This report has been submitted: 2017-01-20 16:41:01

<table>
<thead>
<tr>
<th>Title of collaborating centre:</th>
<th>Laboratory Capacity Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address of Collaborating Centre:</td>
<td>CSIRO 5 Portarlington Road Private Bag 24 (Ryrie Street) Geelong 3220, Victoria AUSTRALIA</td>
</tr>
<tr>
<td>Tel.:</td>
<td>+61-3 52 27 52 79</td>
</tr>
<tr>
<td>Fax:</td>
<td>+61-3 52 27 55 55</td>
</tr>
<tr>
<td>E-mail address:</td>
<td><a href="mailto:sam.mccullough@csiro.au">sam.mccullough@csiro.au</a></td>
</tr>
<tr>
<td>Website:</td>
<td><a href="http://www.csiro.au">www.csiro.au</a></td>
</tr>
<tr>
<td>Name of Director of Institute (Responsible Official):</td>
<td>Dr Kurt Zuelke - Director</td>
</tr>
<tr>
<td>Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):</td>
<td>Dr Sam McCullough - Deputy Director</td>
</tr>
<tr>
<td>Name of writer:</td>
<td>Dr Sam McCullough</td>
</tr>
</tbody>
</table>
ToR: To provide services to the OIE, in particular within the region, in the designated specialty, in support of the implementation of OIE policies and, where required, seek for collaboration with OIE Reference Laboratories

ToR: To identify and maintain existing expertise, in particular within its region

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by the OIE

<table>
<thead>
<tr>
<th>Training, capacity building</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title of activity</strong></td>
</tr>
<tr>
<td>Enhancing Rabies testing and control in Bhutan</td>
</tr>
<tr>
<td>AcuPacifico - Integrated Ecosystem-based Sanitary and Environmental Management System for Aquaculture</td>
</tr>
<tr>
<td>Epidemiology of henipaviruses in horses and pigs in Sultan Kudarat, Mindanao, Philippines</td>
</tr>
<tr>
<td>FAO Backstopping missions to participating Laboratories in Asia - 2016</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zoonoses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title of activity</strong></td>
</tr>
<tr>
<td>Diagnostic preparedness for emerging zoonotic avian influenza strains</td>
</tr>
<tr>
<td>The OFFLU contribution to the WHO VCM process</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis, biotechnology and laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title of activity</strong></td>
</tr>
</tbody>
</table>
Inter-laboratory comparison of African swine fever diagnostic platforms using laboratory and field samples from domestic pigs and East African wild pigs

To assess serological and molecular tests for the detection of AFSV infection and compare their performance across laboratories at AAHL and ILRI

Rapid detection and epidemiology surveillance of African Swine Fever using oral fluid

A partnership with Kansas State University to compare the diagnostic performance of available ASFV RT-PCR and ELISAs, including commercial kits. Compare diagnostic performance as a function of the diagnostic specimen tested. The findings will guide sample selection under specific testing circumstances

Development and validation of a real-time PCR test for the detection and identification of Megalocytiviruses

This project has established a sensitive, pan-specific diagnostic test for the detection of both RSIV-like and ISKNV-like Megalocytiviruses. A non-infectious plasmid positive-control is also available and has been transferred to several laboratories within Australia as well as overseas

Comparative pathogenicity of exotic AHPND and the presumptive bacterial hepatopancreatitis detected in farmed Penaeus monodon in Queensland

Studies to determine the pathogenicity of AHPND-causing bacteria in giant tiger prawns, Penaeus monodon, and banana prawns, Fenneropenaeus merguiensis. Preliminary results demonstrate that both species are susceptible to infection via inoculation and natural routes of infection (bath immersion and per os).

The IVM Online system, for molecular surveillance information management

AAHL provides technical assistance to a USAID (FAO) supported project fostering the development of a molecular surveillance information management system, “IVM Online”, to detect and monitor the development of variants of the H5N1 HPAI virus. The IVM Online is an advanced national data management and analysis platform that was formally launched in Indonesia during 2015, with a phase of enhancements during 2016.

