



# Hawai'i Shrimp Surveillance Certification Program

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- Voluntary disease surveillance program for the shrimp broodstock and seedstock producers
- Test for 9 pathogens by PCR
- 10 participating facilities throughout the state
  - O`ahu, Kaua`i, Moloka`i, Hawai`i
- *Litopenaeus vannamei*, *Penaeus monodon*,  
*Litopenaeus stylirostris*

<b>DNA Viruses</b>	<b>RNA Viruses</b>	<b>Enteric DNA Viruses</b>	<b>Enteric Bacteria</b>
Infectious hypodermal and hematopoietic necrosis virus (IHHNV)	Taura syndrome virus (TSV)	Baculovirus penaei (BP)	<i>Hepatobacterium penaei</i> (NHP)
White spot syndrome virus (WSSV)	Yellowhead virus (YHV)	Monodon-type baculovirus (MBV)	
	Infectious myonecrosis virus (IMNV)	Hepatopancreatic parvovirus (HPV)	

# New Facility

- Stocked with animals originating from a SPF facility
- Test negative for all pathogens at months 0, 3, 6, 12, 18, and 24 to acquire SPF status
  - Samples from 60 animals are collected
    - 95% confidence level, 5% pathogen prevalence
  - Every species and lifestage

# SPF Facilities

- SPF facilities are tested every 6 months
  - Samples from 30 animals are collected
  - Every species and lifestage



# Sample Collection

- 18 vials filled with 95% denatured ethanol
  - DNA samples – A1-A6
  - RNA samples – B1-B6
  - Enteric samples – C1-C6
- Samples are collected by the State aquaculture veterinarian

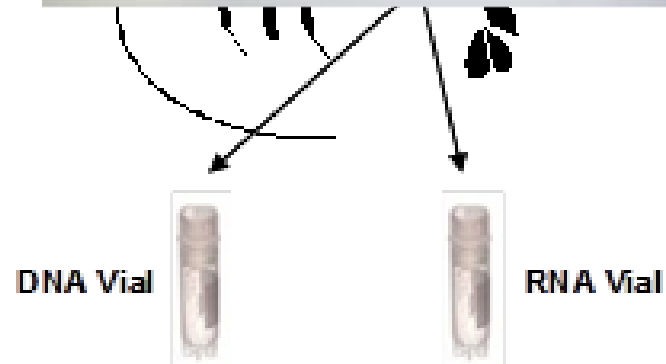


# Sample Description

<b>Pathogen</b>	<b>Vial</b>	<b>System</b>	<b>Species</b>	<b>Lifestage</b>	<b>Tissue</b>
IHHNV/WSSV	A1				
IHHNV/WSSV	A2				
IHHNV/WSSV	A3				
IHHNV/WSSV	A4				
IHHNV/WSSV	A5				
IHHNV/WSSV	A6				
TSV/YHV/IMNV	B1				
TSV/YHV/IMNV	B2				
TSV/YHV/IMNV	B3				
TSV/YHV/IMNV	B4				
TSV/YHV/IMNV	B5				
TSV/YHV/IMNV	B6				
BP/MBV/NHP/HPV	C1				
BP/MBV/NHP/HPV	C2				
BP/MBV/NHP/HPV	C3				
BP/MBV/NHP/HPV	C4				
BP/MBV/NHP/HPV	C5				
BP/MBV/NHP/HPV	C6				

# DNA & RNA Viruses

- Pleopods & whole post-larvae are collected to test for the DNA & RNA viruses
- A juvenile or adult shrimp is held in one hand while 2 pleopod tips are cut
- Samples from 5 animals are pooled into a vial





# Enteric Pathogens

- Hepatopancreas or feces & whole post-larvae are collected to test for the enteric pathogens
- Fecal strands are collected from the feeding trays or bottom of tanks if present
- If not, the animals are sacrificed and samples of hepatopancreas are collected
- Samples from 5 animals are pooled into a vial



