

# Centre for Coastal Health

Integrating Human, Animal and Environmental Health



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## 2009 ~ 2010

Annual Report

900 Fifth Street  
Nanaimo, BC  
V9R 5S5

# Director's Report

It is with great pleasure that I present you the 14th Annual Report of the Centre for Coastal Health. This report not only reflects the efforts of the dedicated and talented staff, students and partners that I have the pleasure to work with, but also demonstrates the expanding scope of work that the CCH is involved in. The experience and expertise of the Centre continues to be sought after by national and international collaborators in government, academia and private sectors; for example, in integrated approaches to health practice, in structuring and managing complex approaches to health research, and in linking people with the necessary information for good decision making. I think this is an excellent testimonial to the success of our approach and the value people place on the experience of the team and the network that comprises the CCH.

security in Sri Lanka. As societies around the world continue to struggle with exponential population growth, collaborative approaches to sustainable livelihoods will increasingly become the foundation of population health and conservation. The CCH is working to cultivate the understanding that the foundations of health are determined by our relationship to our environment, and that more effort to bring the environment into the health agenda is needed: not simply in terms of looking at the environment as a source of toxins, but more in terms of the environment being fundamental to our well-being. I hope that the coming years allows the CCH to continue to anticipate, respond to and form a more integrated approach to the health of populations, be they human or animal. I look forward to reporting even more successes to you next year!



The CCH was formed, and continues to be, ahead of its time. Anticipating the rise of emerging zoonoses and the role of collaboration between animal, human and environmental health, the CCH began as a unique practice that applied collaborative approaches to real-world practical problems. Even now we continue to anticipate new trends. For example, we are focusing considerable effort on bolstering the environmental determinants of health, including food security. We are intensifying our examination and application of networks and connectivity in a variety of settings. We are looking at novel ways to maximize the sharing and application of knowledge to help people make informed decisions that take values, science and uncertainty into account - whether that be at the farm or government level. Finally, we are cultivating educational opportunities to put the theory of cross-disciplinary and multidisciplinary training into practice. These trends frequently overlap in our projects, such as in our work to enhance knowledge access and sharing to promote sustainable aquaculture for poverty relief, environmental protection and food

Finally, I must thank the CCH staff; a more dedicated group could not be found. This was a very busy and very hectic year that saw all of the staff adjusting and sacrificing personal time to help us fulfill the vision of the CCH. Our successes could not have been possible without their passion for their work. I am honoured to work with all of them!

Craig Stephen, Director, CCH





# About Us

## DIRECTOR

Craig Stephen • DVM PhD

## CORE RESEARCHERS

Craig Stephen • DVM PhD

Carl Ribble • DVM MSc PhD

Tyler Stitt • BSc MPH&TM DVM

Jennifer Dawson-Coates • BSc Dip T Fish/  
Aqua MA Candidate

Stefan Iwasawa • BSc

Tim Dejager • PhD

## BOARD OF DIRECTORS

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## ASSOCIATES

Mark Sheppard • DVM

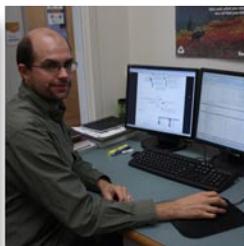
Damien Joly • PhD

Sue Pollock • MD

The Centre for Coastal Health (CCH) is an independent, non-profit organization whose mission is to identify and understand the interactions of human, animal and environmental health. We do this by undertaking problem-oriented research, risk assessments, research planning, policy development, field investigations, program evaluations, and education. The CCH provides objective solutions to health issues and does not take advocacy positions. Our projects are funded through competitive grants, contribution agreements with government, and fee-for-service contracts.



We are located in Nanaimo, British Columbia on Vancouver Island on the campus of Vancouver Island University. However, our network members are found across Canada. Through our network, we are able to work on local, national and international projects.



The Team, hard at work in Sri Lanka (Tim & Craig), at the office in Nanaimo (Tyler), hosting the FMD workshop in Abbotsford (Carl), dissecting fish in Northern Canada (Stefan) & consulting on aquaculture projects in Sri Lanka (Jenny). Photographs © CCH Core Researchers.

