

# REGIONAL PROFICIENCY TESTING PROGRAM FOR AQUATIC ANIMAL DISEASE DIAGNOSTIC LABORATORIES IN ASIA-PACIFIC



## WORKSHOP REPORT

Centara Grand Central Hotel, Bangkok, Thailand  
25-26 July 2012

Prepared by the NACA Secretariat

## INTRODUCTION

There is a strong need for improved aquatic animal disease laboratory diagnostic capability across Asia—the region that produces most of the world’s aquatic animal products. This capability is required to facilitate the sanitary safety of trade in aquatic animal products and to ensure countries can detect potentially damaging transboundary diseases. The need for improved diagnostic capability is widely agreed and documented but few activities have made significant or lasting impact on this issue at the regional level.

Laboratory proficiency testing is an important mechanism for laboratories to test and improve diagnostic capabilities, and participation in a recognised program is usually a requirement for formal laboratory accreditation. There is currently very limited or no access to proficiency testing programs for aquatic animal health laboratories in Asia. In the report of their 2010 meeting, the Regional Advisory Group for Aquatic Animal Health (an advisory group to NACA<sup>1</sup>) provided a status report on the implementation of the Asia Regional Technical Guidelines<sup>2</sup>. In their report, the advisory group noted that *ad hoc* proficiency testing programs have been run (for a limited selection of diseases and countries) but that there is limited or no access to ongoing laboratory proficiency testing programs.

This project will establish a regional laboratory proficiency testing program for aquatic animal diseases of significance to the region. The program will provide access to proficiency testing services from an accredited provider (the Australian National Quality Assurance Program; ANQAP<sup>3</sup>) and will draw on the expertise of the CSIRO Australian Animal Health Laboratory (AAHL) to develop required testing reagents and materials for the program. Below are the general objectives of the programme:

- To strengthen Asia’s regional capability to diagnose important aquatic animal diseases that impact on trade, industry sustainability and/or productivity.
- To train participating laboratory personnel in diagnostic standards, and proficiency testing procedures, and to provide technical assistance to improve laboratory performance.
- To establish a laboratory proficiency testing programme that meets regional needs and which can be accessed following completion of the project.

The first project activity of the programme is this preparatory Workshop hosted by NACA, to train participants on diagnostic standards, proficiency testing procedures, laboratory accreditation and to reach agreement on the panel of tests to be included in the program.

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<sup>1</sup> The Network of Aquaculture Centres in Asia Pacific (NACA) is an intergovernmental organisation of which Australia is a member. DAFF has delivered a range of aquatic animal health capacity building programs through NACA.

<sup>2</sup> The Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals were the result of an extensive consultative process involving regional governments, the OIE, FAO and NACA. They remain the principal, regionally-agreed approach to building aquatic animal health management capabilities in the region.

<sup>3</sup> Accredited as a proficiency testing provider by the National Association of Testing Authorities.

## **PARTICIPATION**

The workshop was held for two days from 25 to 26 July 2012 at Centara Grand Central Hotel, Bangkok, Thailand. It was co-organised by DAFF, CSIRO, ANQAP and NACA. Forty-five (45) participants attended the workshop, representing 43 aquatic animal disease diagnostic laboratories from 13 Asia-Pacific countries including Bangladesh, Cambodia, China, Hong Kong, India, Indonesia, Iran, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand and Vietnam.

Resource persons were experts from DAFF Australia, CSIRO, ANQAP, NACA and OIE.

## **OPENING SESSION AND INTRODUCTION TO THE PROJECT**

Dr. EM Leano (Coordinator, Aquatic Animal Health Programme, NACA) officially opened the workshop on behalf of NACA Director General, Dr. AE Eknath. All the participants and experts were also introduced (Annex 1).

