

ANNUAL REPORT

2006-2007

Centre for Coastal Health

Director's Report

Last year was the year of “One Health.” The concept of the interaction of human and animal health resonated with agencies around the world within governments, academic institutions and the public. It gained prominence by pronouncements from the American Medical Association on the issues and through the development of One Health programs in a wide array of institutions. On the heels of climate change, emerging diseases and globalization, regulators and researchers are seeking any advantages they can gain by paying attention to the overlaps of human, animal and environmental health. Thus, the CCH’s mission statement has never been more timely or relevant. The importance of the perspectives and skills housed within our staff, trainees and network has made the CCH in high demand last year. Measured on a fiscal scale, this was our busiest, with over \$5 million dollars of work being inspired, obtained, managed and/or implemented by us and our partners: \$2.6 million of which was obtained this past year alone. Measured on a spatial scale, the CCH has grown to have projects and influence locally, nationally and internationally with activities as far away as Australia, China and Sri Lanka. Measured on a “multiplier effect scale” the CCH has disseminated a large number of reports influencing programs and policies, has attracted trainees from Canada, the USA, Europe and SE Asia and is contributing to program development in institutions across North America.

I was blessed once again with a core group of colleagues and trainees whose enthusiasm and belief in an integrated approach to health is unmatched in any other workplace I have encountered. Their motivation to make a difference and to contribute to a healthy and sustained world continue to remind me the CCH plays a unique and very important part in creating the knowledge and people who will be capable of addressing many of the challenges that affect the future health of people and animals. With the return of Dr Julie Ducrocq to academia and the departure of Dr. Erin Fraser onto new challenges (on both the domestic and professional front), we are faced with a cross-road in CCH development. In addition to our plan to attract some new core professional staff, we are looking to next year as a time to re-emphasize our founding philosophy of the CCH as a catalyst or lightening rod of a virtual network that can be mobilized to deal with issues on a case-by-case basis. So, I invite you to explore ways to collaborate with the CCH to create new training opportunities, to conduct collaborative research, to create new capacity or to investigate health issues together so that we can continue to expand the cohort of people ready to face the challenges the “One Health” approach throws at us and to exploit the advantages of collaborative, interdisciplinary work.

Finally, and on a personal note, I want to thank Erin Fraser for her hard work and dedication to the CCH over the past years. Starting with us as a summer student, Erin evolved to become a critical part of the CCH. She was with us during the time of expansion from a 1-person centre to a flourishing, multi-person team of national importance. Her friendships, skills and ideas will be missed. I wish her all the best in her future undertakings.



Dr. Craig Stephen, DVM PhD

About Us

We are an independent not-for-profit organization that pulls together a network of investigators interested in the interactions of human, animal and environmental health. The Centre for Coastal Health 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 the campus of Malaspina University-College. However, our network members are found across Canada. Through our network, we are able to work on local, national and international projects.

Director

Craig Stephen DVM PhD

Researchers

Jane Parmley DVM PhD

Julie Ducrocq DVM

Jenny Dawson Coates BSC Dip (Fish Aqua)

Research assistants

Amanda Anderson

Cali Bingham

Mike Dodd

Lee Mierau

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Faculty of Veterinary Medicine,
University of Calgary

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Director of Environmental Health,
BC Centre for Disease Control
Director, National Collaborating
Centre for Environmental Health



Project Highlights

Emerging diseases

- Early warning of emerging diseases in wildlife by risk factor surveillance.
- Systematic review of methods for evaluating disease early warning surveillance systems.
- 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.
- Animal health surveillance for early detection of emerging disease risks.
- Animal Determinants of Emerging Diseases Research Unit 18 month extension.
- Methacillin resistance *Staphylococcus aureus* (MRSA) in horses in British Columbia and Alberta.
- Prevalence of antimicrobial resistant enteric pathogens in Sri Lankan aquaculture products.

