WOAH Collaborative Centre Reports Activities 2023

Activities in 2023

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Centre Information

Title of WOAH Collaborating Centre	Epidemiology & Risk Assessment of Aquatic Animal Diseases (Americas)
Address of WOAH Collaborating Centre	Dept of Health Management, Atlantic Veterinary College, University of PEI, Charlottetown, Canada
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Name Director of Institute (Responsible Official):	Larry Hammell
Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):	Dr. Larry Hammell, Professor
Name of the writer:	Larry Hammell

TOR1 AND 2: SERVICES PROVIDED

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

Category	Title of activity	Scope
Epidemiology, surveillance, risk assessment, (true)	Scientific Advisor – Aquatic Animal Health Strategy	Scientific Advisor – Aquatic Animal Health Strategy, based in Paris, starting 10 April 2023. Primary advising on aspects of the strategy related to: Support capacity building activities for early detection and rapid response to aquatic animal disease outbreaks, in particular for the Asia-Pacific region Support the implementation of WOAH aquatic animal health standards and transparency in disease reporting Support the delivery of activities under Objective 4 (Leadership) of the AAHS Develop and deliver training to WOAH staff to increase understanding and expertise in aquaculture and aquatic animal health
Training, capacity building (true)	Capacity Building for WOAH Aquatic Focal Points	Participating in organising committees and presentations at 2 aquatic Focal Point meetings and one Regional Network, including: 1. WOAH Launch of Regional Aquatic Animal Health Laboratory Network for Africa (RAAHLN-AF), Pretoria, South Africa (Dec 2023) 2. WOAH National Focal Points (Africa) on Aquatic Animals Regional Training Seminar, Kigali, Rwanda (Oct 2023). 3. WOAH National Focal Points (Asia-Pacific) on Aquatic

		Animals Regional Training Seminar, Busan, Korea (Jun 2023).
Aquatic animal diseases (true)	Aquatic Animal Disease surveillance and epidemiology research projects.	Regional / national activities in Canada, including: 1. Methods for the derivation of connectivity measures for the dispersal of sea lice 2. Description of spatiotemporal patterns of infectious salmon anemia virus (ISAV) detection in marine Atlantic salmon farms in Newfoundland and Labrador. 3. Diagnosis of Renibacterium salmoninarum infection in harvested Atlantic salmon (Salmo salar L.) on the east coast of Canada: Clinical findings, sample collection methods, and laboratory diagnostic tests. 4. Bayesian analysis of diagnostic sensitivity and specificity for detecting infectious salmon anemia virus (ISAV) using IFAT and real-time RT-PCR testing from laboratories in Atlantic Canada. 5. Research and Harmonization of Aquatic Animal Health Management in Atlantic Canada- One Coast Approach to Fish Health, Assessment of gaps in Infectious salmon anemia management in Atlantic Canada. 6. Assessing the impact of freezing, thawing and storage conditions on the ability of salmon tissues to detect ISAV by PCR. 7. Understanding winter mortality patterns in Atlantic salmon: a phased approach. 8. Epidemiological investigation of emerging infectious diseases of farmed fish in Canada. 9. Long-read sequencing reveals the shell microbiome of apparently healthy American lobsters Homarus americanus from Atlantic Canada. 10. Interspecies and spatial differences in the shell microbiome of Atlantic rock crab Cancer irrotatus and European green crab Carcinus maenas from Atlantic Canada. 11. Bayesian analysis of diagnostic sensitivity and specificity for detecting infectious salmon anemia virus (ISAV) using IFAT versus qRT-PCR testing from three different laboratories in Atlantic Canada. International applied epidemiology research, including: 1. Survey of farm management and biosecurity practices in shrimp farms in Java Island, Indonesia

TOR3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main fucus area for which you were designated

Proposal title	Scope/Content	Applicable area

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

Yes

Research need : 1

Please type the Research need: Systematic Reviews to support evidence in aquatic code / manual chapters

