

Natural Energy Laboratory of Hawaii Authority



## **NELHA AQUATIC SPECIES HEALTH MANAGEMENT PROGRAM**

**Biosecurity Policies and Guidelines for Businesses and Organizations Operating at  
the Hawaii Ocean Science and Technology Park**

**v. 7.0  
March 2016**

**AQUATIC SPECIES HEALTH MANAGEMENT PROGRAM  
(ASHMP)**

**Biosecurity Policies and Guidelines  
for  
Businesses and Organizations Operating at the  
Hawaii Ocean Science and Technology Park**

**Version 7.0**



**Natural Energy Laboratory of Hawaii Authority  
Kailua-Kona, Hawaii**

**March 2016**

# NELHA AQUATIC SPECIES HEALTH MANAGEMENT PROGRAM

## Table of Contents

<b>1. Purpose and Goals .....</b>	<b>4</b>
<b>2. Objectives.....</b>	<b>4</b>
<b>3. Implementation Process .....</b>	<b>5</b>
<b>4. Policies for Aquatic Species Health Management .....</b>	<b>8</b>
<b>5. Guidelines for Management and Documentation of Aquatic Species Health .....</b>	<b>10</b>
<b>6. Disease Event .....</b>	<b>13</b>
<b>Appendix A.....</b>	<b>14</b>
<b>Appendix B.....</b>	<b>16</b>

# NELHA AQUATIC SPECIES HEALTH MANAGEMENT PROGRAM

## 1. Purpose and Goals

The Natural Energy Laboratory of Hawaii Authority (NELHA) strongly believes it is in the best interest of all businesses in Hawaii Ocean Science and Technology Park (HOST Park) to maintain a high quality and quarantine environment. Central to environmental quality is the maintenance and management of the health of the aquatic animals, plants, and microorganisms grown at the facility for research and commercial purposes. NELHA is responsible to the State, County of Hawaii and all businesses and organizations in the park to maintain awareness of the aquatic species being transported onto the site and between tenant sites, as well as the health status of species being cultured at each facility.

The goal of this Aquatic Species Health Management Program (ASHMP) is to:

- 1.1 Establish a policy and procedural framework to reduce the risk and prevent the introduction of harmful pathogens into the facility and tenant properties from outside sources.
- 1.2 Establish basic tenant guidelines for the documentation and maintenance of animal health, including specific sanitation procedures.
- 1.3 Elaborate certain requirements and guidelines for action and containment in case of a disease event.

It is important to realize that the risk of infectious disease outbreaks by introduction or on site epidemics can never be reduced to zero. There will always be some risk associated with each new introduction, as well as with ongoing operations. Therefore, it is essential that NELHA businesses and organizations adopt their own comprehensive health management program specific to the organisms they are culturing on their property. To minimize the risk of infectious diseases and their potential negative impacts, these health management practices should be a continuing part of each tenant's everyday operations.

## 2. Objectives

NELHA desires to have tenants maintain high standards of aquatic animal and plant health on all sites. NELHA believes that the maintenance of such standards will help optimize the profitability and reduce the production costs of all aquaculture operations at the facility, while maintaining the desired environmental quality. Cooperating and

complying with the ASHMP can be expected to achieve the following mutually desirable objectives:

- 2.1 Assist in protecting tenant aquaculture businesses from the risk of infectious disease.
- 2.2 Minimize the need for State regulatory actions that could result from the introduction of infectious diseases.
- 2.3 Assist in optimizing profitability and production efficiency, and minimizing operating costs by maintaining healthy stocks.
- 2.4 Minimize the occurrence, spread, and impact of any infectious animal or plant diseases between project sites.
- 2.5 Contribute to the maintenance of high environmental health standards and water quality at the facility.
- 2.6 Allow same-species and different species businesses to coexist.
- 2.7 Maintain NELHA's status as a quarantinable facility for importation of regulated species and as an environmentally compatible location for aquaculture business development.
- 2.8 Protect the marketability of HOST Park and the products produced therein.
- 2.9 Maintain NELHA's status as an approved special pathogen free (SPF) facility for shrimp. Additional detailed guidelines for any business or organization holding or growing shrimp at HOST Park are listed in Appendix B.

### **3. Implementation Process**

NELHA's ASHMP biosecurity polices are overseen by the Biosecurity Officer. The BSO shall monitor NELHA's and the tenant's implementation of the ASHMP disease control and elimination protocols. The specific responsibilities and activities of BSO shall be as follows:

- 3.1 Review written requests from tenants to import of any regulated plants or animals. After review of biosecurity risk and neighboring tenant comments, respond in writing as to approval or denial of these requests.