# Projects

## Food and Food Security

Supporting comprehensive infection control practices in feedlot cattle to reduce or prevent antimicrobial resistance

Social learning in rural aquaculture to break the cycle of poverty, food insecurity and unsustainable practices in Sri Lanka

## Population Health

Alberta Farm Animal Council's ALERT Line On-Call Veterinarian Program: a program review.

Developing British Columbia's Specialty Bird Biosecurity Program

Health resources for diagnosing parasitic diseases in First Nations people

## International Capacity Development

Veterinary public health as part of the global response to emerging diseases. Building a sustainable model in Sri Lanka with extension to South and Southeast Asia

Web-enabled Veterinary Public Health Networking in Sri Lanka

## Preparedness and Response

FMD Planning and Preparedness Conference and Workshop

Perspectives of public health practitioners on the uses and value of animal health information

H1N1 Surveillance

Animal health surveillance for early detection of emerging disease risks

Economic Implications of the One Health Approach

## Environmental Impact

Fish Health Assessment, Northern Canada Water Diversion Proposal

## Training and Education

Animal Determinants of Emerging Disease Monthly National Teleconference Rounds

Diseases you can get from Wildlife: 2nd edition

Faculty, University of Calgary Veterinary Medicine

# Project Highlights

## Antimicrobial Resistance in Feedlots

This year-long literature review 1) evaluated the efficacy of antimicrobial use in large beef cattle feedlots, 2) investigated alternative infection control practices to antimicrobial use in a feedlot setting, and 3) identified gaps in our knowledge of antimicrobial use and infection control in North American feedlots. At the completion of this review, Dr Carl Ribble and Dr Tyler Stitt joined other key players in antimicrobial policy & research at an NCCID national conference in Winnipeg to address antimicrobial resistance in Canadian livestock.

## Water Diversion Project Risk Assessment

The CCH has been involved in the risk assessment of a proposed connection between two drainage basins in Northern Canada. The CCH completed an exhaustive literature review and risk assessment from historic data, after which Jennifer Dawson-Coates and Stefan Iwasawa (shown in the photo on the right dissecting a fish at the field lab) travelled to the lakes to sample a variety of fish species for bacteria, viruses and parasites. Diagnostic results are pending.



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## ALERT On-Call Veterinarian Program Review

The CCH recently completed a review and assessment of the Alberta Farm Animal Council's ALERT Line On-Call Veterinarian (OCV) Program. This innovative, industry-backed program, provides veterinary consultation to farmers in need of assistance with livestock care.

## Specialty Bird Biosecurity

Dr Carl Ribble (pictured below scrubbing boots in bleach water) and Dr Tyler Stitt developed a biosecurity tool for the Specialty Bird Council of British Columbia. The intent of this tool is to allow individual quail, duck, squab, silkie and Taiwanese chicken farmers to have a consultation about various biosecurity strategies on their farm.



# Project Highlights

## Sustainable Aquaculture for Rural Income, Sri Lanka

The CCH is leading a project team of Canadian and Sri Lankan researchers, policy makers, and community members to help develop sustainable aquaculture as a means to reduce poverty and food insecurity in target areas of Sri Lanka. The two-year, \$923,000 grant, was awarded to the Team from the Canadian International Food Security Research Fund, with a start date of August 1, 2010. The project is focused on the preconditions for income and food security – namely sound knowledge for sustainability and good public policy. The team, led by Dr. Craig Stephen and Dr. Sam Daniel (Sri Lanka), will work towards two primary goals:



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- Improving the aquaculture policy development process as a means for poverty reduction by explicitly considering trade-offs between social needs, environmental impacts and economic diversification within the context of community preferences, and
- Improving farmer knowledge leading to more sustainable practices and incomes.

Dr. Carl Ribble, Jenny Dawson-Coates and Dr. Tim DeJager are working with team members from partner organizations including the University of Wayamba, the Sri Lanka Ministry of Fisheries and Aquatic Resources Development, the University of Calgary, and the University of Victoria.

## Web Enabling Veterinary Networking in Sri Lanka

Dr. Tim DeJager is leading this 2-year project to develop a knowledge translation and exchange (KTE) network of veterinary public health peers and trainees within Sri Lanka and between Sri Lanka and other nations to broaden information flows, improve knowledge relationships across ministries, universities, and nations, and increase capacity for mentored training of future researchers. After input from stakeholders in workshops, focus groups, surveys, and meetings, a social networking web site is now being developed to achieve these goals. This site, which will launch in early 2011, will become the platform for significantly advancing collaboration in animal, human and environmental health in Sri Lanka and beyond.