Relevance for WOAH Disease Control, Capacity Building, Other, Standard Setting, Animal Welfare, Facilitation of international collaboration,

Relevance for the Codes or Manual Code, Manual,

Field Epidemiology and Surveillance, Diagnostics, Vaccines, Therapeutics,

Animal Category Terrestrial, Aquatic,

Disease:

Infection with infectious salmon anaemia virus

Kind of disease (Zoonosis, Transboundary diseases) Zoonosis, Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer:

Notes:

Answer:

4. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
ERAAAD-Europe (NVI), Emerging Aquatic Diseases (CEFAS), CASA (U Chile), GBADS (Liverpool)	virtual	Americas Europe	multiple coordination video meetings to discuss enhancing WOAH mission and Aquatic Animal Health Strategy

TOR4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
CSIRO	Australia	Asia and Pasific	Inclusion in regular meetings to enhance WOAH mission and aquatic animal health strategy

TOR6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOAH?

Yes

NAME OF EXPERT	KIND OF CONSULTANCY	SUBJECT
Larry Hammell	Scientific Advisor	WOAH (Paris) for Aquatic Animal Health Strategy
Larry Hammell	Aquatic Focal Point Meetings in Korea (Jun 2023) and Rwanda (Oct 2023)	Workshop organizing committee /presenter: Global Aquatic Animal Health Strategy; National Focal Point Survey (Africa); Aquatic Disease Surveillance – Practical Considerations for Sampling and Diagnostic Testing; PVS Pathway Evaluation – Expert Experiences; Network of Aquaculture Centres; Program Review and Discussion
		Workshop organizing committee / presenter: Global Aquatic

Larry Hammell	WOAH Launch of Regional Aquatic Animal Health Laboratory Network for Africa (RAAHLN-AF), Pretoria, South Africa (Dec 2023)	Animal Health Strategy; ERAAAD (Americas) WOAH Collaborating Centre Activities and Challenges.
Larry Hammell	AQMENET Technical Committee member	Expert advice for aquaculture network in Middle East
Larry Hammell	WOAH AMR Network committee member	regular meetings of experts (virtual)
Larry Hammell	Ad hoc group member	Wildlife Health Information System - participant in virtual calls and Paris meeting (Dec 2023).
Larry Hammell	Webinars for WOAH staff	multiple webinars provided to general WOAH staff on the role of aquaculture in global food security, and interactions / seminars to individual WOAH departments to enhance uptake of aquatic health into core activities
Larry Hammell	WOAH representative on organizing committee for FAO/WOAH Fish Vet Dialogue meeting	Fish Vet Dialogue meeting to be held in June 2024.

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

No

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOAH, to personnel from WOAH Members?

Yes

a) Technical visit : 0

b) Seminars : 200

c) Hands-on training courses: 65

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
B	aquatic health seminars to WOAH staff; aquatic focal point meetings	global, Africa, Asia Pacific	200
C	Farmer training on parasite identification	Canada	65

TOR8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOAH?

Yes

NATIONAL/INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	Aquatic Focal Points for Africa (English)	WOAH Regional Office (Nairobi)	2023-10-02	Rwanda	45

International	Aquatic Focal Points for Asia Pacific	WOAH Regional Office (Tokyo)	2023-06-26	Korea	40
International	Regional Network of Aquatic Diagnostic Labs	WOAH Regional Office (Nairobi)	2023-12-05	South Africa	20
International	3rd International Conference on Aquatic Animal Epidemiology 2023	Aqua-Epi III - Lucknow, India	2023-11-29	India	200

TOR9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAH that may be useful to Members of WOAH
a) Articles published in peer-reviewed journals:
9
4. Koepper S, Revie C, Stryhn H, and Thakur K (2023). Observed size distribution changes in American lobsters over a 12-year period in southwestern Nova Scotia, Canada. PLOS ONE, 18(12)*