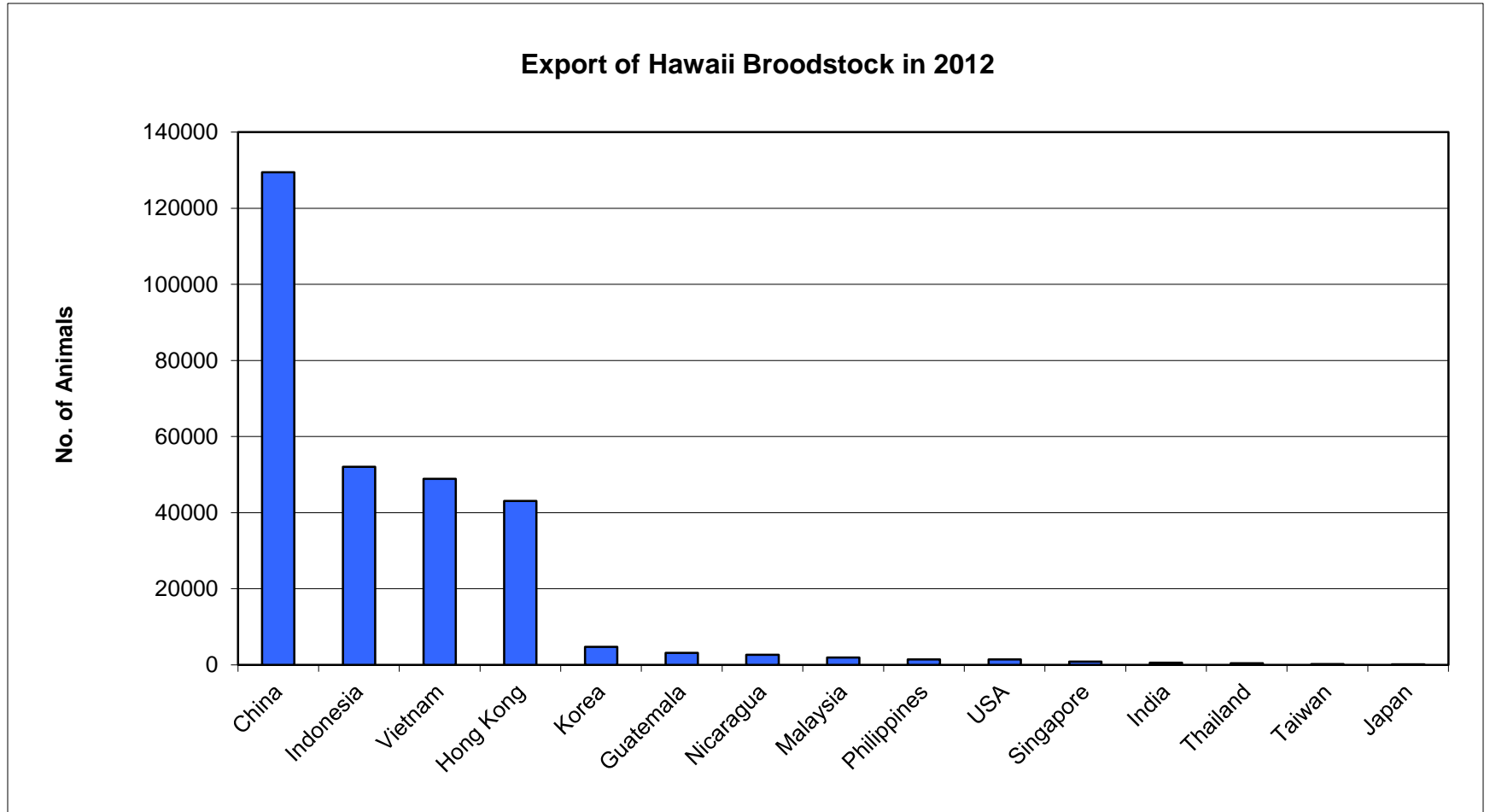
# Sample Submission

- Aquaculture Pathology Laboratory at the University of Arizona
- Facilities are responsible for the cost of the PCR tests
  - 2 years – \$2,664/sampling
  - SPF status – \$15,984
  - Maintain - \$2,664/yr

# PCR Results

- Results are sent directly to the aquaculture veterinarian
- An electronic copy is sent to the producer and USDA accredited veterinarian

# Certification



# International Regulations

	Health Status Report	Certificate of Origin	Pre-Quarantine Certificate	Disease History Certificate	Country's Health Certificate	US Origin Health Certificate VS17-140	Addendum	Last SSCP Test Results	Pre-Shipment Inspection	Pre-Shipment Quarantine	Pre-Shipment Sample
<b>Responsible Entity</b>	HDOA	HDOA	HDOA	HDOA	USDA	USDA	USDA	USDA			
<b>Signature</b>											
HDOA Aquatic Vet	X	X	X	X							
HI Accredited Vet (Cat. 2)					X	X	X	X	X	X	X
USDA - APHIS Port Vet					X	X					
<b>Importing Country</b>											
China	X	X				X	X	X	< 7 days	≥ 7 days	
India	X	X	X	X						> 30 days	< 20 days
Indonesia	X	X									
Korea		X			X				< 10 days*		
Vietnam		X			X				< 10 days*		
Hong Kong	X	X									
Malaysia	X	X									
Thailand	X	X									
Japan	X	X									
Philippines	X	X									
Taiwan	X	X			X		X		< 3 days	≥ 14 days	< 30 days*

\* < 10 days required for the first 3 shipments; < 30 days for subsequent shipments (refer to §161.4 Standards for Accredited Veterinarian Duties)

\* Taiwan requires a pre-shipment sample < 30 days before the shipment date if the facility has not gained SPF status (SSCP)



**Questions?**