- 3.2 Review and verify that tenant BMP's are in conformance with NELHA biosecurity policies prior to approval of the importation of any regulated plants or animals to NELHA which require DoA approval.
- 3.3 Review and approve tenant site design to assure conformance with NELHA biosecurity policies prior to arrival of any regulated plants or animals at NELHA that require Hawaii Department of Agriculture (DoA) approval.
- 3.4 Act as the point of contact for DoA with regard to biosecurity issues.
- 3.5 Accompany DoA official(s) during initial site visit prior to any regulated species shipments to assure facility design is in compliance with permit requirements and conditions
- 3.6 Collect and maintain records of tenant's import (regulated plants, animals and feedstock) permit applications, permits, periodic test reports and onsite inspections on an ongoing basis.
- 3.7 Obtain tenant written agreement that they will follow and maintain compliance with the NELHA ASHMP rules and regulations prior to the importation of any regulated plants or animals to NELHA.
- 3.8 Review DoA importation permit, document, and approve all transfers of regulated plants and animals between sites at NELHA and between tenants at NELHA prior to actual transfer.
- 3.9 Accompany DoA Plant Quarantine Branch (PQB) official(s) during facility site inspections for Import or Possession Permit compliance verification.
- 3.10 In the case of shrimp, accompany DoA Animal Disease Control (ADC) officials(s) on tenant site visits to obtain samples of shrimp tissue for disease analysis testing and verification of health status. NELHA BSO may be trained and delegated by ADC to obtain shrimp tissue samples for disease analysis. Additional information regarding the Hawaii Shrimp Surveillance & Certification Program (HSSCP) is available at the [Hawaii Department of Agriculture](#).
- 3.11 In the case of shrimp, conduct bi-annual review of tenants records, BMP's, etc. Depending on timing, this may be performed in conjunction with ADC HSSCP testing.
- 3.12 Monitor NELHA vector exclusion activities such as trapping of feral vertebrates.
- 3.13 Responsible for monitoring NELHA and tenant solid waste management plans as they pertain to biosecurity including waste and mortalities.

- 3.14 Monitor and respond to unusual morbidity and mortality events. Report severe events to ADC and PQB officials. Maintain confidentiality of these events between tenant, NELHA and DOA until test results have been confirmed.
- 3.15 In the case of shrimp, notify other shrimp growers at NELHA that DoA has confirmed the presence of an OIE listed crustacean disease and that transfers of shrimp are temporarily prohibited between tenants until USDA and DoA mandated disease response has been implemented and the diseased site has been decontaminated.
- 3.16 In the event of a confirmed shrimp disease outbreak, order the immediate screening of all shrimp stocks at NELHA by ADC HSSCP.
- 3.17 Work closely with DoA and U.S. Department of Agriculture (USDA) APHIS to coordinate response to reported infection outbreaks. In case of a reported infection outbreak, inspection of treated sites post-infection and verification of cleanup measures will be completed.

The State Department of Agriculture (DOA) has the statutory authority over importation of aquatic species into the State of Hawaii (Chapter 150 HRS as amended and Title 4-71 HRS as amended). The species importation permit process administered by DOA's Plant Quarantine Branch (DOA - PQB) specifies the procedures for introduction and transfer of organisms and the specific conditions for culture (e.g. containment of species and disposal of water). The second tier of review for importation of aquatic species (native & non-native) into NELHA are the provisions of the site agreement (FUA, FRA, Sub-Lease) signed by each tenant operating at the facility. Each agreement should specify by scientific name all aquatic animals and plants under cultivation at each tenant site. Tenants are responsible for obtaining permission from NELHA in advance of proposed changes to the species composition of their site, entry onto the site of all regulated species, and any changes to the disease free status of the site. Failure to comply with these responsibilities and requirements may lead to termination of the lease agreement with NELHA.

NELHA will maintain a confidential (to the extent permitted by law), computerized database for managing this program and tracking all DOA permits issued to tenants. A site facility map will be regularly updated to indicate "at a glance", where each aquatic species is located on the NELHA property. In order to maintain the high health and quarantine environment that presently exists at NELHA and achieve the overall program objectives, the NELHA Board of Directors has adopted the following policies and guidelines for implementation by NELHA staff.

#### **4. Policies for Aquatic Species Health Management**

- 4.1 Only the aquatic organisms listed by scientific name and approved in a NELHA tenant rental agreement or sub-lease, and amendments thereto, are allowed to be on site. No aquatic animals, plants or microorganisms should be allowed on NELHA property or a tenant site without NELHA's written prior notification. Unless further action is required by the NELHA Board of Directors, the NELHA Executive Director shall respond to all requests for the importation of new or additional aquatic animals, plants or microorganisms within 30 calendar days of receipt of written request.
- 4.2 The NELHA Executive Director reserves the right to request further information or refuse the importation to a site or transfer of any aquatic animal or plant from one site to another when the Executive Director after consultation with experts has reasonable justification that such importation or transfer may pose a risk to established tenants or the environment. The experts who will advise the Executive Director shall be recognized disease experts in aquaculture with credentials recognized by the European Association of Fish Pathologists, the American Fisheries Society – Fish Health Section, or the Association of Aquatic Animal Medicine, or the American Veterinary Medical Association.
- 4.3 The DOA - PQB has statutory authority for the importation or transfer of regulated species into and within the State of Hawaii. NELHA and its tenants are bound by the laws and regulations of Federal, State and County government. A permit application must be submitted to the DOA and a site inspection conducted before required the permit is officially issued. All tenants should be aware that DOA Importation Permits are also required for shipments of regulated species within the State of Hawaii, between sites on the same and prospective tenant's island, and between project sites within NELHA. NELHA believes prior consultation by businesses located at NELHA with DOA on all species importation issues is necessary to successfully implement this program.
- 4.4 Prior to submission of a DOA Import Permit Application, tenants must consult with NELHA staff to confirm that culture or containment of the desired species is approved. These discussions can be kept confidential to the extent permitted by law. These pre-application discussions will give NELHA opportunity to address any concerns.
- 4.5 A copy of each Importation Permit issued to a tenant by DOA for existing and new species introductions shall be submitted to NELHA for review within seven (7) working days of receipt. The location of new tenant aquaculture projects and new species introductions within established tenant sites will be closely coordinated in advance of approval with neighboring tenants and the Keahole Point Association to minimize disease transfer risks. Each prospective tenant and new species

introduction will be reviewed by NELHA on a case by case basis to determine compatibility. Confidentiality will be observed to the extent permitted by law as required by the prospective tenant and situation.