5. Koepper S, Revie C, Clarke F, McClure J, Stryhn H, and Thakur K (2023). Long-read sequencing reveals the shell microbiome of apparently healthy American lobsters Homarus americanus from Atlantic Canada. Front Microbiol doi.org 10.3389/fmicb.2023.1245818*

6. Gautam M, Hammell L, Burnley H, O'Brien N, Whelan D, and Thakur K (2023). Spatio-temporal patterns of Infectious Salmon Anaemia virus (ISAv) in marine salmon farms in Newfoundland and Labrador. J Aquat Anim Health, doi/10.1002/aah.10205*

7. Koepper S, Kelley S, Thakur K and Clark F (2023). Interspecies and spatial differences in the shell microbiome of Atlantic rock crab Cancer irrotatus and European green crab Carcinus maenas from Atlantic Canada. Front Mar Sc, doi.org/10.3389/fmars.2023.1152544*

8. Patanasatienkul T, Gautam M*, Hammell L, Gilang D, Delphino M, Burnley H, and Thakur K (2023). Survey of farm management and biosecurity practices in shrimp farms in Java Island, Indonesia. Front Aquac, doi.org/10.3389/faquc.2023.1169149*

9. JIA B, BURNLEY H, GARDNER IA, SAAB ME, DOUCET A, HAMMELL KL. 2023. Diagnosis of Renibacterium salmoninarum infection in harvested Atlantic salmon (Salmo salar L.) on the east coast of Canada: Clinical findings, sample collection methods, and laboratory diagnostic tests. J Fish Diseases 00: 1-15. https://doi.org/10.1111/jfd.13770

b) International conferences:
5
Thakur K. Importance of diagnostic testing in aquatic food animal epidemiology: An example for site level detection of infectious salmon anemia virus in farmed Atlantic salmon. 3rd International Aquatic Epidemiology Conference, Lucknow, India, November 2023

Raquib A, Hammell L, Thakur K. Detection of bacterial diseases before transfer of fish from Atlantic salmon hatcheries in British Columbia, Canada. Poster presented at 3rd International Aquatic Epidemiology Conference, Lucknow, India, November 2023*

Jyoti, S, Jia, B, Thakur, K. Spatio-temporal cluster analysis of sea lice (Lepeophtheirus salmonis) abundance in farmed Atlantic salmon in British Columbia, Canada, 2011-2022. Poster presented at 3rd International Aquatic Epidemiology Conference, Lucknow, India, November 2023*

Koepper S, Clark KF, Revie CW, Stryhn H, Thakur K. The healthy lobster shell microbiome: A diversity and community assessment. Presented at the 30th Annual Conference of the Fishermen and Scientists Research Society, Halifax, NS, March 2023.*

Koepper S, Revie CW, Clark KF, Thakur K. Diversity and community composition of the shell microbiome of American lobster (H. americanus) in Atlantic Canada. Presented at the Annual Conference for Research Workers in Animal Diseases (CRWAD), Chicago, January 2023*

c) National conferences:
2
Jyoti S, Jia B, Thakur K. Spatio-Temporal Patterns of Health and Mortality Events of Farmed Atlantic Salmon (Salmo salar L.) in British Columbia. Poster presented at Canadian Association of Veterinary Epidemiology and Preventive Medicine (CAVEPM) Conference. Guelph, Ontario, May 2023.*

Koepper S, Clark KF, Revie CW, Stryhn H, Thakur K. Bacterial interactions and diversity patterns in the shell microbiome of American lobster (H. americanus) in Atlantic Canada. Presented at Canadian Association of Veterinary Epidemiology and Preventive Medicine (CAVEPM) Conference. Guelph, Ontario, May 2023.*

d) Other (Provide website address or link to appropriate information):

11. What have you done in the past year to advance your area of focus, e.g. updated technology?

12. Additional comments regarding your report: