



# Emergency Preparedness & Response System For Aquatic Animal Disease In Malaysia



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# Outline

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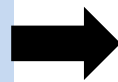


- 1. National Competent Authority**
- 2. Early Warning/Response System**
- 3. Early Detection System**
  - Personnel competencies**
  - SOPs/Disease reporting system**
  - Surveillance system**
  - Diagnostic capability/capacity**

# National Government Agency (CA)

*Managing the country's emergency preparedness & response system for aquatic animal disease*

Ministry of  
Agriculture & Agro-  
based Industry



Department of  
Fisheries (DoF)  
Malaysia



West Malaysia  
- Peninsular Malaysia



East Malaysia  
- Sarawak  
- Sabah



- Fisheries Act 1985
- Inland Fisheries and Aquaculture Enactment 2003
- State Fisheries Ordinance 2003



# National CA



**Director General  
Department of Fisheries**

**Fisheries Biosecurity Division  
(Alternate Focal Point for AH)**

**Fisheries Research Institute**

**National Fish Health Research Division (NaFish)  
(Focal Point for AH)**

## **Main Tasks**

- Surveillance programmes
- Registration (Farm/Importer/Exporter)
- Import and Export Procedures
- Report Compilation (OIE /NACA disease)

## **Main Tasks**

- R&D&C (*Epidemiology & Alternative medicine*)
- Disease Expert/ Reference Centre

## 2. Early Warning/Response System

### Intelligence gathering

The national authority (Corporate Communications unit/CCU) will monitor news related to fisheries through social media

### National & International reporting

National Focal Point/ Alternate FP for AAH will receive latest notification & notify emerging diseases to OIE & NACA

### Networking mechanism

DoF staffs participating the dialogue/ conference/ seminar/ regional consultation meetings etc

### Alert/Reporting

- Fis.Top management
- Fis.Biosecurity Div.

### Responding

- Immediate action (*investigation on the occurrence of disease by Fisheries Biosecurity Div.*)
- Consultation with stakeholder

### Awareness

- FDoF's staff
- Stakeholder
- Others agency



# National & International reporting

National Focal Point received usual mass mortality latest notification and notify emerging diseases to OIE & NACA

## Warning through website (NACA/OIE)

A warning and an improved PCR detection method for tilapia lake virus (TiLV) disease in Thai tilapia farms

20<sup>th</sup> April  
2017

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DISEASE ADVISORY



Tilapia Lake Virus (TiLV) – an Emerging Threat to Farmed Tilapia in the Asia-Pacific Region  
Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand

- TiLV (an Orthomyxo-like RNA virus) is an emerging disease of cultured tilapia in the Asia-Pacific region;
- Originally observed and reported in Israel, Ecuador, Colombia and Egypt; TiLV is now confirmed in cultured tilapia in Thailand causing mass mortalities;
- At risk is here is the US\$2.5 billion global industry per annum, especially among the top tilapia-producing countries in the region including China, the Philippines, Thailand, Indonesia, Lao PDR and Bangladesh.

3<sup>rd</sup> May  
2017

OIE WORLD ORGANISATION FOR ANIMAL HEALTH  
Protecting animals, preserving our future

TILAPIA LAKE VIRUS (TiLV)-A NOVEL ORTHOMYXO-LIKE VIRUS

17<sup>th</sup> May  
2017



Urgent update on possible worldwide spread of tilapia lake virus (TiLV)

20<sup>th</sup> May  
2017

## Alert response on TiLV by Focal Point(FP)

### Warning of occurrence of TiLV in Thailand

- FP of AAH (Research Division) **raised an alert letter to higher level of management in DOF on 3<sup>rd</sup> May 2018**

## Immediate Action by Fisheries Biosecurity Div.

### Immediate Action by Fisheries Biosecurity Div.

- **Investigation** on the occurrence of TiLV by Biosecurity & NaFisH
- **Consultation** with stakeholder
  - Cross-check on health status of live tilapia from Thailand
  - Limited entry
  - No entry
- **Awareness**
  - Biosecurity officers
  - Extension Officers
  - Tilapia farmers