Dr. I Ernst (DAFF) gave a general overview of the project. The whole project is being implemented by the four collaborating agencies. NACA is responsible for communication with participating member countries and hosting of this preparatory workshop. CSIRO AAHL is tasked to obtain and prepare sample materials, conduct quality assurance, provide “test ready” materials to ANQAP, and provision of limited technical advice to participating laboratories. ANQAP is responsible for the preparation of sample materials for distribution to participating laboratories, receiving and collating of laboratory test results, drafting de-identified reports for each round of testing, and ensuring confidentiality of the testing results. DAFF is the overall coordinator of the project and has provided the project funding. Expected project outcomes are the following:

- Improved diagnostic capability for significant aquatic animal diseases throughout the Asian region (measurable based on improvements in aggregated diagnostic test results).
- Increased confidence of trading partners that countries can certify the disease status of aquatic animal commodity exports, meet quarantine requirements, and thus ensure the sanitary safety of trade.
- Improved capability within Asia to detect important transboundary diseases that have the potential to impact industry sustainability and productivity.

The importance of aquatic animal disease diagnostics in facilitating trade and detection of transboundary diseases was presented by Dr. CV Mohan (Manager, Research and Development, NACA). Highlighted in the presentation were the serious diseases affecting cultured fish and shrimps in the region, and new/emerging transboundary diseases (i.e. IMNV and EMS/AHPNS) which are causing severe economic losses in countries where outbreaks have been reported.

Dr. HT Myint (OIE Tokyo) presented the role of OIE in aquatic animal health focussing on diagnostics of important aquatic animal diseases, particularly in the Asia-Pacific region. The different OIE standards including the Aquatic Animal Health Code, Aquatic Manual and online disease reporting through WAHIS (World Animal Health Information System) were discussed.

## THE WORKSHOP

The workshop proper include presentations on the operation of the Regional Laboratory Proficiency Testing (LPT) program, nominations of aquatic animal diseases by representatives from each of the participating countries, ranking of disease list (selection of 10 priority diseases of regional importance), and expected role of the participants during the four rounds of proficiency testing in the next two years (2013-2014).

Dr. N Gudkovs (CSIRO) made a brief introduction of CSIRO AAHL and the role it will play in the Regional LPT. Details were given on the source of sample materials that will be used; description of test samples including fixative used, extraction of nucleic acids (NA) and analytical ranges that will cover concentrations (of pathogen) that might normally be encountered in positive samples (high positive, mid positive, low positive as well as test negative tissues). Overall, the LPT will be offered for 10 nominated diseases and will be undertaken according to international standards. All samples that will be sent to participating laboratories will be inactivated, therefore non-infectious. The LPT scheme will offer 2 rounds per year (2013-2014), and participating laboratories have no obligation to participate with tests for every nominated disease.

Dr. S. Warner (DPI) introduced ANQAP as an accredited laboratory that provides proficiency panels for a wide range of diseases (animals and plants) which helps participating laboratories to monitor the on-going quality of their test results. LPT is also a measure for identifying significant systematic, analytical and test methodology differences between individual laboratories. ANQAP will directly work with CSIRO in running the current LPT which will have a total of four rounds of testing as indicated in the table below:

Round	Samples sent	Results due back to ANQAP	Report back from ANQAP
1	May 2013	End June 2013	End July 2013
2	November 2013	End December 2013	End January 2014
3	May 2014	End July 2014	End July 2014
4	November 2014	End December 2014	End January 2015

Confidentiality for each participating laboratory was emphasized, from sending of the set of samples for testing (each sample will have unique codes), sending back of test results, to dissemination of testing round results to all participating laboratories.

Representatives from each participating country made presentations on the current capacities of the different laboratories in terms of PCR disease diagnostics, as well as the list of priority diseases that will be included in the RPT programme. After a series of discussion facilitated by Dr. M Crane (CSIRO) and nominations from the participants, the following aquatic animal diseases were

decided for inclusion in the panel of pathogens that will be used for the four rounds of Regional LPT in the next two years (2013-2014):

Rank	DISEASE/AGENT	OIE Listed
1	White spot virus (WSV)	Yes
2	Yellowhead virus (YHV)	Yes
3	Taura syndrome virus (TSV)	Yes
4	Infectious myonecrosis virus (IMNV)	Yes
5	Infectious hypodermal and haematopoietic necrosis virus (IHHNV)	Yes
6	Megalocytiviruses (RSIV, ISKNV, GIV etc.)	Yes
7	Nervous necrosis viruses (NNV)	No
8	Koi herpesvirus (CyHV-3)	Yes
9	<i>Macrobrachium rosenbergii</i> nodavirus (MrNV and XSV)	Yes
10	Spring viraemia of carp virus (SVCV)	Yes

As indicated above, not all of the diseases included in the list will be sent to all of the participating laboratories during the rounds of testing. Samples to be sent will depend on the list requested by each laboratory based on their current capacity to perform PCR diagnostics for detection of the pathogen(s) involved.