## Foot and Mouth Disease Forum and Workshop

The CCH hosted a three-day conference in Abbotsford that brought together members of industry, government and academia that would have a vested interest in the control of a foot and mouth disease (FMD) outbreak in the lower mainland. The conference started with presentations on current FMD policy, research and resources in BC, Canada and internationally. Participants were then asked to identify and prioritize key steps for FMD prevention, rapid detection, and effective control in BC.

# Trainees

## University of Calgary

Kate Sawford	Sentinel surveillance for early detection in emerging infections in Sri Lanka
Amanda Salb	Epidemiology of anthrax in wild wood bison
Michele Anholt	Companion animals as sentinals of environmental risks

## University of British Columbia

Linda Vrbova	Lab and sentinel surveillance for emerging zoonoses
Catherine Glass	The contribution of livestock to Maasi health in Kenya

## University of Guelph

Theresa Burns	Avian influenza contact networks in poultry
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## Royal Roads

Jenny Dawson-Coates	Policy for sustainable ornamental fish farming in Sri Lanka
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## University of Victoria

Colin Robertson	Geographic methods for emerging disease detection in Sri Lanka
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## Other Students

MPH Placements	Megan Shewfelt, U of Guelph Laura Backus, U of Colorado
Federal Field Epidemiology	Sue Pollock • MD
Undergraduate Rotation	Jennifer Hewitt, UCVM
Summer Students	Jane Mancell, WCVM Adam Herring, UCVM





# Publications & Reports

## Publications, Accepted or in Press

Munasinghe N, Stephen C, Abeynayake P, Abetgunwardens I. 2010 Shrimp farming practices in the Puttalam district of Sri Lanka: Implications for disease control, industry sustainability and rural development. *Veterinary Medicine International*. Article ID 679130, 7 pages doi: 10.4061/2010/679130



Robertson C, Sawford K, Daniel S, Nelson T, Stephen C. Mobile phone-based infectious disease surveillance system, Sri Lanka. *Emerging Infectious Diseases* [serial on the Internet]. 2010 Oct. <http://www.cdc.gov/EID/content/16/10/1524.htm>

Stephen C, Daibes I. 2010. Defining features of the practice of global health research: an examination of 14 global health research teams. *Global Health Action* 3: 5188. <http://www.globalhealthaction.net/index.php/gha/article/view/5188/5770>

Stephen C, Ninghui L, Zhang L, Yeh. F. Animal health policy principles for highly pathogenic avian influenza: Shared experience from China and Canada. *Zoonoses and Public Health* DOI: 10.1111/j.1863-2378.2010.01351.x

Vrbova L, Stephen C, Kasman N, Boehnke R, Doyle-Waters M, ChablittClark A, Gibson B, Brauer M, Patrick D. 2010. Systematic Review of Surveillance Systems for Emerging Zoonoses. *Transboundary and Emerging Diseases*. 57(3): 154-161.

Pollock S, Stephen C. 2010. Why you should get to know your local veterinarian. *BC Medical Journal*. 52(1):15. Tokatelloff N, Manning S, Weese S, Campbell J, Rothenburger J, Stephen C, Bastura V, Gow SP, Reid-Smith R. 2009. Prevalence of methicillin-resistant *Staphylococcus aureus* colonization in horses in Saskatchewan, Alberta and British Columbia. *Canadian Veterinary Journal*. 50(11): 1177-1180.

Totton S, Wandeler A, Gartley C, Kachhawaha S, Suman M, Ribble C, Rosatte R, McEwen S. Assessing Reproductive Patterns and Disorders in Free-ranging Dogs in Jodhpur, India to Optimize a Population Control Program. Accepted by *Theriogenology*, 08 May 2010.

C.M. Good, M.A. Thorburn, C.S. Ribble, R.M. Stevenson, 2010. A prospective nested case-control study of bacterial gill disease outbreaks in Ontario, Canada government salmonid hatcheries. *Preventive Veterinary Medicine*, 95: 152-157.

C.M. Good, M.A. Thorburn, C.S. Ribble, R.M. Stevenson, 2009. Rearing Unit-level Factors Associated with Bacterial Gill Disease Treatment in Two Ontario, Canada Government Salmonid Hatcheries. *Preventive Veterinary Medicine*, 91: 254-260.

Stephen C, DiCicco E, Munk B. 2009. British Columbia's fish health regulatory framework's contribution to sustainability goals for salmon aquaculture. *Ecohealth* 5(4): 472-81.

Stephen C. 2009. The challenge of integrating ecosystem health throughout a veterinary curriculum. *J Veterinary Medical Education*. 36(1): 145-151.

Dubé C, Ribble C, Kelton D. An Analysis of the Movement of Dairy Cattle through Two Large Livestock Markets in the Province of Ontario, Canada. Accepted by the *Canadian Veterinary Journal*, 16 Dec 2009.

## Technical Reports

Ribble C, Stitt T. Specialty Bird Biosecurity Consultation: On-farm assessment, education and mitigation tool. 18 September 2010.

Ribble C, Stitt T, Stephan C. Alberta Farm Animal Care (AFAC) On Call Veterinarian (OCV) Program Evaluation. Prepared for Alberta Farm Animal Care. 14 July 2010.

Ribble C, Iwasawa S. 2010. Plan for Describing and Monitoring Animal Movements in the Fraser Valley: Dairy Cattle, Beef Cattle, Sheep, Goats, Bison, Swine, and Specialty Birds. Prepared for the BC Ministry of Agriculture and Lands.

Ribble C, Iwasawa S, Stitt T, Stephen C. Report on the British Columbia Foot-and-Mouth Disease Invitational Forum and Workshop. Prepared for the Investment Agriculture Foundation of British Columbia. 2010.

Stitt, T. 2010. Animal Determinants of Emerging Disease (ADED) National Teleconference Rounds: Year End Report. 20 April 2010.

Pollock S, Stitt T, Stephan C. First Nations Health Care Systems: Physician and frontline health care practitioner knowledge of parasitic disease. 26 March 2010.

Ribble C, Stitt T, Iwasawa S, Toews L, Stephen C. A review of alternative practices to antimicrobial use for disease control in the commercial feedlot. Prepared for the National Collaborating Centre for Infectious Diseases. 8 March 2010.

Stephen C. 2009. Global Health Research Initiative. 2009 Teasdale-Corti Meeting Report. Cario.

Hammel L, Stephen C, Bricknell I, Evensen O. 2009 "Salmon Aquaculture Dialogue Working Group Report on Salmon Disease" commissioned by the Salmon Aquaculture Dialogue, World Wildlife Fund. available at <http://www.worldwildlife.org/site/PageNavigator/SalmonSOIForm>

Stephen C, Stitt T, Dawson-Coates J. Pathogen/Parasite Study between Water Basins: Risk Assessment Expectations and Options for Prospective Fish Health Studies. 10 December 2009.

Stephen C, Stitt T. Economic Considerations of the "One World One Health" Approach for the Public Health Agency of Canada. Notes in Support of a Presentation to Senior Management. 16 November 2009.



# Presentations

## Conference

- Forde M, Stephen C. 2010. An assessment methodology linking health equity and climate adaptation issues in coastal areas at a community level. 2010 Caribbean Academy of Science Conference. Antigua.
- Vrbova L, Stephen C, Patrick D. 2010. Sentinel animal health surveillance for public health. International Conference on Emerging Infectious Diseases. Atlanta.
- Ribble C, Stitt T, Iwasawa S, Toews L, Stephen C. 2010. A Review of Alternative Practices to Antimicrobial Use for Disease Control in the Commercial Feedlot. Community-Acquired Antimicrobial Disease Resistance (caAMR) Consultation, National Collaborating Centre for Infectious Diseases. Feb 10-11. Winnipeg.
- Robertson C, Sawford K, Stephen, C, Daniel S, Nelson T. 2009. Infectious Disease Surveillance and Analysis – Sri Lanka. [poster] GEOMED 2009. November 14-16. Charleston, SC.
- Iwasawa S. 2009. A study to inventory tick species, tick distribution and the presence of an emerging zoonotic pathogen (*Burrelia burgdorferi*), on Vancouver island. 9th Annual Symposium on Zoonotic and Communicable Diseases.
- Dawson-Coates J, Stephen C, Dale A. 2009. Policy in support of sustainable ornamental fish farming in Sri Lanka. Aquaculture Canada. Nanaimo (poster).
- Munasinghe N, Abeynayake P, Abeygunawardena I, Stephen C. 2009. Health management practices for prawn farmers in Sri Lanka. Aquaculture Canada. Nanaimo (poster).