- 4.6 As necessary, NELHA will consult with the State Aquaculture Disease Specialist and other authorities to obtain professional advice concerning disease and environmental compatibility issues relating to the location of new tenants, as well as the transport of regulated aquatic species to and between tenant sites.
- 4.7 Specific to marine shrimp species (Family Penaeidae), all stocks entering NELHA shall be certified Specific Pathogen Free (SPF) by an authority approved by the State Department of Agriculture, Aquaculture Disease Specialist. If the shrimp stock is to be imported from a source outside of the state of Hawaii, it must pass through a quarantine and pathogen screening process under the supervision of the State Agriculture Disease Specialist at a location outside of NELHA. Documentation certifying that the shrimp stock is SPF must be supplied to NELHA prior to shipment to the tenant's site. Additional detailed guidelines for for any business or organization holding or growing shrimp at HOST Park are listed in Appendix B.
- 4.8 Concerning the distribution, use, and discharge of seawater at each tenant location, the following conditions should be provided and maintained by tenants at all times. These conditions will be incorporated into all present and future agreements. NELHA may periodically inspect the seawater distribution system at each tenant location to assure that the following conditions are present:
  - 4.81 Back flow control devices (e.g. check valves, etc.), suitable plumbing breaks, or air gaps must be installed in all influent plumbing to prevent culture tanks and holding vessels from back siphoning into NELHA's delivery piping.
  - 4.82 All disposal water shall be discharged into disposal systems that are specified and approved by NELHA and shall be in compliance with all applicable government regulatory agencies.
  - 4.83 No disposal water shall be allowed to flow onto neighboring property or outside the confines of a tenant's leased property unless approved in writing by NELHA.
  - 4.84 No cross connections between surface and deep seawater delivery pipes will be allowed without the installation of check valves or other anti-siphoning devices.
- 4.9 Upon confirmation of a disease outbreak by the tenant at a project site, the entire site shall be considered under quarantine. Appropriate signs shall be posted

indicating restricted access to the facility. The tenant shall make best efforts to contain the disease until a management and mitigation plan has been established. Visitation to the quarantined site shall be limited to tenant staff and the mitigation team.

- 4.10 Once a site has been quarantined, no live animals or plants potentially infected by the disease will be permitted to leave the site without written approval from NELHA. No new introductions of like or related aquatic species will be allowed by NELHA until the site has been certified to be decontaminated by the State Aquaculture Disease Specialist.
- 4.11 Within seven (7) calendar days of confirmation of a disease outbreak, a meeting must be scheduled between NELHA and the affected tenant to review and discuss the tenant's plan to treat the outbreak.
- 4.12 All applicable Federal, State and County regulations must be followed during normal facility operations and during quarantine conditions.
- 4.13 Failure to follow these policies during a disease event may necessitate eradication of affected farm stock by DOA and/or termination of the tenant's use agreement with NELHA.
- 4.14 In the event that disputes between NELHA staff and the tenant develops concerning interpretations and actions relating to the Aquatic Species Health Management Program, tenants may request a hearing before the NELHA Board of Directors, who will render a decision. Tenants may also consult with experts and industry officials and petition the NELHA Board for reconsideration of any action taken by NELHA.
- 4.15 The ASHMP shall be reviewed, modified, and updated on an "as needed basis." Any request for such changes shall be submitted to the NELHA Executive Director in writing and may be implemented by NELHA, but only after approved by the NELHA Board of Directors.

## **5. Guidelines for Management and Documentation of Aquatic Species Health**

Maintaining aquatic animal and plant health by a tenant will benefit of all tenants at NELHA and the NELHA administration. Each tenant should practice a basic level of environmental management at its facility. It is in the best interest of each tenant and NELHA that the following recommended guidelines be implemented and practiced to the best of each tenant's ability:

- 5.1 A routine evaluation of the aquatic animal, plant, or microorganism's health status at the facility should be made on a continuous basis by staff trained in biosecurity and by the State Aquatic Disease Specialist at DOA on a semi-annual basis.
- 5.2 Projects operating at NELHA should limit the importation of new stocks from new sources to essential requirements to lessen the overall risk of disease introduction and contamination.
- 5.3 Introductions of new aquatic specie stocks regulated or unregulated should be free of all attached organisms (e.g. parasites, epiphytes, algae, shellfish, etc).
- 5.4 Unless otherwise specified by the tenant, tenant sites at NELHA will be considered private property subject to tenant visitation policies. NELHA should be informed of tenant visitation policies so that they can, if needed, be communicated to prospective visitors.
- 5.5 Procedures for maintaining high health and hygiene conditions at each aquaculture facility should be developed and followed by each NELHA tenant. Assistance for developing these procedures can be obtained from the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) or from the Aquatic Disease Specialist of the State of Hawaii's Department of Agriculture. It should be noted that common potential vectors for contamination include: people, groundwater use, transfer of stock, movement of equipment, birds, feral cats, rodents, insects, and airborne sprays or marine aerosol.
- 5.6 Physical barriers (gates, walls, fencing, etc.) as allowed by NELHA development guidelines should be erected and signs posted around tenant properties to prevent unauthorized access to the premises.
- 5.7 In consideration of the research or commercial goals of each tenant and the sensitivity of the aquatic animals and/or plants being cultured by a particular tenant, the following guidelines must be adopted in order to maintain high standards of sanitation:
  - 5.71 Placement of disinfectant foot baths at the entry to containment areas for new animal, plant, and microorganism importation or areas used for isolation of diseased organisms.
  - 5.72 Use of gloves, boots, and aprons or other adequate protective garments in all containment or isolation areas. These must not be carried to other parts of the facility.
  - 5.73 Bird and rodent control programs must be in place.
  - 5.74 Feral cats and dogs must be controlled.

- 5.75 All equipment (brushes, nets, scoops, etc.) should be soaked in Iodophor. Tenants should consult the Aquatic Animal Code and Aquatic Manual of the Organization of International Exizooties (OIE). The manual chapter that describes appropriate disinfection procedures can be accessed at:  
<http://www.oie.int/>
- 5.8 Proper disposal of carcasses (mortalities) according to permit conditions should be undertaken, so as to prevent the spread of infectious agents. Incineration, chemical disinfecting, or other methods approved by State Department of Health should be followed at all times, when disposing of dead aquatic animal, plant or microorganism material.
- 5.9 The tenant's comprehensive health management program should provide proper training to its employees in aquatic organism health regulatory requirements and aquatic species policies. Suggested training programs can be obtained through the following:
- 5.9.1 University of Arizona – School of Animal and Comparative Life Sciences  
<http://acbs.cals.arizona.edu/>
  - 5.9.2 American Fisheries Society - Fish Health Section (offers courses)
  - 5.9.3 UH-Hilo Institutional Animal Care and Use Committee (IACUC @ courses available)
- 5.10 Tenants are encouraged to develop written operational procedures related to management of aquatic species health that are appropriate to each operation. These procedures should address at a minimum; health management of all aquatic animal, plant and microorganism stocks used in live feeds, broodstock, hatchery, and grow out phases. Facility water quality maintenance and effluent disposal should also be addressed through written company procedures.
- 5.11 Tenants are encouraged to develop and maintain accurate and up to date records. To document such important information, the following records information should be collected: numbers and locations of aquatic species on site; permits obtained for importation, collection and culture; results of regular health examinations; stock morbidity and mortality; employee training; disease occurrences; and mitigation & disinfecting actions taken to address disease outbreaks.
- 5.12 Tenants must develop (in advance of a disease event) emergency disease management and mitigation plans.

## 6. Disease Event

Quick action and prevention is the best remedy for disease outbreaks. It is in the best interest of the tenants who have specific pathogen free stocks to ensure that there is a containment area around their own site to prevent transmission of disease from infected stocks at another site. For further guidelines, please reference C.S. Lee and P.J. O'Brian (eds.) Biosecurity in Aquaculture Production Systems: Exclusion of Pathogens and Other Undesirables, World Aquaculture Society publication, 2001.

The following are recommended basic operations procedures and best management practices that should be implemented as part of each tenants health management program as soon as a disease outbreak has occurred. The basic procedures are as follows:

- 6.1 Report the disease event immediately upon confirmation to DOA, if required by permit or law and contact the State Aquaculture Disease Specialist.
- 6.2 Report the disease event immediately upon confirmation to NELHA.
- 6.3 Obtain professional assistance, if not available within the tenant's staff.
- 6.4 Establish a disease containment area around the affected stocks.
- 6.5 After consultation with aquatic disease professionals, utilize appropriate disinfecting procedures to prevent transfer of the disease to organisms outside of the affected area and to decontaminate the tenant facility.
- 6.6 Ensure that dead animal carcasses and plant material are properly stored and disposed of to prevent the spread of infectious diseases. It is noted that freezing does not destroy most viruses. Incineration or chemical disinfecting of the dead material is the preferred methods.
- 6.7 Ensure that contaminated water is disinfected and not allowed to come into contact with groundwater or a neighboring site.
- 6.8 Ensure that all drugs and chemicals for the treatment of the disease are used in accordance with federal and state regulations.

## **Appendix A Definitions**

Approved Discharge Method – An NELHA-approved method of seawater, brackish water, or freshwater disposal consistent with applicable permits with the County and State of Hawaii.

Aquatic Animal or Plant - Any aquatic organism (animal, plant, bacteria, microorganism, etc.), either regulated or un-regulated, that is held in captivity at a tenant site. The species may be regulated under DOA, DOH, County of Hawaii, EPA and other applicable laws, statutes, and regulations.