Risk assessments

- Johnes disease risks associated with translocation of Wood Bison to Alaska.
- Chronic Wasting Diseases risks associated with the export of velvet antler from Canadian cervids.
- Risk assessment on the Devil's Lake water diversion.



Population health and environmental health

- Managing the interface of wildlife and agriculture health in the Northwest Territories.
- Epidemiological investigations in BC aquaculture.
- Managing salmon farming and sustainable food production.
- Mitigating impacts of introduced bullfrogs on native amphibians on Vancouver Island.
- The contribution of wildlife to First Nations health on Vancouver Island - pilot study.



Project Highlights

Policy and program development or review

- Avian Influenza Emergency: Government Prevention Mechanism and Public Policy in China.
- Veterinary public health capacity needs and strengths.
- Assessment of vulnerabilities and preparedness for Chronic Wasting Disease in Michigan.
- Critical assessment of provincial surveillance of fish disease in commercial aquaculture.
- World Wildlife fund -Salmon Aquaculture Dialogue - Fish health co-contributors.

Research development

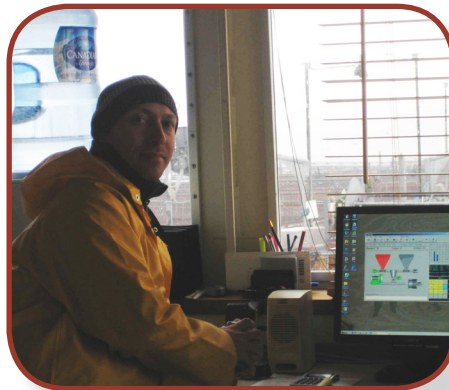
- Water Safety in Rural Communities.
- Zoonotic Diseases in Rural British Columbia.

Applied epidemiology

- West Nile Virus ecological surveillance.
- Handbook of zoonotic diseases for hunters and anglers.
- Surveillance for avian influenza in Canadian waterfowl.

Training

- Cross-disciplinary public health training for veterinarians - pilot study.
- Development of training program for fish health and antimicrobial resistance in Sri Lanka.



Selected Publications

Parmley J, et al. Influenza viruses in wild ducks in Canada: PCR results from the 2005 Wild Bird Influenza Survey. Emerging Infectious Disease. accepted for publication, September 2007.

Stephen C, Parmley J, Dawson-Coates J, Fraser E, Conly J. (in press). Obstacles to Developing a Multinational Report Card on Antimicrobial Resistance for Canada. Microbial Drug Resistance.

McLaws M, Ribble C, Stephen C, McNabb B, Romero Barrios P. 2007. Reporting of suspect cases of foot-and-mouth-disease during the 2001 epidemic in the UK, and the herd sensitivity and herd specificity of clinical diagnosis . Preventive Veterinary Medicine. 78(1):12-23

Stitt T, Mountifield J, Stephen C. 2007. Opportunities and obstacles to collecting wildlife disease data for public health purposes: Results of a pilot study on Vancouver Island, British Columbia. Canadian Veterinary Journal 48(1): 83-90

Vrbova L, Stephen C, Kasman N, Boehnke R, Doyle-Waters M, Gibson B, Chablitt-Clark A, Brauer M, Fitzgerald M, Patrick D. 2007. Systematic Review of Surveillance Systems for Emerging Zoonotic Diseases. Report to the National Collaborating Centre for Environmental Health.

Ducrocq J, Dawson-Coates J, Parmley J, Stephen C. 2007. A systematic review of Michigan's policy for CWD prevention, detection and control. Prepared for the Michigan Department of Natural Resources.

Parmley J, Ducrocq J, Stephen C. 2007. An assessment of the risk of introducing the organism associated with Johne's Disease (*Mycobacterium avium paratuberculosis*) to new areas in Alaska as a result of translocating wood bison (*Bison bison athabasca*) from Elk Island National Park. Prepared for the Wood Bison Recovery Team

Ducrocq J, Tataryn J, Dawson-Coates J, Parmley J, McClaws M, Stephen C. 2007. 2007 Cervid Industry Market Access Report: Chronic Wasting Disease Risks Associated with the Export of Velvet from Canadian Cervids. Report to the Canadian Cervid Association.

Stephen C, Dawson-Coates J, DiCicco E. 2007. Pathogen Risks Associated with the Diversion of Water from Devil's Lake into the Red River Drainage. Report to the International Joint Commission.

Stephen C, Ribble C, Sears W. 2007. Field trial of the effects of grazing cattle on pastures fertilized with biosolids: Dioxins and Furans. Report to the Greater Vancouver Regional District.

Parmley J. 2006. A Review of the BC Ministry of Agriculture and Land's Fish Health Audit and Surveillance Program. Prepared for the BC Ministry of Agriculture and Lands

Stephen C. 2006. Veterinary public health and the prevention and control of emerging disease of public health significance in Canada. Report to the Chief Public Health Officer of Canada.

Work Submitted

Stephen C. Ecosystem health learning goals for the full spectrum of undergraduate veterinary students. J Veterinary Medical Education.

Warnock A, Amaral J, Rousseau J, Stephen C. Dog feces as a source of environmental contamination with vancomycin resistant enteric bacteria. J Environmental Microbiology.

Stephen C, Bellamy J, Nielsen O. Veterinary medicine: Status and future challenges. On-Line Encyclopedia of Life Sciences.

Grahn B, Sangsterr C, Breaux C, Stephen C, Sandmeyer L. The clinical and light microscopic manifestations of gas bubble disease in captive fish. Exotic and Wild Animal Veterinary Medicine.

CCH Presentations

Stephen C. 2007. Wildlife Health Management: Developing the "Colorado Charter". Wildlife Disease Association Annual Meeting. Estes Park. August.

Stephen C. 2007. Prediction, prevention and control of emerging diseases: The role of veterinary services. PHAC-PAHO Joint Meeting on Veterinary Public Health. Ottawa.

Parmley J and Vallaster. 2007. The BC West Nile Story. Dunbar Salmonberry Days, Vancouver, BC. May.

Parmley J. 2007. Wildlife Disease. Guest lecture: Resource Management Officer Training (MUC). Nanaimo, BC. February.

Stephen C. 2007. Attributing cause and effect in free-ranging wildlife: Challenges and shifting approaches. Keynote lecture. Respiratory Disease in Mountain Sheep: Knowledge, Gaps and Future Research. Davis, California.

Stephen C. 2007. Panics, Pandemics and Poisons: Part 1-origins. Society for Northwestern Vertebrate Biology. Victoria (opening presentation)

Stephen C. 2007. Panics, Pandemics and Poisons: Part 2-solutions. Society for Northwestern Vertebrate Biology. Victoria (closing presentation)

Parmley J, et al. 2007 Canada's National Wild Bird Avian Influenza Survey: What are we doing, what have we found, where are we going? Wildlife Disease Association Annual General Meeting. Estes Park, Colorado. August.

Parmley J and Leighton F. 2007. Canada's Inter-agency Wild Bird Influenza Survey: 2005, 2006 and beyond. Society for Northwestern Vertebrate Biology. Victoria, BC. February.

Stephen C. 2007. Interprofessional health practice: From concept to reality. National Health Science Student Association Meeting. Saskatoon. January.

Parmley J. 2006. Wildlife Health and Disease: Necropsy short course. Presentation and workshop for Treaty 8 communities (5 days). Fort St John, BC. September.

Stephen C. 2006. The place for community on aquaculture environmental impact research. Pacific Salmon Forum Workshop on Ecosystem Management of the Broughton Archipelago.

Stephen C. 2006. Workshop in Veterinary Public Health. Department of Animal Productivity and Health. Sri Lanka. (12 hours)

Stephen C. 2006. Curriculum considerations for veterinary public health training. University of Peradenya. Sri Lanka.

Pollock S, Stitt T, Stephen C. 2007. An ecologic perspective on patient history: an approach to the diagnosis of zoonotic disease. BC Public Health Association Meeting (Poster).

Duncan C, Stephen C, Campbell J. 2006. The contribution of veterinary data to the investigation of the emergence of *Cryptococcus gattii* in Canada. International Society for Veterinary Epidemiology and Economics. Cairns, Australia.

Student Research

Graduate students - supported

Amanda Salb. 2007 - present. Epidemiology of anthrax in Wood Bison. Doctor of Philosophy. University of Calgary

Kate Sawford. 2007 - present. International strategies for detection and prevention of emerging diseases. Doctor of Philosophy. University of Calgary

L. Vrbova. 2006-present. Surveillance and zoonotic disease. Doctor of Philosophy, University of British Columbia (Dr. D. Patrick)

Graduate student - collaboration/committee membership

C Glass. 2007-present. Animals as determinants of Masai community health. Doctor of Philosophy. University of British Columbia

Theresa Burns. 2005 - present. Transmissions systems for avian influenza in the Fraser Valley, BC. Doctor of Philosophy. University of Guelph

Jill Williamson. 2004-present. Molecular epidemiology of Cryptosporidium. Doctor of Philosophy, University of British Columbia

Resident Supervision

Sue Pollock. 2006. Community medicine resident rotation supervision (6 weeks)

Visiting Students

Emiliano DiCicco. Doctoral candidate EU Exchange. 9 month placement in risk assessment and ecosystem health in aquaculture and fisheries.

Undergraduate students

B. Munk. 2007. Framework for sustainable salmon aquaculture in British Columbia, University of Calgary/Colorado State University

V. Bastrura. 2006-2007. Epidemiology of methacillin resistant *S. aureus* in horses in Western Canada. Malaspina University-College

A. Warnock. 2006-2007. Presence of vancomycin resistant enterococci in dogs. Malaspina University-College

T. Stitts. 2006. Handbook of zoonotic diseases for hunters and anglers. University of Saskatchewan

S. Wilford. 2006-2007. Validating methods for estimating domestic dog population size. Malaspina University-College

Other

Created a pilot project in cross-disciplinary training wherein veterinarians are placed in a local health unit to learn about the scope of public health and community medicine. Trainees are placed at the CCH to learn about animal and ecosystem health

Funding

CCH staff developed or were primary partners in over \$2.63 million in research and service in 2006/07 (90% lead by CCH staff).

2006/07 Funders

Core operational support

Faculty of Veterinary Medicine, University of Calgary

Academic

National Science and Engineering Research Council (NSERC)
Strategic grant.

Teasdale Corti Global Health Research Initiative (IDRC/CIDA/
CIHR).

Michael Smith Foundation for Health Research

Government

Agriculture Policy Framework (NWT)

BC Centre for Disease Control

BC Ministry of Agriculture and Lands

BC Ministry of Environment

Canadian Food Inspection Agency

Environment Canada

International Joint Commission

Public Health Agency of Canada - Lab for
Foodborne Zoonoses

State of Alaska

State of Michigan

Vancouver Island Health Authority

Other

Canadian Co-operative Wildlife Health Centre

Canadian International Development Agency

National Collaborating Centre for Environmental Health

Budget

<i>Item*</i>	<i>2006-2007</i>	<i>2007-2008</i>
Staff	115,000	192,000
Contractors	0	50,000
Salary reserve	105,000	130,000
Overhead and administration	20,000	25,000
Supplies and equipment	50,000	12,000
Travel	0	15,000
Miscellaneous research costs	150,000	125,000
Total	440,000	549,000

* This budget is strictly the operating budget of the Centre for Coastal Health Society and does not include expenses associated with contracts or research grants received through partner institutions.

Centre for Coastal Health

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