

# OIE Collaborating Centres Reports Activities

## *Activities in 2018*

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<b>Title of collaborating centre:</b>	Epidemiology Aquatic Animal Diseases
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<b>Name of Director of Institute (Responsible Official):</b>	K. Larry Hammell DVM, MSc
<b>Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):</b>	Dr. Larry Hammell (Co-Director); Dr. Saraya Tavornpanich (Co-Director)
<b>Name of writer:</b>	Larry Hammell and Saraya Tavornpanich

**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**

<b>Epidemiology, surveillance, risk assessment, modelling</b>	
<b>Title of activity</b>	<b>Scope</b>
Tilapia health project in Brazil focusing on francisellosis and streptococcus.	Completion of two publications focusing on economic appraisal of vaccination against streptococcus and seasonal dynamics of bacterial pathogens of Nile tilapia. Development of surveillance plan for these diseases in Brazil.
Biosecurity blueprint assessment.	Assessment of biosecurity plans for the Tasmanian salmon industry.
Fish for development project in Ghana.	Support the development of fish health management at governmental and farm level.
Fish for development project in Columbia.	Fish for development project in Columbia Support the development of fish health management at governmental and farm level.
Project for strengthening biosecurity to support healthy and sustainable aquaculture production.	Collaboration with FAO to improve aquaculture biosecurity and implementation of risk-based surveillance in developing countries.
<b>Diagnosis, biotechnology and laboratory</b>	
<b>Title of activity</b>	<b>Scope</b>
Field evaluation project for estimation of diagnostic sensitivity and specificity for detection of salmonid alphavirus and pancreas disease diagnosis in farmed Atlantic salmon.	Estimate diagnostic characteristics of commonly used diagnostic methods for pancreas disease diagnosis in Norway using non-gold standard, Bayesian latent class analysis.
Analysis of bacterial kidney disease culture methods commonly used for surveillance in Atlantic salmon in Canada.	Completion of analysis of commonly used test in Atlantic Canada for surveillance of Bacterial Kidney Disease in Atlantic salmon.

**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**

Proposal title	Scope/Content	Applicable area
Multi-stakeholder Consultation on Progressive Management Pathway to Improve Aquaculture Biosecurity (PMP/AB)	Promotion of awareness on PMP/AB concepts/principles and application in aquaculture;  deliberate on draft indicators, checklists and guidelines for implementation	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare

**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 scientific and technical studies?**

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
OIE Collaborating Centre for Diagnostic Test Validation Science in the Asia-Pacific Region	Australia	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Publish manuscript on design studies for test accuracy studies, provide advice on design of laboratory-based pooling experiments for white spot syndrome virus and megalocytivirus
Veterinary Services Capacity Building (Americas)	USA	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Co-development of e-learning program in aquaculture epidemiology
Viral haemorrhagic septicaemia	Korea	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Workshop on Rhabdoviral diseases of aquatic animals and Risk analysis

**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?**

No

**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

Name of expert	Kind of consultancy	Subject
Ian Gardner	Technical Advice	<p>Consultation on study design for laboratory-based pooling experiments for white spot syndrome virus and megalocytivirus. Consultation on the development of a surveillance plan for francisellosis and streptococcus in Nile tilapia in Brazil.</p> <p>External reviewer on Fisheries and Oceans Canada risk assessments on <i>Piscirickettsia salmonis</i>, <i>Renibacterium salmoninarum</i>, <i>Aeromonas salmonicida</i> and <i>Yersinia ruckeri</i> in sockeye salmon in the Fraser River, British Columbia.</p>
Larry Hammell	Technical Advice	Appointment to independent expert panel on aquaculture science, established by the Chief Science Advisor of Canada.
Mona Dverdal Jansen	Technical advice	<p>Providing scientific input as member of the OIE's electronic ad hoc Group on Tilapia lake virus (TiLV). The mandate of the group is to evaluate published and unpublished methods for detection of TiLV, describe the level of validation of each method and determine additional validation, requirements, recommend any additional assays that may need to be developed and facilitate the sourcing and distribution of well-characterised positive control material for method evaluation, implementation and inter-laboratory comparability studies.</p> <p>The group reports to the OIE Aquatic Animals Commission.</p>
Mona Dverdal Jansen	Technical advice	Providing expert opinion inputs to the FAO's Tilapia lake virus Expert knowledge elicitation risk assessment. The results from the assessment is intended to assist countries in setting risk management policies that address concerns about the potential spread of TiLV.
Mona Dverdal Jansen	Technical advice	International consultancy under the World Bank's West Africa Regional Fisheries Program in Ghana: Support to the assessment of tilapia mortality and identification of management options, including farmer interviews, sample collection, sample analyses, epidemiological, consequence assessment, and management recommendations.
Mona Dverdal Jansen	Technical advice	International consultancy under WorldFish FISH CRP program to support WorldFish Bangladesh and WorldFish Egypt undertake tilapia epidemiology and health economics studies. The consultancy included revision of the Tilapia epidemiology and health economics tool and its implementation, support in study design, data management and data analysis, as well as the co-organization of an associated workshop
Saraya Tavornpanich	Technical advice	Serve as a subject expert at the workshop on animal health and risk analysis in finfish aquaculture, organized by General Fisheries Commission for the Mediterranean (GFCM).
Edgar Brun	Technical advice	Lead of ad hoc group on a new chapter on aquatic biosecurity

Larry Hammell	Technical advice	Assessment of biosecurity plans for the Tasmanian salmon industry.
Larry Hammell	Technical advice	Peer review of Aquatic PVS Evaluation (Africa).

**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: 2
- b) Seminars: 0
- c) Hands-on training courses: 2
- d) Internships (>1 month): 0

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
c) hands-on course	Diagnostic Test Evaluation workshop	Canada	20
c) hands-on course	Canadian Association of Lab Animal Medicine Course: Health and Husbandry of Aquatic Laboratory Animals	Canada	20
a) Technical visits	Research visit and plan for development of capacity building of fish health and marine aquaculture to 6 delegates from Ministry of Fisheries and Aquaculture, Myanmar	Norway	6
a) Technical visits	Norwegian management system for controlling of aquatic animal diseases to 3 delegates from Korean Aquatic Biosecurity Technology company	Norway	3

**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?**

Yes

National/International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	Intensive Training Course on Tilapia Lake Virus (TiLV)	FAO/China	06/18	Sun Yat-Sen University, Guangzhou, China	30
International	Workshop on Tilapia epidemiology and health economics studies	World Fish	12/18	World Fish Dhaka office, Bangladesh	6
International	International Symposium on Aquatic Animal Health	American Fisheries Society	09/18	PE, Canada	400
International	Workshop on Rhabdoviral diseases of aquatic animals and Risk analysis	OIE reference lab on Viral haemorrhagic septicaemia	06/18	Busan, South Korea	30

***ToR: To collect, process, analyse, publish and disseminate data and information relevant to the designated specialty***

#### **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: 11

Jansen, M.D., Dong, H.T & Mohan C.V. Tilapia lake virus: a threat to the global tilapia industry? Reviews in Aquaculture. 2018. 1-15.

Amirpour Haredasht S, Tavornpanich S, Jansen MD, Lyngstad TM, Yatabe T, Brun E, Martínez-López B. A stochastic network-based model to simulate the spread of pancreas disease (PD) in the Norwegian salmon industry based on the observed vessel movements and seaway distance between marine farms.

Prev Vet Med. 2018 Jul 25. doi: 10.1016/j.prevetmed.2018.05.019.

Lyngstad TM, Qviller L, Sindre H, Brun E, Kristoffersen AB. Risk Factors Associated With Outbreaks of Infectious Salmon Anemia (ISA) With Unknown Source of Infection in Norway. Front Vet Sci. 2018 Dec 6;5:308. doi: 10.3389/fvets.2018.00308.

Kristoffersen AB, Devold M, Aspehaug V, Gjelstenli O, Breck O, Bang Jensen B. Molecular tracing confirms that infection with infectious pancreatic necrosis virus follows the smolt from hatchery to grow-out farm. J Fish Dis. 2018 Oct;41(10):1601-1607. doi: 10.1111/jfd.12844.

Garseth ÅH, Fritsvold C, Svendsen JC, Bang Jensen B, Mikalsen AB. Cardiomyopathy syndrome in Atlantic salmon *Salmo salar* L.: A review of the current state of knowledge. J Fish Dis. 2018 Jan;41(1):11-26. doi: 10.1111/jfd.12735.

Guarracino M, Qviller L, Lillehaug A. Evaluation of aquaculture management zones as a control measure for salmon lice in Norway. Dis Aquat Organ. 2018 Aug 28;130(1):1-9. doi: 10.3354/dao03254. PubMed PMID: 30154267.

Kristoffersen AB, Qviller L, Helgesen KO, Vollset KW, Viljugrein H, Jansen PA. Quantitative risk assessment of

salmon louse-induced mortality of seaward-migrating post-smolt Atlantic salmon. *Epidemics*. 2018 Jun;23:19-33. doi: 10.1016/j.epidem.2017.11.001.

Thakur K, Patanasatienkul T, Laurin E, Vanderstichel R, Corsin F, Hammell KL. 2018. Production characteristics of intensive whiteleg shrimp (*Litopenaeus vannamei*) farming in four Vietnam provinces. *Aquaculture Research* 49: 2625-2632 (doi:10.1111/are.13720)

Boerlage AS, Elghafghuf A, Stryhn H, Sanchez J, Hammell KL. 2018. Risk factors associated with time to first clinical case of Bacterial Kidney Disease (BKD) in farmed Atlantic salmon (*Salmo salar* L.) in New Brunswick, Canada. *Prev Vet Med* 149: 98-106.

Laurin E, Thakur KK, Gardner IA, Hick P, Moody NJ, Crane MSJ, Ernst I. 2018. Design standards for experimental and field studies to evaluate diagnostic accuracy of tests for infectious diseases in aquatic animals. *Journal of Fish Diseases* 41(5):729-749. (<https://doi.org/10.1111/jfd.12792>)

Delphino MK, Barone RF, Leal CA, Figueiredo HC, Gardner IA, Gonçalves VSP. 2018. Economic appraisal of vaccination against *Streptococcus agalactiae* in Nile tilapia farms in Brazil. *Preventive Veterinary Medicine*. (in press) (<https://doi.org/10.1016/j.prevetmed.2018.12.003>)

Delphino MK, Leal CA, Gardner IA, Assis GB, Georgia D, Roriz GD, Ferreira F, Figueiredo HC, Gonçalves VSP. Seasonal dynamics of bacterial pathogens of Nile tilapia farmed in a Brazilian reservoir. *Aquaculture*. (in press) (<https://doi.org/10.1016/j.aquaculture.2018.08.023>)

b) International conferences: 5

Brun E, Tavornpanich S, Lillehaug A; Vaccination against bacterial diseases in farmed Atlantic salmon – experience and global applicability, Global Vaccine and Immunization Research Forum (GVIRF) 20-22 March 2018, Bangkok, Thailand

Tavornpanich S, E Brun: Risk assessment in decision-making, Scientific meeting on Rhabdoviral diseases of aquatic animals and Risk analysis, in connection to the opening of OIE Ref Lab on VHS at the National Fishery Products Quality Management Service, Ministry of Oceans and Fisheries, 19 -22, June 2018, Busan, South Korea

Hjeltnes B, Tavornpanich S, Brun E. Biosecurity and transparency. Session for Biosecurity and Antimicrobial resistance (FAO). World Aquaculture Society. Montpellier, France. 25-29 August, 2018.

8th International Symposium on Aquatic Animal Health. Prince Edward Island, Canada, 2-6 September 2018

Aquatic Epidemiology International Planning Sessions. Stirling, Scotland. 11-12 January 2018

c) National conferences: 2

Modellering av SAV-spredning ved hjelp av AIS data” Presentation at the national Havbruk 2018-conference. 18-20 April 2018.

Veterinary Oversight of Antimicrobial Use Workshop, Canadian Veterinary Medical Association, Ottawa, Canada. 6-8 Feb 2018.

d) Other

(Provide website address or link to appropriate information): 0