Backflow Preventer (Air Gap) - Any device or plumbing method which prevents water from back flowing into the delivery piping of NELHA's seawater or freshwater distribution systems from tenant holding tanks, totes, vessels, ponds, raceways, or other structures used to store or culture aquatic species.

County of Hawaii (COH) - The governing body of the Island of Hawaii for local government affairs.

Department of Agriculture (DOA) - State of Hawaii government department whose Plant Quarantine Branch (PQB) controls the importation of aquatic animals, plants and microorganisms and issues permits for regulated aquatic species. For further information see the [Hawaii Department of Agriculture](#) website.

Department of Health (DOH) - State of Hawaii government department whose Sanitation Branch is responsible for and regulates the discharge of refuse, sewage, and dead animal or plant material. The Clean Water Branch regulates wastewater discharges that affect ocean water quality. For further information see the [Hawaii Department of Health](#) website.

Department of Land and Natural Resources (DLNR) - State of Hawaii government department whose Division of Aquatic Resources (DAR) authorizes the taking, possession, and sale of local Hawaiian aquatic species that are restricted or prohibited by law. The DLNR-DAR issues licenses to interested parties who wish to operate as a commercial aquaculture facility for specific restricted or prohibited local species. For further information see the [DLNR-DAR](#) website.

Environmental Protection Agency (EPA) - Federal government agency responsible for regulating terrestrial and oceanic water quality within NELHA's boundaries. The State of Hawaii, DOH has been delegated authority for most EPA issues.

Equipment - Any equipment used in the culture or holding of aquatic species such as pumps, blowers, compressors, heat-exchangers, metering devices, sensors, probes, and other associated inventory.

Holding Tanks - Vessels used to store or culture aquatic species such as tanks, totes, tubs, ponds, raceways, aquariums, etc.

Native Species - Naturally occurring aquatic Hawaiian species which do not require a DOA importation permit for shipping or transfer between holding sites. Other permits and regulations may be required for the collection, holding, and culture of native species (e.g., DLNR Aquatic Resources Division issues permits for scientific collection and commercial aquaculture).

Non-Native Species - Regulated aquatic species, which require a DOA, Plant Quarantine Branch, Import Permit or Intra-State Shipping Permit. For further information see [Hawaii Department of Agriculture](#) website.

Quarantine Condition - The condition of controlled access imposed on a tenant site that has been determined by an appropriate authority to contain a diseased organism or pathogen that may pose a threat outside of the confines of the facility.

Scientific Name – The Latin name of an organism according to standard scientific taxonomy, identified to genus and species.

State Aquaculture Disease Specialist - The State of Hawaii aquatic animal, plant, and microorganism disease specialist working for the Aquaculture Development Program office within the Department of Agriculture.

Tenant Agreement - Any land, site, or variable service agreement between NELHA and an established Tenant. NELHA land use agreements include: Facilities Rental Agreement (FRA), Facilities Use Agreement (FUA), Sublease, or amendment to such agreements.

## **Appendix B**

### **Policy and Procedures for Shrimp Holding and Growing Operations at NELHA**

- 1.0 **Introduction:** NELHA has seen numerous applications for businesses requesting approval to add shrimp mariculture to their lease in 2015. Some estimate that as much as two-thirds of the world's farm raised shrimp production begins here in Hawaii, much of it at NELHA and protecting the biosecurity of these existing businesses is paramount to our worldwide image as a specific pathogen free (SPF) facility.

We have determined that the best course of action at this time is to add new language specifically for shrimp to the NELHA biosecurity plan as Appendix B. The following represents actions for data collection, best practices for SPF mariculture, detailed biosecurity protocols, site design, separation, reporting procedures and new responsibilities for the Water Quality Laboratory at NELHA to monitor actions by businesses at HOST Park and oversee NELHA's activities in this area.

- 2.0 **NELHA Biosecurity Officer (BSO):** The BSO shall monitor NELHA's and the tenant's implementation of the ASHMP disease control and elimination protocols. The specific responsibilities and activities of BSO shall be as follows:
- 2.1. Review written requests from tenants to culture shrimp or to obtain new transfers of shrimp. After review of biosecurity risk and neighboring tenant comments, respond in writing as to approval or denial of these requests.
  - 2.2. Review and verify that tenant BMP's (in the case of shrimp) are in conformance with NELHA biosecurity policies prior to approval of the importation of any regulated plants or animals to NELHA which require DoA approval.
  - 2.3. Review and approve tenant site design to assure conformance with NELHA biosecurity policies prior to arrival of any regulated plants or animals at NELHA that require Hawaii Department of Agriculture (DoA) approval.
  - 2.4. Act as the point of contact for DoA with regard to biosecurity issues.
  - 2.5. Accompany DoA official(s) during initial site visit prior to any regulated species shipments to assure facility design is in compliance with permit requirements and conditions.
  - 2.6. Collect and maintain records of tenant's import (regulated plants, animals and feedstock) permit applications, permits, periodic test reports and onsite inspections on an ongoing basis.
  - 2.7. Obtain tenant written agreement that they will follow and maintain compliance with the NELHA ASHMP rules and regulations prior to the importation of any regulated plants or animals to NELHA.
  - 2.8. Review DoA importation permit, document, and approve all transfers of regulated plants and animals between sites at NELHA and between tenants at NELHA prior to actual transfer.

