacturer.  **Filter**  Water must flow through filters prior to entering the UV disinfection system. Make sure filters are installed before the UV system and are in this order:  • Mechanical Filtration:  • Biological Filtration:  • Chemical Filtration:  **Ultraviolet (UV) Light**  UV light disinfects water, destroying bacteria and viruses present. It cannot penetrate cloudy water, so clean, effectively filtered water is important.  Provide UV light specifications based on tank size and water flow rate.  **Chiller**  Maintains tank water ≤45°F to slow pathogen growth.  **Protein Skimmer** (optional)  Removes protein-containing foam from the water.  **Aeration Unit**  Bubbles air into the tank water to keep the molluscan shellfish alive.  **Consumer Advisory**  Needs to be placed on or near the tank. |

Molluscan Shellfish Tank Diagrams

**Outgoing water line**

**Molluscan** **Air Gap**  **Pump**

**Shellfish** **Water Chiller**

**Tank**

**UV Sterilizer**

**Bio Filter in** **Incoming water line**

**Bottom of tank**

**Thermostat Line**

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**Live Molluscan Shellfish Tank – Temperature & UV Light Daily Log Sheet**

**Instructions**: A designated foodservice employee will record the water temperature and check to ensure the UV light is on, take corrective action if needed and initial this log sheet daily. The foodservice manager will verify monitoring is being done by initialing and dating this log. Record log sheets to be kept on file at least 6 months and available for review upon request by Public Health.

Month: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Year: \_\_\_\_\_\_\_\_

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| Date | Time | Water Temp ≤ 45°F | UV Light is ON | Food Worker | Corrective Action | Manager Review Date |
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**Corrective Actions:**

* Temperature above 45°F - Adjust thermostat on chiller and recheck water temperature, if still above 45°F relocate product to working cooler and contact manager to have unit serviced.
* UV Light not on or unit not working - Replace nonfunctional light bulb in unit, order an additional replacement bulb.