**ToR: To propose or develop methods and procedures that facilitate harmonisation of international standards and guidelines applicable to the designated specialty**

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the surveillance and control of animal diseases, food safety or animal welfare

<table>
<thead>
<tr>
<th>Proposal title</th>
<th>Scope/Content</th>
<th>Applicable area</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, eighth edition: Chapter on Newcastle disease</td>
<td>To provide a uniform approach to the diagnosis of important animal diseases, including zoonoses. Its aim is to describe standard methods for laboratory disease diagnosis and the production and control of biological products (mainly vaccines), for veterinary use in laboratories around the world</td>
<td>☐Surveillance and control of animal diseases ☐Food safety ☐Animal welfare</td>
</tr>
</tbody>
</table>

**ToR: To establish and maintain a network with other OIE Collaborating Centres designated for the same specialty, and should the need arise, with Collaborating Centres in other disciplines**

**ToR: To carry out and/or coordinate scientific and technical studies in collaboration with other centres, laboratories or organisations**

3. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate
<table>
<thead>
<tr>
<th>Name of OIE CC/RL/other organisation(s)</th>
<th>Location</th>
<th>Region of networking Centre</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Global Foot-and-Mouth Disease Research Alliance (GRFA) | A global network | □ Africa  
 □ Americas  
 □ Asia and Pacific  
 □ Europe  
 □ Middle East | A coordinated global alliance of scientists producing evidence and innovation that enables the progressive control and eradication of FMD |
| Global African Swine Fever Disease Research Alliance | A global network | □ Africa  
 □ Americas  
 □ Asia and Pacific  
 □ Europe  
 □ Middle East | To establish and sustain global research partnerships that will generate scientific knowledge and tools to contribute to the successful prevention, control and where feasible eradication of African Swine Fever (ASF). |
| EVAg | A global network | □ Africa  
 □ Americas  
 □ Asia and Pacific  
 □ Europe  
 □ Middle East | A coordinated global network that mobilises expertise in virology to amplify, characterize, standardise, authenticate distribute, track, collect viruses and derived products |
| VetBioNet | A global network | □ Africa  
 □ Americas  
 □ Asia and Pacific  
 □ Europe  
 □ Middle East | The project forms a network of facilities researching animal diseases (including diseases which can spread to humans) in secure facilities. It will develop new technologies for this which go considerably beyond the current state of the art as well as activities such as standardization of protocols and best practices as well as connecting with similar institutes outside Europe. New tools will be developed for remote monitoring of the animals' health and welfare. |
| STAR-IDAZ | A global network | □ Africa  
 □ Americas  
 □ Asia and Pacific  
 □ Europe  
 □ Middle East | Global Strategic Alliances for the Coordination of Research on the major Diseases of Animals and Zoonoses |
| Biosafety Level 4 Zoonotic Laboratory Network (BSL4ZNet) | A global network | □ Africa  
 □ Americas  
 □ Asia and Pacific  
 □ Europe  
 □ Middle East | BSL4ZNet is coordinating efforts to establish and sustain a BSL4 trusted partnership Network among Canada, The United States of America, Australia, the United Kingdom and Germany, in order to strengthen coordination, improve knowledge sharing and leverage integrated capacity for diagnostics, research and training. BSL4ZNet will focus on five priority areas: institutional cooperation, scientific excellence, world-class personnel, knowledge sharing and international response. |
4. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

<table>
<thead>
<tr>
<th>Name of OIE CC/RL/other organisation(s)</th>
<th>Location</th>
<th>Region of networking Centre</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| OFFLU                                  | A global network | □Africa  
□Americas  
□Asia and Pacific  
□Europe  
□Middle East | Coordination of the science underpinning the management and control of influenza in animals |

OIE Ad Hoc Group on on susceptibility of crustacean species to infection with OIE listed diseases

<table>
<thead>
<tr>
<th>Name of expert</th>
<th>Kind of consultancy</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr John Allen</td>
<td>Technical Expert</td>
<td>Independent technical expert in an OIE PVS Pathway Laboratory Mission</td>
</tr>
<tr>
<td>Dr Frank Wong</td>
<td>Member of the OFFLU Swine Influenza Group</td>
<td>WHO consultation for the composition of Influenza Virus vaccine The work of the OFFLU network, various meetings and consultations</td>
</tr>
<tr>
<td>Dr Wilna Volsoo</td>
<td>Meeting participation</td>
<td>OIE sub-committee for FMD in South East Asia and China - Coordination for the review of FMD threats, preparedness and diagnostic capabilities</td>
</tr>
<tr>
<td>Dr Mark Crane</td>
<td>Ad hoc group membership</td>
<td>Susceptibility of crustacean species to infection with OIE listed diseases</td>
</tr>
<tr>
<td>Dr Mark Crane</td>
<td>Invited participant/Chair</td>
<td>OIE ad hoc Group on Susceptibility of Fish Species to Infection with OIE Listed Diseases</td>
</tr>
<tr>
<td>Dr Sam McCullough</td>
<td>Invited participant</td>
<td>Regional seminar for OIE National Focal Points for Veterinary Laboratories</td>
</tr>
<tr>
<td>Dr Nick Moody</td>
<td>Invited participant</td>
<td>OIE ad hoc Group on the OIE Manual of Diagnostic Tests for Aquatic Animals</td>
</tr>
</tbody>
</table>

ToR: To place expert consultants at the disposal of the OIE.

5. Did your Collaborating Centre place expert consultants at the disposal of the OIE?

Yes

<table>
<thead>
<tr>
<th>Name of expert</th>
<th>Kind of consultancy</th>
<th>Subject</th>
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<tr>
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<tr>
<td>Dr Nick Moody</td>
<td>Invited participant</td>
<td>OIE ad hoc Group on the OIE Manual of Diagnostic Tests for Aquatic Animals</td>
</tr>
</tbody>
</table>
Various meetings and consultations as part for the OIE Twinning Project – a partnership to enhance and deliver emerging infectious diseases (EID) preparedness in the ASEAN region.

OIE Asia-Pacific Workshop on Surveillance, Prevention and Control of Zoonotic Influenza - Indonesia and Bhutan

19th OIE-SEACFMD National Coordinators Meeting Bangkok, Thailand

2016 Regional Animal Health Laboratory Technical Advisory group (lab-TAG) Meeting - Regional coordination for technical advice to the member countries on strategic planning and laboratory capacity building activities related to emerging, re-emerging and priority animal diseases of the region. Bangkok, Thailand

(FAO lead) Regional consultation to strengthen the bioinformatics capacity in alignment with the Regional

**ToR: To provide, within the designated specialty, scientific and technical training to personnel from OIE Member Countries**

6. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by the OIE, to personnel from OIE Member Countries?

Yes
a) Technical visits: 86
b) Seminars: 140
c) Hands-on training courses: 137
d) Internships (>1 month): 0

<table>
<thead>
<tr>
<th>Type of technical training provided (a, b, c or d)</th>
<th>Content</th>
<th>Country of origin of the expert(s) provided with training</th>
<th>No. participants from the corresponding country</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Backstopping mission to participating laboratories in emergency surveillance and response in multi-disease training</td>
<td>ASEAN countries</td>
<td>110</td>
</tr>
<tr>
<td>A</td>
<td>Technical expert in an OIE PVS Pathway Laboratory mission – Bhutan – January 2016</td>
<td>Bhutan</td>
<td>15</td>
</tr>
<tr>
<td>B</td>
<td>IVM Online, update training and support-workshop</td>
<td>Indonesia</td>
<td>45</td>
</tr>
<tr>
<td>B</td>
<td>Recent advances in Emergency Animal Diseases Symposium</td>
<td>Australia New Zealand</td>
<td>95</td>
</tr>
<tr>
<td>C</td>
<td>Technical training Rabies diagnosis</td>
<td>Philippines</td>
<td>1</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------</td>
<td>-------------</td>
<td>---</td>
</tr>
<tr>
<td>C</td>
<td>Technical training – Histopathology and EM for the purpose of enhancing capability in the investigation on new and emerging diseases</td>
<td>Thailand</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>Technical training – Prawn virus diagnosis</td>
<td>Thailand</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>Technical support and training – fish disease diagnosis</td>
<td>New Zealand</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>Technical support and training on AFDL diagnostic tests</td>
<td>Chile</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>Technical support and training - Rabies</td>
<td>Bhutan</td>
<td>10</td>
</tr>
<tr>
<td>A</td>
<td>Technical support – veterinary epidemiology to improve the health outcomes for snakebite patients in Myanmar</td>
<td>Myanmar</td>
<td>15</td>
</tr>
<tr>
<td>A</td>
<td>Biotechnology capacity strategy planning and implementation for a control program for ASF</td>
<td>Nairobi</td>
<td>30</td>
</tr>
<tr>
<td>C</td>
<td>Backstopping mission to provide training and support on Nipah serology</td>
<td>Bangladesh</td>
<td>6</td>
</tr>
<tr>
<td>A</td>
<td>Technical advice provided to strengthen the bioinformatics capacity to support strategic framework for laboratory capability building in the ASEAN region</td>
<td>ASEAN countries</td>
<td>10</td>
</tr>
<tr>
<td>A</td>
<td>Technical advice provided to enable the Philippines Government to develop a list of controlled biological substances and support legislation to fulfil obligations under UN resolution 1640</td>
<td>Philippines</td>
<td>10</td>
</tr>
<tr>
<td>A</td>
<td>Technical inspection of the Russian Smallpox holding facility in Siberia to ensure the Facility is secure and continuing to meet UN Security council requirements</td>
<td>Russia</td>
<td>6</td>
</tr>
</tbody>
</table>

**ToR: To organise and participate in scientific meetings and other activities on behalf of the OIE**

7. Did your Collaborating Centre organise or participate in the organisation of scientific meetings on behalf of the OIE?

No

**ToR: To collect, process, analyse, publish and disseminate data and information**
8. Publication and dissemination of any information within the remit of the mandate given by the OIE that may be useful to Member Countries of the OIE

a) Articles published in peer-reviewed journals: 42
http://dx.doi.org/10.1016/j.foodcont.2016.08.003
4. Burroughs, Amy; Durr, Peter; Boyd, Vicky; Graham, Kerryne; White, John; Todd, Shawn; et al. Hendra virus infection dynamics in the grey-headed flying fox (Pteropus poliocephalus) at the southern-most extent of its range: Further evidence this species does not readily transmit the virus to horses. PLoS ONE. 2016; 11(6):e0155252. https://doi.org/10.1371/journal.pone.0155252.
10. Corbeil, Serge; Williams, Nette; McColl, Ken; Crane, Mark. Determination of susceptibility of Australian abalone species (Haliotis laevigata, Haliotis rubra and Haliotis conicopora) to infection from various abalone herpesvirus genotypes. Diseases of Aquatic Organisms. 2016; 119:101-106.
12. Crameri, Gary; Durr, Peter; Klein, Reuben; Foord, Adam; Yu, Meng; Eastwood, Sarah; et al. Experimental Infection and Response to Rechallenge of Alpacas with Middle East Respiratory Syndrome Coronavirus. Emerging Infectious Diseases. 2016; 22(6):5. https://doi.org/10.3201/eid2206.160007
13. Dearnley, Megan; Reynolds, Nick; Cass, Pete; Wei, Xiaohu; Shi, Shuning; Mohammed, Ammer; et al. Comparing gene silencing and physiochemical properties in siRNA bound cationic star-polymer complexes. Biomacromolecules. 2016; 17(11):3532-3546. https://doi.org/10.1021/acs.biomac.6b01029
15. Dearnley, Megan; Reynolds, Nick; Cass, Pete; Wei, Xiaohu; Shi, Shuning; Mohammed, Ammer; et al. Dual-role FilmArray® diagnostics for high-impact viral diseases - double the utility or a potential paradigm shift in national emergency disease preparedness?. Australian Veterinary Journal. 2016; 94(3 March):64-66.
18. Gardner, Ian; Whittington, Richard; Caraguell, Charles; Hick, Paul; Moody, Nick; Corbeil, Serge; et al.

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**Laboratory Capacity Building - Australian Animal Health Laboratory**

8 OIE Collaborating Centres Reports Activities, 2016


25. Mok, Lawrence; Wynne, James; Grimley, Samantha; Shiel, Brian; Green, Diane; Monaghan, Paul; et al. Mouse fibroblast L929 cells are less permissive to infection by Nelson Bay virus compared to other mammalian cell lines.. Journal of General Virology. 2016; 96(1):1787-1794.


35. Tizard, Mark; Lowenthal, John; Gobiuss, Kari; Cooper, Caitlin; Doran, Tim. Strategies to enable the adoption of animal biotechnology to sustainably improve global food safety and security. Transgenic Research. 2016; 2016:1-21.

40. Wynne, James; Woon, Amanda; Dudek, Nadine; Croft, Nathan; Ng, Justin; Baker, Michelle; et al. Characterization of the antigen processing machinery and endogenous peptide presentation of a bat MHC class I molecule. Journal of Immunology. 2016; 196(11):4468-76. https://doi.org/10.4049/jimmunol.1502062

b) International conferences: 21
1. Avumegah, Michael Selorm; Thomson, Melanie; Athan, Eugene; Jeanne, Isabelle ; O’Brien, Daniel; Michalski, Wojtek; Wynne, James (2016) One Health Approach – the way forward to mitigate emergence and re-emergence of Bairnsdale ulcer. 4th International One Health Congress, 3-7 December, Melbourne Australia, Abstract 502.
2. Bowden, Tim; Anderson, Danielle; Singanallur, Nagendra; Sessions, October; Wang, Linfa; Vosloo, Wilna. An Improved Approach to Whole Genome Sequencing of FMDV in Clinical Samples. In: Keith Sumption, editor/s. EuFMD Biannual Conference; 26-28 October; Cascais, Portugal. FAO-EuFMD; 2016. 195.
4. Durr, Peter; Burroughs, Amy; Cramer, Gary; Graham, Kerryne and Wang, Linfa. Recent advances in defining the role of specific bat species as wildlife reservoirs for Hendra virus - and implications when using serology to determine reservoir status. One Health EcoHealth 2016, 3-7 December 2016, Melbourne Australia.
7. Luzzo, Jasmina; Stambas, John; Michalski, Wojtek; Sapats, Sandra; Ward, Alister; Bingham, John. Pathogenesis of H5N1 highly pathogenic avian influenza virus in chickens: role of the haemagglutinin cleavage site motif. In: Options IX for the Control of Influenza; 24-28 August 2016; Chicago, USA. International Society for Influenza and Other Respiratory Virus Diseases; 2016. 1.
8. Moody, Nick; Crane, Mark. Validation of diagnostic tests in the OIE Manual for Aquatic Animals. In: Diagnostics workshop; 27/07/2016; Manquehue Hotel, Puerto Montt, Chile. CSIRO; 2016. 42.
11. Taylor, Joanne; Wong, Frank; Williams, David; Butler, Jeff; Shan, Songhua; Stevens, Vicky; Johnson, Dayna; Bender, Hannah; Layton, Daniel; Bruce, Matt; Bingham, John; Meers, Joanne. Infection Dynamics of Novel Influenza A Viruses Isolated from Australian Pigs Using Ferret and Pig Models of Disease. In: Options IX for the Control of Influenza; 24-28 August 2016; Chicago, USA. International Society for Influenza and Other Respiratory Virus Diseases; 2016. 1.
12. Taylor, Joanne; Wong, Frank; Williams, David; Butler, Jeff; Shan, Songhua; Stevens, Vicky; Johnson, Dayna; Bender, Hannah; Layton, Daniel; Bruce, Matt; Bingham, John; Meers, Joanne. The zoonotic risks presented by novel Australian swine influenza A viruses: impacts at the One Health interface. In: One Health and Ecohealth Congress; 3-7 December 2016 ; Melbourne, Australia. CSIRO, Deakin University, Barwon Health; 2016. 1.
14. Wang, Jianning; Anderson, Danielle, Valdeter, Stacey; Chen, Honglei; Walker, Som;Meehan, Brian, Williams,
David; Vosloo, Wilna; Eagles, Debbie; McCullough, Sam; Wang Lin-Fa. A novel henipavirus in Bats. In: 4th European Association of Veterinary Diagnostician Congress. 5-9 Nov 2016, Prague, Czech.
15. Wang, Jianning; Anderson, Danielle, Valdeter, Stacey; Chen, Honglei; Walker, Som; Meehan, Brian, Williams, David; Vosloo, Wilna; Eagles, Debbie; McCullough, Sam; Wang Lin-Fa. A novel henipavirus in Bats, Australia. In: 4th International One Health Congress. 3-7 Dec 2016, Melbourne Australia.
16. Williams, David; Certoma, Andrea; Rowe, Brenton; Johnson, Dayna; Gimenez-Lirola, Luis; Zimmerman, Jeffrey; Clavijo, Alfonso. Rapid detection and epidemiological surveillance of African swine fever using oral fluid. 2016 ZADD Vaccine Workshop & CEEZAD Annual Meeting, October 31 –November 2, 2016, Nebraska City, USA.
17. Williams, David; Certoma, Andrea; Rowe, Brenton; Johnson, Dayna; Gimenez-Lirola, Luis; Zimmerman, Jeffrey; Clavijo, Alfonso. Rapid detection and epidemiological surveillance of African swine fever using oral fluid. In: 3rd Annual GARA Scientific Workshop, Ploufragan, France; 6-8th September, 2016.
18. Wong, Frank. Networking laboratories in SE Asia: strengthening regional bioinformatics capacity. Regional Consultation to Strengthen the Bioinformatics Capacity in Alignment with the Regional Strategic Framework for Laboratory Capacity Building; 10-12 May 2016; FAO/USAID; Bangkok, Thailand.
20. Wong, Frank; Dauphin, Gwenaelle. OFFLU contribution of zoonotic avian Influenza data. WHO Consultation on the Composition of Influenza Vaccines for the Northern Hemisphere; 22-24 February 2016; World Health Organization, Geneva, Switzerland.

c) National conferences: 9
2. McNabb, Leanne; Bowden, Tim; Vosloo, Wilna; Lunt, Ross. Developments in FMD serology at AAHL. Talk presented at the Australian Association of Veterinary Laboratory Diagnosticians (AAVLD) meeting, Darwin, Australia, 23–24 November 2016.
3. Mohr, Peter; Moody, Nick; Williams, Nette; Slater, Joanne; Cummins, David; Hoad, John; et al. Towards understanding the susceptibility of Australian farmed prawns to newly discovered Yellow head virus complex genotypes. In: AAVLD; 2016. 23-24th November; Darwin, NT. AAVLD; 2016. 1.
4. Moody, Nick. FRDC 2015-015: Aquatic Animal Health Subprogram: Determining the susceptibility of Australian Penaeus monodon and P. merguiensis to newly identified enzootic (YHV7) and exotic (YHV8 and YHV10) Yellow head virus (YHV) genotypes.. In: Ridley Australian Prawn & Barramundi Farmers Symposium; 2 August 2016; Townsville, Queensland. CSIRO; 2016. 10.
6. Williams, David; Diviney, Sinead; Niazi, Aziz; Broz, Ivan; Chua, Beng; Herring, Belinda; Pyke, Alyssa; Doggett, Stephen; Johansen, Cherly; Mackenzie, John. Killer mozzies and their mutant swarms: Evolutionary studies of Murray Valley encephalitis virus. Australian Society for Microbiology Annual Meeting, Perth, Australia, 3-6 July, 2016.
7. Williams, David; Mackenzie, John. Epidemic And Endemic Mosquito-borne Flaviviruses Of The Asia-pacific Region: Their Importance In Diseases Of Humans And Animals. One Health EcoHealth 2016 conference, 3-7 December, Melbourne, Australia.

d) Other
(Provide website address or link to appropriate information): 12
Books/Book chapters
2. Crane, Mark; McColl, Ken; Cowley, Jeff; Corbeil, Serge; Moody, Nick; Warner, Simone; et al. Abalone Herpesvirus. In: Don Liu, editor/s. Molecular detection of animal viral pathogens. CRC Press; 2016. 807-815.
4. Carlile, Gemma; Loh, Mai Hlaing; Waugh, Caryll; Watson, James; Morrissy, Chris. South East Asia Regional Proficiency Testing Report: Influenza A PCR; 2016.

5. Carlile, Gemma; Loh, Mai Hlaing; Waugh, Caryll; Watson, James; Morrissy, Chris. South East Asia Regional Proficiency Testing Report: Influenza A H5 PCR; 2016.

6. Crane, Mark, StJ; Hoad, John; Shiell Brian, J; Beddome, Garry; Peck Grant, R; Michalski, Wojtek, P; Moody Nick, JG. Establishing viral diagnostics for salmonid aquaculture in Tasmania: Characterisation and identification of Salmon Orthomyxo-like virus (SOMV) and associated pathology in Atlantic salmon: Production and evaluation of rabbit anti-SOMV antiserum for use as a diagnostic reagent. FRDC Project No 2013/033, 2016.

7. Loh, Mai Hlaing; Carlile, Gemma; Waugh, Caryll; Watson, James; Morrissy, Chris. South East Asia Regional Proficiency Testing Report: Newcastle Disease PCR; 2016.

8. Loh, Mai Hlaing; Carlile, Gemma; Waugh, Caryll; Watson, James; Morrissy, Chris. South East Asia Regional Proficiency Testing Report: Swine Disease (ASF/CSF/PRRS/SIV) PCR; 2016.