- 2.9. Accompany DoA Plant Quarantine Branch (PQB) official(s) during facility site inspections for Import or Possession Permit compliance verification.
- 2.10. Accompany DoA Animal Disease Control (ADC) officials(s) on tenant site visits to obtain samples of shrimp tissue for disease analysis testing and verification of health status. NELHA BSO may be trained and delegated by ADC to obtain shrimp tissue samples for disease analysis. See attached Hawaii Shrimp Surveillance & Certification Program (HSSCP) description document and outline.
- 2.11. Conduct bi-annual review of tenants records, BMP's, etc. Depending on timing, this may be performed in conjunction with ADC HSSCP testing.
- 2.12. Monitor NELHA vector exclusion activities such as trapping of feral vertebrates.
- 2.13. Responsible for monitoring NELHA and tenant solid waste management plans as they pertain to biosecurity including waste and mortalities.
- 2.14. Monitor and respond to unusual morbidity and mortality events. Report severe events to ADC and PQB officials. Maintain confidentiality of these events between tenant, NELHA and DOA until test results have been confirmed.
- 2.15. Notify other shrimp growers at NELHA that DoA has confirmed the presence of an OIE listed crustacean disease and that transfers of shrimp are temporarily prohibited between tenants until USDA and DoA mandated disease response has been implemented and the diseased site has been decontaminated.
- 2.16. In the event of a confirmed shrimp disease outbreak, order the immediate screening of all shrimp stocks at NELHA by ADC HSSCP.
- 2.17. Work closely with DoA and U.S. Department of Agriculture (USDA) APHIS to coordinate response to reported infection outbreaks. In case of a reported infection outbreak, inspection of treated sites post-infection and verification of cleanup measures will be completed. See attached ADC Foreign Animal Disease Response Flowchart.

**3.0 Rules, Regulations and Documentation:** The following shall apply to all shrimp holding or growing operations at NELHA, regardless of their purpose for culturing shrimp:

- 3.1 All tenants at NELHA must include this Appendix B – Policy and Procedures for Shrimp Holding and Growing Operations of NELHA's ASHMP – as an attachment to their DoA import or possession permit applications.
- 3.2 Participation in the ADC HSSCP program which requires screening for the [World Organization of Animal Health \(OIE\)](#) listed diseases at least every six months.
- 3.3 Tenants intending to export live brood stock from NELHA shall meet all the requirements as stipulated by USDA and DoA rules and regulations.
- 3.4 All transfers of live shrimp between sites at NELHA and between tenants at NELHA require a DoA possession permit and NELHA prior written approval.
- 3.5 Maintain and provide the following information:
- 3.6 Site-specific BMP/SOP plans.
  - 3.6.1 Specify a point of contact to communicate with NELHA BSO
  - 3.6.2 DoA importation permit applications;

- 3.6.3 PQB importation and possession permits (issued);
- 3.6.4 ADC HSSCP testing and disease certification reports;
- 3.6.5 Records of transfers of frozen, fresh or live shrimp between sites at NELHA;
- 3.6.6 Records of transfers of frozen, fresh, or live shrimp to/from other NELHA tenants;
- 3.6.7 Records of disease events & positive pathogen test results; and
- 3.6.8 Report all positive disease test results.
- 3.7 Tenant shall submit to NELHA for prior review and approval, site design plans and culture system descriptions in conformance with this document.
- 3.8 In the event of a disease event (as defined by the USDA or DoA), tenant shall immediately report to the USDA, PQB and ADC, as well as BSO on the process and progress of implementation of disease control and elimination procedures.

**4.0 Tenant Facility Design:** For any shrimp holding or growing operations at NELHA, regardless of their purpose for culturing shrimp;

- 4.1. The following facility design features are mandatory:
  - 4.1.1 A 6-foot high perimeter fence with lockable gates is required at lease boundary.
  - 4.1.2 All shrimp culture tanks shall be at least 10 feet from the lease boundary. In the event of a shared fence line, all shrimp culture tanks shall be at least 20 feet apart. In the event that existing shrimp tanks are less than 10 ft. from the lease boundary, the burden of complying with the 20 ft. separation policy will be on the new tenant or project;
  - 4.1.3 All outdoor cultures shall be covered by overhead and side netting sufficient to prevent the capture of live shrimp by birds and other predators and to prevent shrimp from jumping out of culture tanks;
  - 4.1.4 Passive drainage of all culture area floors (no standing water) shall be provided;
  - 4.1.5 All water used for shrimp culture shall either be from the NELHA seawater distribution system or from a source approved in writing by NELHA;
  - 4.1.6 Backflow prevention devices such as check valves shall be installed immediately downstream of the tenant's main source shutoff valve or main branch lines to prevent tenants seawater from back flowing/siphoning into NELHA's seawater distribution system piping. Acceptable alternatives would be for tenants to install air gaps or check valves on individual tank influent lines.
  - 4.1.7 Filters and/or screens shall be installed on all tank discharge pipes to prevent animals from escaping or being flushed into the ground disposal system; and
  - 4.1.8 All water discharged from the shrimp culture area shall enter a NELHA approved dispersion system located on the tenant's property. Disposal water shall not be allowed to flow outside the tenant's lease boundary.
- 4.2. The following facility design features are suggested and strongly recommended:
  - 4.2.1. Culture systems should be designed to incorporate features that allow for physical isolation of culture phases, separation of age groups and of generations, as well as single brood stock source stocking;