# TiLV's case

# 3. Early Detection System

## Personnel competencies

### Front line

- *Farmers*
- *State aquaculture*
- *Biosecurity fishery officers*

**Level 1  
Diagnostic**

### Local government & Industry personnel

- *Extension staff*
- *Researchers*
- *Director of Fisheries state*
- *Designated biosecurity officers*

**Level 1  
Diagnostic**

### National level government staff

- *Four servicing laboratories (Fisheries Biosecurity Division)*

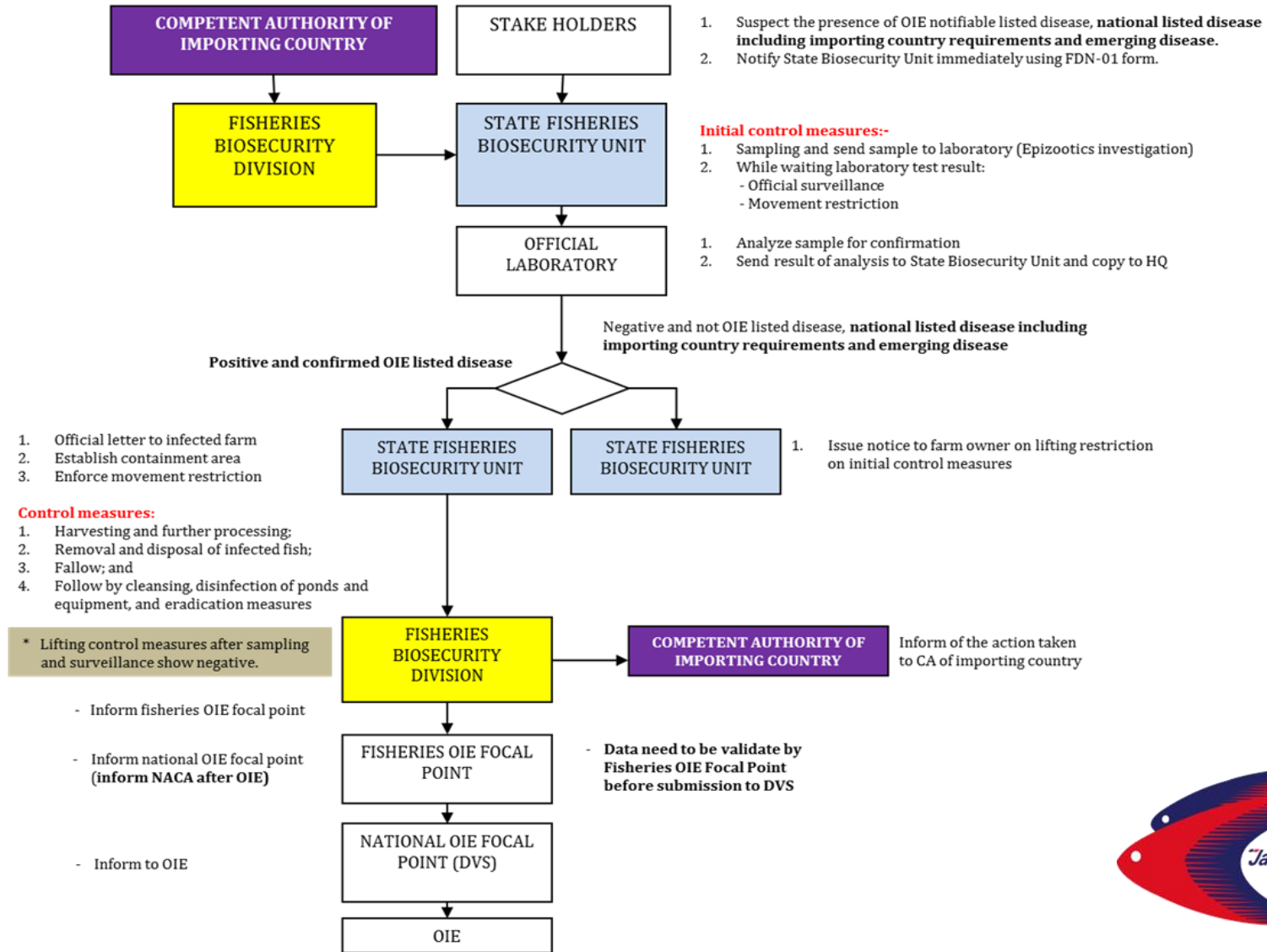
- Parasitology Diagnostic Lab.(Level II)
- Bacteriology Diagnostic Lab.(Level II)
- PCR Diagnostic Lab.(Level III)  
*Accredited Lab.MS ISO/IEC 17025:2005*
- Quarantine Lab.

- *One national fish health research division (NaFisH/Fisheries Research Institute)*

- Parasitology lab.(Level II)
- Bacteriology lab.(Level II)
- Virology lab. (Level III)
- PCR lab. (Level III)
- Water quality lab.
- Histology laboratory(Level II)
- Molecular biology la.(Level III)
- Immunology lab.(Level III)
- Wet laboratories

# SOPs/Diseases Reporting

## 2. Early Detection System



**SOPs for fish kill investigation has been reviewed 3 times (May 2017)**

## 2. Early Detection System

### National information sharing networks

Network	Information sharing
<b>Corporate Communications Unit under DoF</b>	<b>Social media (Facebook, Twitter, Instagram, Whatsapp)</b> <ul style="list-style-type: none"><li>• Fisheries related news/issues and</li></ul>
<b>E-network Malaysian Aquatic Animal Health Expert(MAAHE)</b>	<b>e-mail</b> <ul style="list-style-type: none"><li>• Quarterly Aquatic Animal Disease Report(QAAD)</li><li>• Aquatic Animal Disease Report (OIE)</li><li>• The Aquatic Animal Scientific Commission Report (OIE)</li></ul>
<b>Industry Consultation</b>	<b>Dialogue &amp; meetings</b> <ul style="list-style-type: none"><li>• Specific issues</li><li>• New regulation/requirement</li></ul>
<b>Farmers day</b>	<b>Seminar &amp; dialogue</b> <ul style="list-style-type: none"><li>• Annual event organized by state</li></ul>

## Awareness/Training programmes

## 2. Early Detection System

2018

No.	Training	Date	Place
1	Fish disease histopathology (Level 2)	15-17 Aug	Universiti Putra Malaysia (UPM)
2	Analysis of Viraemia of Carp using cell culture method	24-26 April	Fisheries Biosecurity Centre Selangor
3	Parasitology analysis course (endoparasite and ectoparasite)	17-20 April	Fisheries Biosecurity Centre Sarawak

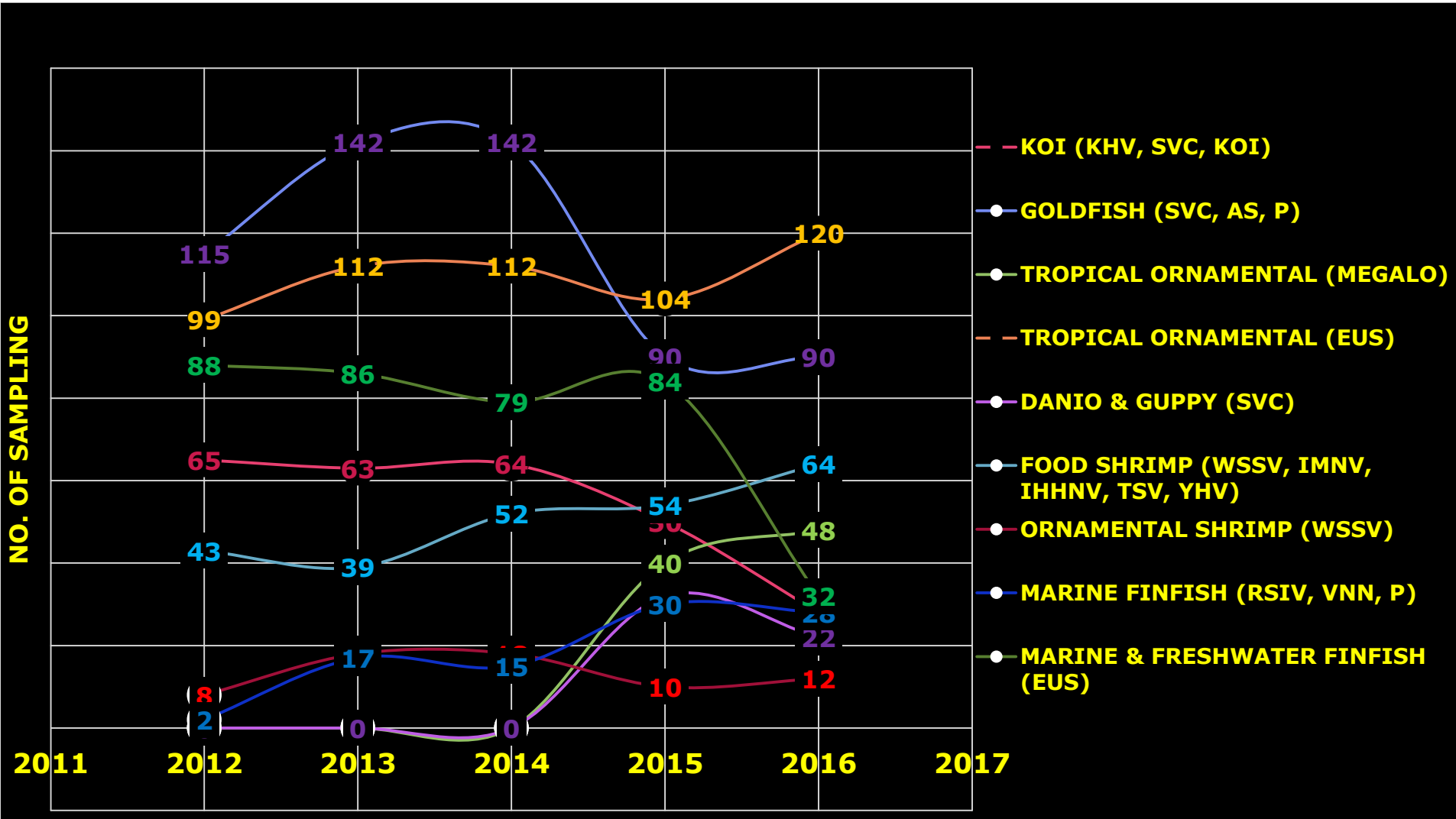
2017

No.	Training	Date	Venue
1	Fish kill and sampling method course	21 Sept	Sungai Chiling, Kuala Kubu Bharu
	Biosecurity Good Aquaculture Practices , and Food safety preventative controls for aquaculture farms	5-7 Sept	Dorset Hotel, Putrajaya
2	Contingency training for KHV positive	25 May	FRI Glami Lemi
3	Introductory course on risk analysis for movements of live aquatic	14-16 Mar	Department of Fisheries, HQ
4	Basic course on technique and principles of virology and molecular	13 Feb	Fisheries Biosecurity Centre Selangor

2016

No.	Training	Date	Place
1	Workshop on Strengthening Aquaculture Biosecurity Capacity	13-19 Mar	Bagan Lalang, Selangor
2	Strengthening program on fish kill in Malaysia waters	8 June	Department of Fisheries, HQ

### Fish Disease Surveillance Program (2012-2016)



# FISH DISEASE SURVEILLANCE PROGRAM (PLAN & TAKEN) 2017

## Sampling 2 times a year (S1 & S2)

NEGERI	KHV				SVC				ERD				EUS TROPICAL FISH				EUS FRESHWATER FOOD FISH				EUS MARINE FOOD FISH				SVC DANIO & GUPPY				MEGALO				WSSV ORNAMENTAL SHRIMP				WSSV,TSV,YHV, IHNV,IMNV				VNN,RSIV MARINE FISH											
	S1		S2		S1		S2		S1		S2		S1		S2		S1		S2		S1		S2		S1		S2		S1		S2		S1		S2																	
	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A								
KEDAH	1	1	1	1													5	5	5	5	2	2	2	2																	3	3	3	3	2	2	2	2				
PULAU PINANG																	2	2	2	2	4	4	4	4					3	3	3	3					1	1	1	1												
PERAK	17	17	17	17	36	36	36	36	10	10	10	10	24	24	24	24					1	1	1	1	4	4	4	4	12	12	12	12					6	6	6	6	3	3	3	3								
SELANGOR	2	2	2	2	2	2	2	2					1	1	1	1	1	1	1	1									3	3	3	3					9	9	9	9	3	3	3	3								
N.SEBILAN																	2	2	2	2	1	1	1	1													1	1	1	1	1	1	1	1								
MELAKA																	3	3	3	3																	2	2	2	1												
JOHOR					12	12	12	12	12	12	12	12	35	35	35	35					2	2	2	2	11	11	11	11	12	12	12	12	5	5	5	5	2	2	2	2	2	2	2	2								
PAHANG																	1	1	1	1	1	1	1	1													4	4	4	4	1	1	1	1								
TERENGGANU																	6	6	6	6	3	3	3	3													1	1	1	1	1	1	1	1								
KELANTAN																	7	7	7	7	1	1	1	1													1	1	1	1	1	1	1	1								
SABAH																																					3	3	3	3												
SARAWAK																																					4	4	4	4												
TOTAL NO OF FARM	20	20	20	20	50	50	50	50	22	22	22	22	60	60	60	60	27	27	27	27	15	15	15	15	15	15	15	15	30	30	30	30	5	5	5	5	37	37	37	36	14	14	14	14								

Laboratory	Competence level of diagnostics
Fisheries Biosecurity Center Kedah	<ul style="list-style-type: none"> <li>• Taura syndrome virus (TSV)</li> <li>• Yellow head virus (YHV)</li> <li>• White-spot syndrome virus (WSSV)</li> <li>• Infectious hypodermal and haematopoietic necrosis (IHHNV)</li> <li>• Infectious mynecrosis virus (IMNV)</li> </ul>
Fisheries Biosecurity Center Selangor	<ul style="list-style-type: none"> <li>• Fish and tissue sampling</li> <li>• Polymerase chain reaction (PCR) sample preparation</li> <li>• Extraction of nucleic acid (virus isolation)</li> <li>• Koi herpes virus (KHV)</li> <li>• Spring viraemia of carp virus (SVCV)</li> </ul>
Fisheries Biosecurity Center Johor	<ul style="list-style-type: none"> <li>• Extraction of nucleic acid</li> <li>• White-spot syndrome virus (WSSV)</li> <li>• Infectious hypodermal and haematopoietic necrosis (IHHNV)</li> </ul>
Fisheries Biosecurity Center Sarawak	<ul style="list-style-type: none"> <li>• Extraction of nucleic acid</li> <li>• Taura syndrome virus (TSV)</li> <li>• Yellow head virus (YHV)</li> </ul>

### 3. Early Detection System

## Diagnostic capability/capacity

Laboratory	Competence level of diagnostics
National Fish Health Research Division (NaFISH)	<ul style="list-style-type: none"><li>• Parasitology (Level II)</li><li>• Bacteriology (Level II)</li><li>• Virology (Level III)</li><li>• PCR (Level III)</li><li>• Histopathology (Level II)</li><li>• Molecular biology (Level III)</li><li>• Immunology (Level III)</li></ul>