Finally, S. Warner made a clear, step-by-step instructions on the role of each participant prior to receiving the samples, after receiving the samples, how to fill-out the different forms, and sending back the results to ANQAP. Prior to receiving samples from ANQAP, each laboratory must ensure that they have the necessary valid import permits. It is also best for the participants to get permits that will cover the 4 rounds of testing for a period of 2 years. Once the samples are received, necessary forms should be properly filled-up and samples processed. Laboratories should test each samples in triplicate within the same test run and by a single operator. Samples should be treated as routine diagnostic specimens and should only be tested in-house. Most important is that results should be treated in confidence by each of the participating laboratories and should be submitted on time following the instructions provided by ANQAP. ANQAP will analyse all the results submitted and will provide reports to each participating laboratory for each disease that was included in the proficiency testing.

## **CLOSING SESSION**

Dr. I Ernst provided the wrap up of the workshop and encouraged all the participants to actively participate in the four rounds of testing in the next two years. Dr. E Leano officially closed the workshop and thanked all the experts and participants for sharing their expertise, views and inputs during the workshop, and also reiterated the importance of the LPT for all the participating laboratories.

## ANNEX 1

### Regional Laboratory Proficiency Testing Programme

#### List of Participants

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## ANNEX 2

### Regional Aquatic Animal Disease Laboratory Proficiency Testing Project

#### Participant Workshop

Bangkok, 25-26 July 2012

#### Agenda

Time	Item	Presenter
<b>DAY 1</b>		
8:30	1. Registration (Meeting Room: Ladprao 1-4; Mezzanine Floor)	
9:00-9:15	2. Opening ceremony	AE Eknath
9:15-9:30	3. Introduction to the project; purpose of the workshop; expected outcomes; introductions	Ingo Ernst
9:30-9:45	4. Importance of aquatic animal disease diagnostics to facilitate trade and detect transboundary diseases	CV Mohan
9:45-10:30	5. OIE standards with a focus on diagnostics -the Aquatic Code (safe trade, surveillance) -the aquatic manual (diagnostic standards) -disease reporting (demonstrating disease status)	HT Myint
<b>Break (10:30-11:00)</b>		
11:00-12:30	6. Operation of the regional PT program -objectives -roles -test materials -timelines -reporting test results -confidentiality -communications -technical support -question and answer session	Nick Gudkovs / Simone Warner
<b>Lunch (12:30-1:30)</b>		
1:30-3:30	7. Nominations of diseases for inclusion in the PT project -short presentations by participants to nominate priorities( based on criteria e.g. trade, emergency response, endemic disease management); describe current testing capabilities	Nominated country participants (1 per country)
<b>Break (3:30-4:00)</b>		
4:00-5:30	8. (cont'd) Nominations of diseases for inclusion in the PT project	as above
5:30-6:00	9. Wrap-up for day 1 including list of nominated diseases	Mark Crane
<b>WORKSHOP DINNER (6:30 PM)</b>		

<b>Time</b>	<b>Item</b>	<b>Presenter</b>
<b>DAY 2</b>		
9:00-10:00	10. Ranked list of nominated diseases -discussion and agreement on diseases to be included in program -determine intended laboratory participation for each disease	Mark Crane
10:00-10:30	11. Expected role of participants -receipt of specimens and quarantine clearance - reporting of test results (e.g. of forms that will be used) -e.g. of de-identified report on test results -communications.	Simone Warner
<b>Break (10:30-11:00)</b>		
11:00-12:30	12. Wrap-up session -next steps, actions	Ingo Ernst
<b>Lunch (12:30-1:30)</b>		