- 4.2.2. Culture area for broodstock should be in an enclosed building with a washable solid roof;
  - 4.2.3. As a minimum, all culture areas shall be enclosed with sidewalls of dust fencing material or better;
  - 4.2.4. The floors of all culture areas should be hard-scape (paved);
  - 4.2.5. Employee changing rooms with showers for disinfection purposes should be made available to all employees who handle shrimp;
  - 4.2.6. Dip-baths for disinfection should be installed at the entrance to all activity centers;
  - 4.2.7. Hand washing stations should be installed at key locations;
  - 4.2.8. Burglar, intrusion and surveillance devices should be installed for theft, vandalism and intentional harm;
  - 4.2.9. Screened entry doors to enclosed facilities should be installed so that they can be deployed as needed during the day when routine work is being conducted; and
  - 4.2.10. Entry gates and doors to shrimp culture areas and enclosed facilities should be kept closed and locked at all times to discourage unauthorized entry.
- 4.3. The following activities are strictly prohibited without NELHA prior written approval:
- 4.3.1. Use of groundwater, as its quality cannot be guaranteed;
  - 4.3.2. Sharing of tenant discharge systems or effluent;
  - 4.3.3. Pets are to be contained within tenants leased property and not allowed to wander onto other tenant's property;
  - 4.3.4. No fresh, frozen or live crustaceans from a source outside of NELHA are allowed on NELHA tenant property without prior written approval from NELHA;
  - 4.3.5. Sharing of equipment or tools between tenants; and
  - 4.3.6. Sharing of employees between tenant culturing sites without proper decontamination measures occurring both ways.

**5.0 Importation and Movement of Shrimp Stocks or Herds:** For all shrimp operations at NELHA, the importation of shrimp stocks or herds to NELHA and movement within NELHA are subject to the following conditions and requires prior written approval of the BSO.

- 5.1. Prior to the shipment of any new SPF shrimp stocks or herds to NELHA, the following mandatory actions must be completed:
- 5.1.1. Tenant must obtain prior written permission from NELHA to import SPF shrimp to their facility.
  - 5.1.2. Tenant must obtain a shrimp Import or Possession Permit from PQB.
  - 5.1.3. Tenant must provide NELHA with a ADC HSSCP issued written Certificate of Origin for the shrimp stock or herd to be shipped to NELHA and a copy of the Certificate of Health from the shipper certifying the shrimp to be sent to NELHA are SPF. The Certificate of Health shall include the results of complete disease testing and screening for OIE listed shrimp diseases and pathogens of the shrimp stock to be

- sent to NELHA within 21 days of the introduction to NELHA by a USDA certified disease lab and a chain of custody of samples by a USDA certified veterinarian.
- 5.1.4. In the case of shrimp shipments/importations from stocks other than those enrolled in the ADC HSSCP, then HSSCP supervised primary and secondary quarantine at a site outside of NELHA is required.
  - 5.1.5. The tenant's shrimp culture facility must be inspected and approved by PQB for culture of shrimp prior to shipping any SFP shrimp to the facility.
  - 5.1.6. The tenant's shrimp culture facility must be enrolled in and ultimately certified by ADC as being a facility with SPF shrimp status and certification. DoA ADC Branch certification must be obtained demonstrating that shrimp are free of all OIE listed diseases and classified as SPF;
  - 5.1.7. A copy of ADC HSSCP certification must be received by the NELHA BSO at least 7 calendar days prior to shipment of animals to NELHA;
  - 5.1.8. After HSSCP certification has been obtained, shrimp must be quarantined at a site outside of NELHA for a period of time that allows for one offspring (F-1). Only F-1 offspring SPF shrimp with ADC HSSCP certification from a facility location outside of NELHA shall be allowed into NELHA; and
  - 5.1.9. Arrival of the shrimp shipment to NELHA shall be overseen by DoA officials and witnessed by the BSO.
- 5.2. Upon arrival of shrimp stocks or herds at NELHA the following actions must occur:
- 5.2.1. Shrimp must be immediately placed in a PQB/ADC certified SPF approved and inspected facility;
  - 5.2.2. Shrimp will be subject to the ADC HSSCP testing certifying that the shrimp maintain SPF status as all times;
  - 5.2.3. All tenants must obtain NELHA prior written approval to transfer fresh, frozen or live shrimp to other facilities in the park;
  - 5.2.4. The tenant receiving live shrimp from a NELHA SPF shrimp facility, must obtain a Possession Permit from PQB and provide NELHA with a copy of this permit prior to receiving SPF shrimp.
  - 5.2.5. The tenant receiving dead or frozen shrimp from a NELHA SPF shrimp facility must obtain NELHA's written permission prior to receiving these shrimp.
  - 5.2.6. No shrimp shall be transferred between tenant sites at NELHA unless the source shrimp are certified to be of SPF status.
- 5.3. All live shrimp transferred within NELHA shall be subject to the following conditions:
- 5.3.1. Participation in the ADC HSSCP program is mandatory;
  - 5.3.2. Shrimp shall be tested every six months by ADC; and
  - 5.3.3. Tenants who culture shrimp and remove these shrimp entirely from their site within six months and drain and dry out their shrimp culture tanks for period of at least 14 calendar days period, do not have to participate in the ADC HSSCP or be tested after the initial testing. However, after the minimum 14 calendar days, tenant must obtain prior written approval from NELHA before resuming the holding or growing of any shrimp at this facility.

- 6.0 **Importation of Feedstocks & Biological Materials:** For all shrimp operations at NELHA, the importation of feedstocks and biologic materials are subject to the following conditions and requires prior written approval of the NELHA BSO.
- 6.1. Only feedstocks from certified US Manufacturers, or suppliers from areas that are known to be pathogen free for OIE listed shrimp pathogens will be allowed;
  - 6.2. New sources of live or wet feedstocks and probiotics require written proof of SPF certification for OIE listed diseases from a USDA certified laboratory or prior written approval from NELHA before they arrive;
  - 6.3. No live, wet or dry feedstocks or probiotics whatsoever shall be imported from regions outside of the United States that are known to have had a history of disease and pathogen concerns unless written proof of SPF certification for OIE listed diseases is provided to NELHA prior to shipment;
  - 6.4. For feedstocks imported into the USA, USDA import permits and a Certificate of Origin validated by an official government authority must be provided to NELHA within 30 days of arrival; and
  - 6.5. NELHA reserves the right to ban in the future any feedstocks, probiotics or biologic materials from any worldwide region if the area is on OIE's watch list for shrimp diseases.
- 7.0 **Best Management Practices (BMPs) Program:** All tenants are required to follow schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to mitigate the risk of disease and to minimize the spread of disease incidents as they occur, and to contain and eliminate disease outbreaks.
- 7.1. The BMP Program must include standard operating procedures for the following:
    - 7.1.1. A written BMP manual;
    - 7.1.2. Pathogen exclusion;
    - 7.1.3. Feed storage;
    - 7.1.4. A Disease Incident Response program. Tenant shall review and revise the BMP and Incident Response manual with the BSO after each disease incident;
    - 7.1.5. Ensuring decontamination measures are sufficient to disinfect those entering the facility from an outside source. In this regard, it is important to note that shrimp facilities at NELHA should be attentive to the possibility that employees working at more than one site, or for more than one NELHA tenant, have significant potential to transfer diseases between sites;
    - 7.1.6. Tenant shall name a Point of Contract person responsible for reporting a disease incident and coordinating the incident response with the NELHA BSO.
    - 7.1.7. A Solid Waste Management Program – special attention shall be given to the handling and the off-site disposal of dead animals. All shrimp mortalities shall be removed from culture tanks and immediately placed in chlorine, autoclaved, or frozen, and disposed of in a County of Hawaii approved disposal facility or landfill

on a weekly basis. Shrimp mortalities are not to be thrown away in a tenants disposal dumpster or trash container on site;

- 7.1.8. Sterilization such as using dip-baths and hand washing stations should be implemented between all activities and all locations. Specifically, all equipment (brushes, nets, scoops, etc.) should be sterilized on a routine basis;
- 7.1.9. Training of employees regarding the BMP's and especially how new hires will be trained;
- 7.1.10. Record-keeping including but not limited to the following:
  - 7.1.10.1.1. Daily staff activity log (who did what where);
  - 7.1.10.1.2. Chain of custody for all (live or dead) animals entering and leaving a facility;
  - 7.1.10.1.3. Staff training records;
  - 7.1.10.1.4. Importation or Possession Permits (DoA/PQB);
  - 7.1.10.1.5. Copies of DoA PQB or ADC branch authorizations and inspection reports;
  - 7.1.10.1.6. Supply source for all feedstocks and biological culture materials;
  - 7.1.10.1.7. Stored (frozen) tissue inventories;
  - 7.1.10.1.8. Stock transfer records – including from sale of meat; and in the case of disease incident, environmental and water quality records such as temperature, DO, pH, turbidity, water exchange, etc.;
  - 7.1.10.1.9. Recording historical survival data for all phases of the shrimp growing process;
  - 7.1.10.1.10. Transient vector control including but not limited to feral vertebrate trapping (mice, rats, cats, and mongoose), insects, vehicle traffic between other sites at NELHA, and visitors; and,
  - 7.1.10.1.11. Handling of shrimp from outside sources.

7.2. Procedures for the following activities are strongly suggested for inclusion in the BMP Program include the following:

- 7.2.1. Training of employees after a disease incident and procedures for monitoring and reviewing staff compliance with the BMP's;
- 7.2.2. Bolstering transient vector control by limiting visitor access to certain areas, visitor training, enforcing visitor uniforms;
- 7.2.3. Periodic inspections for vector control effectiveness;
- 7.2.4. Requiring employees change into work uniforms when on-site;

###



**FOR MORE INFORMATION PLEASE CONTACT**

NELHA Biosecurity Officer  
Natural Energy Laboratory of Hawaii Authority  
73-4460 Queen Kaahumanu Hwy. #101  
Kailua-Kona, Hawaii USA 96740  
Telephone: (808) 327-9585  
Internet: [nelha@nelha.org](mailto:nelha@nelha.org)  
Website: <http://www.nelha.org/>

**March 2016**