## Invited

- Stephen C. 2010. Developing Research programs: Personal experiences and insights. Institute for Population and Public Health. CIHR.
- Stephen C. 2010. Food production as a determinant of health. Second Annual Sheela Basrur Symposium. Toronto. Ontario Agency for Health Protection and Promotion.
- Stitt T. 2010. RMOT Introduction to Wildlife Disease. Vancouver Island University. Nanaimo.
- Ribble C, Dubé C. 2009. Using Social Network Analysis to Help with Preparedness and Planning for Foot-and-Mouth Disease. Population Health Intervention Research Centre Seminar Series. Calgary. Dec 2.
- Stephen C. 2009. Risk, vulnerability or resilience. What do CWD managers want from risk assessments? PrioNet CWD workshop. Park City Utah.
- Stephen C. 2009. Veterinary public health on the ground floor. CVMA Leaders Forum. June. Montreal.
- Stephen C. 2009. Challenges in forecasting patterns of zoonotic disease in response to climate change. 26th International Conference on Chemotherapy and Infection. June. Toronto.
- Stephen C. 2009. Highly pathogenic avian influenza in Canada? A case example from British Columbia. Sri Lanka Veterinary Association Annual Meeting. March. Kandy.
- Stitt T. 2009. Bridging Public Health Education and Veterinary Medicine. University of Calgary. Calgary.

## Public

- Stephen C. Expert panel on swine influenza. May 2009. Liu Institute for Global Studies. University of British Columbia.
- Stephen C. Science Café – Food Security. Calgary Feb 2009. Sponsored by the CIHR –IPPH and the University of Calgary.

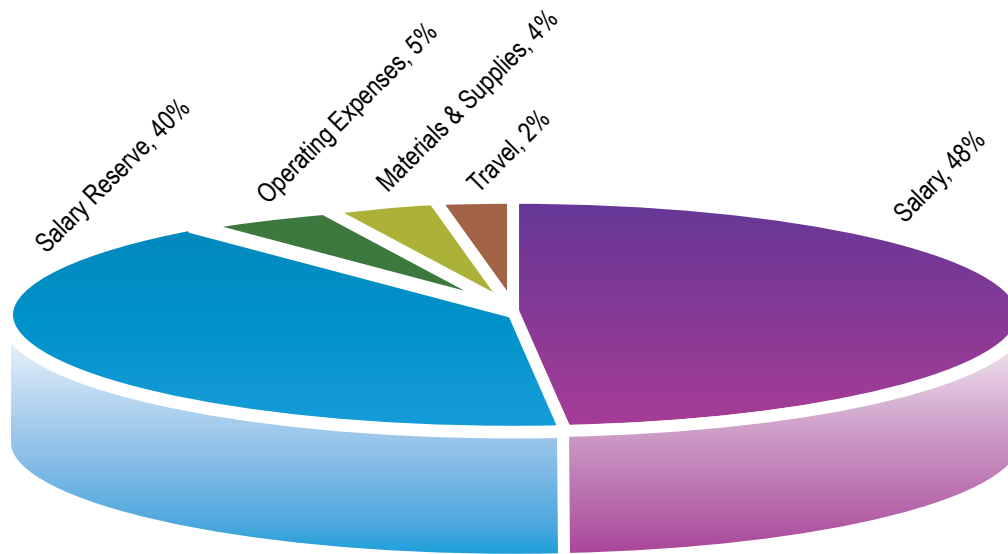


## Workshop

- Dawson-Coates J. Review of Sri Lankan freshwater ornamental Aquaculture Policy and Regulations. Teasdale-Corti Veterinary Public Health Workshop, Kandy, Sri Lanka, 24 July 2010
- Ribble C, Dubé C. 2009. Describing Animal Movement Networks to Help with FMD Preparedness and Response Planning. British Columbia Foot-and-Mouth Disease Forum and Workshop, Abbotsford, BC, Oct 27.



# Budget Allocations



Research and contract totals exceed \$2.5 million annually.

Annual Report Layout, Design and Photography (unless otherwise stated) by Dr Tyler Stitt



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