

OIE Collaborating Centres Reports Activities

Activities in 2017

This report has been submitted : 2018-02-03 21:36:30

Title of collaborating centre:	Epidemiology Aquatic Animal Diseases
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Name of Director of Institute (Responsible Official):	K.L. Hammell, DVM MSc
Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Dr. Larry Hammell, Co-Director, Edgar Brun, Co-Director
Name of writer:	Larry Hammell and Edgar Brun

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

Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Assessment of risk factors associated with the time-to-first-clinical-case of Bacterial Kidney Disease in Atlantic Salmon.	Completion of a collaborative research project to examine retrospective farm health and production data to identify risks associated with the time-to-first-clinical case in farmed Atlantic Salmon in Atlantic Canada.
Analysis of diagnostic sensitivity and specificity of test utilized for surveillance of Bacterial Kidney Disease in Atlantic Salmon.	Completion of a Bayesian latent class analysis of diagnostic sensitivity and specificity for tests commonly utilized in Atlantic Canada for surveillance of Bacterial Kidney Disease in Atlantic Salmon.
Identification of factors related to pathogen introduction and spread in marine fin-fish production in Northern Vietnam.	Completion of the investigation describing factors related to pathogen introduction and spread among small-holding marine cage sites located within floating villages in Hai Phong Province in Vietnam.
The relation between ISAV HPR0 and ISA outbreaks	Identifying drivers that may influences the transition from HPR0 to HPR deleted
Fact finding mission to Ghana (Project funded by Norwegian NORAD)	First meeting to establish contacts and knowledge to provide services to support building fish health competence in Ghana.
Workshop in Malaysia arranged by WorldFish	to discuss epidemiological Collaboration and support to Tilapia Production in South Asia and Afraca

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
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Report of the Transboundary Workshop for Aquatic Animal Diseases	Outcomes of the expert member research workshop on the topic of trans-boundary animal diseases of aquatic animal held at Ottawa 30-31 May 2017. A discussion Paper identifying four essential components for evaluating and managing aquatic animal transboundary disease across jurisdiction or borders (national or international).	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
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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 ISA reference lab	Norway	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	
OIE Collaborating Centre in Test Validation Science, in Australia, for the Asia and Pacific	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	
OIE PD reference lab	Norway	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	
OIE Gyrodactylus reference lab	Norway	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	

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
Larry Hammell	Technical advice	Consultative Role for Indian National Surveillance Programme for Aquatic Animal Diseases (Strategy Planning Workshop), Lucknow, India. April 2017 Participation in AMU Surveillance Planning Workshops for Canadian Veterinary Medical Association Participant (and Keynote Address) for Planning a Blue Future Global Salmon Conference, Tasmania
Ian Gardner	Technical advice	Aquatic Diagnostics
Edgar Brun	Technical advice	Group leader for Ad hoc Group on Aquatic Animal Biosecurity For Aquaculture Establishments
Mona D Jansen	Technical advice	Appointed to take part in ad hoc Group on Tilapia Lake virus

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: 4
c) Hands-on training courses: 1
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
a) Technical Visits	Collaboration With OIE ISA ref lab in a twinning programme With Aquacen	Brazil	5
c) workshop	Aquaculture Biosecurity Workshop, Cape Town	Africa (multiple countries)	35

b) seminars	Epidemiologic Principles for Surveillance Design and Implementation	India	80
b) seminars	Principles and Applications of Randomized Clinical Trials for aquaculture Treatments and Vaccines	India	80
b) seminars	Role of Diagnostic Laboratories and Diagnostic Tests in Aquaculture Disease Surveillance and Determining Disease Presence/Absence through Diagnostic Testing and Surveillance	Multiple	50
b) seminars	Fish Farm Biosecurity Challenges in Aquatic Environments (Keynote)	Australia	100

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	Research Workshop on the Evaluation and Management of Trans boundary Animal Diseases of Aquatic Animals	Larry Hammell	05/17	Ottawa, Canada	25
National	ISA workshop..need for increased focus on ISA. (in Norwegian)	Edgar Brun	5/17	Trondheim, Norway	90
international	Applications of Network Analysis in Aquaculture	Saraya Tavorpanich	7/17	Oslo, Norway	15

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: 16

JARAMILLO D, GARDNER IA, STRYHN H, BURNLEY H, HAMMELL KL. 2017. Bayesian latent class analysis of diagnostic sensitivity and specificity of tests for surveillance for bacterial kidney disease in Atlantic salmon *Salmo salar*. *Aquaculture* 476: 86-93.

BOERLAGE AS, DUNG TT, HOA TTT, DAVIDSON J, STRYHN H, HAMMELL KL. 2017. Productivity characteristics of red tilapia (*Oreochromis* spp.) in floating cages in the Mekong Delta, Vietnam, with focus on mortality and health management. *Dis Aquat Org* 124: 131-144.

DI CICCO E, FERGUSON HW, SCHULZE AD, KAUKINEN KH, LI S, VANDERSTICHEL R, WESSEL Ø, RIMSTAD E, GARDNER IA, HAMMELL KL, MILLER KM. 2017. Heart and skeletal muscle inflammation (HSMI) disease diagnosed on a British Columbia salmon farm through a longitudinal farm study. *PLOS One*
<http://dx.doi.org/10.1371/journal.pone.0171471>.

BOERLAGE AS, NGUYEN KV, DAVIDSON J, PHAN VT, BUI TN, DANG LT, STRYHN H, HAMMELL KL. 2017. Finfish marine aquaculture in Northern Vietnam: Factors related to pathogen introduction and spread. *Aquaculture* 466: 1-8.

GEHRELS H, TUMMON FLYNN P, COX R and QUIJON, PA. 2017. Effects of habitat complexity on cannibalism rates in European green crab (*Carcinus maenas* Linnaeus 1758). *Marine Ecology*. DOI: 10.1111/maec.12448

JIA B, ARMSTRONG B, STRYHN H, GARDNER IA, CHANG H and ST-HILAIRE S. 2017. A case study of time-series regression modeling: risk factors for pond-level mortality of farmed grass carp (*Ctenopharyngodon idella*) on a southern Chinese farm. *Aquaculture*. <https://doi.org/10.1016/j.aquaculture.2017.10.037>

RORIZ GD, DELPHINO MKDVC, GARDNER IA and GONÇALVES, VSP. 2017. Characterization of tilapia farming in net cages at a tropical reservoir in Brazil. *Aquaculture Reports*, 6, 43-48.

JARAMILLO D, PEELER EJ, LAURIN E, GARDNER IA and WHITTINGTON RJ. 2017. Serology in Finfish for Diagnosis, Surveillance, and Research: A Systematic Review. *Journal of Aquatic Animal Health* 29(1), 1-14.

JIA B, ST-HILAIRE S, SINGH K and GARDNER IA. 2017. Biosecurity knowledge, attitudes and practices of farmers culture yellow catfish (*Pelteobagrus fulvidraco*) in Guangdong and Zhejiang provinces, China. *Aquaculture* 471: 146-156.

PRICE D, IBARRA R, SANCHEZ J and ST-HILAIRE S. 2017. A retrospective assessment of the effect of fallowing on piscirickettsiosis in Chile. *Aquaculture* 473: 400-406.

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. 2017. *Epidemics*. 2017 Dec 2. pii: S1755-4365(17)30165-2. doi: 10.1016/j.epidem.2017.11.001

Christiansen D.H., McBeath A.J.A., Aamelfot M., Matejusova, I., Fourrier, M., White, P., Petersen, P.E., Falk K. (2017) First field evidence of the evolution from a non-virulent HPR0 to a virulent HPR-deleted infectious salmon anaemia virus. *J Gen Virol* 98; 595-606. DOI 10.1099/jgv.0.000741

Garseth AH, Fritsvold C, Svendsen J, Bang Jensen B, Mikalsen AB (2017) Cardiomyopathysyndrom in Atlantic salmon *Salmo Salar* L.: A review of the current state of knowledge- *J Fish Disease*, DOI: 10.1111/jfd.12735

Flem B, Moen V, Finne T E, Viljugrein H, Kristoffersen A B. Trace element composition of smolt scales from Atlantic salmon (*Salmo salar* L.), geographic variation between hatcheries. *Fisheries Research*. 2017, 190 p. 183-196.

Wiik-Nilsen J, Gjessing M, Solheim H T, Litlabø A, Gjerve A G, Kristoffersen A B, Powell M D, Colquhoun D J. *Ca Branchiomonas cysticola*, *Ca Piscichlamydia salmonis* and Salmon Gill Pox Virus transmit horizontally in Atlantic salmon held in fresh water. *Journal of Fish Diseases*. 2017, 40.(10) p. 1387-1394

M. Aldrin, R.B. Huseby, A. Stien, R.N. Grøntvedt, H. Viljugrein, P.A. Jansen 2017. A stage-structured Bayesian hierarchical model for salmon lice populations at individual salmon farms - Estimated from multiple farm data sets. *Ecological Modelling* 359: 333-348.

b) International conferences: 7

03/17 IESSAH-konferansen, International society for economics and social science in Animal Health, Inveness,

Scotland

04/17 International Symposium on Aquatic Animal Health and Epidemiology for Sustainable Asian Aquaculture (Lucknow, India), Keynote Speaker: a) Epidemiological Principles for Surveillance Design and Implementation; b) Principles and Applications of Randomized Control Trials of Aquaculture Treatments and Vaccines.

06/17 World Aquaculture Society Biosecurity Special Session (Cape Town, South Africa), Determining Disease Presence/Absence through Diagnostic Testing, Surveillance and Monitoring.

07/17 International Aquaculture Veterinary Biosecurity Workshop (Cape Town, South Africa), Evidence-based tools for biosecurity surveillance.

09/17 10th Symposium on Diseases in Asian Aquaculture (DAA10), Bali, Indonesia

09/17 European Association of Fish Pathologists (Belfast, North Ireland)

10/17 Aquaculture Europe (Dubrovnik, Croatia)

c) National conferences: 2

05/17 Research Workshop on the Evaluation and Management of Trans boundary Animal Diseases of Aquatic Animals.

04/17 Stakeholders Conference and workshop on ISA, Norway

d) Other

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