

# CENTRE FOR COASTAL HEALTH



## Annual Report June 2000-June 2001

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## Directors Report

What is the Centre for Coastal Health good at? A quick look at this and previous year's Annual Reports will reveal a very eclectic set of projects, publications and presentations. Our track record reminds me of when I was in private veterinary practice. I worked in a rural area where we did everything from lizards to cattle to bears. My partner and I never had the luxury of focussing only on 1 set of medical problems, unlike our colleagues in practices that specialized in one species. We relied on the principles of comparative medicine to develop rational solutions to unique and unfamiliar problems. Last year, I talked about the CCH as a population health practice. What we are good at is applying principles of population health to unique and complex environmental health issues in order to develop a workable solution.

Epidemiology and ecology are very important foundations of the CCH. Both see the world as a very complex set of interactions and relationships. Strict academic adherence to the principles of these disciplines is, however, not a very good way to help people solve health problems. The "practice" philosophy of the Centre has helped us move beyond the trap of complexity that haunts many environmental health issues to an action oriented approach that seeks ways to develop rational solutions to unique and unfamiliar problems.

I think it is important for the CCH to continue to explore a wide breadth of health issues rather than focus on a particular speciality or species. This provides us with a unique set of experiences that allow us to identify fundamental relationships that determine population and environmental health as well as provide us with a broad perspective that can be applied to health research and management. This approach has been recognized by prominent agencies such as the UBC Centre for Disease Control, Health Canada and the Great Lakes Fisheries Commission, all of whom have sought out our counsel this year.

We are specialized generalists: A team that can integrate a diversity of information across a variety of species to help people make good health decisions. This is what we are good at.

### Significant Achievements

- Linkage with the BC Centre for Disease Control profiles the public health function of the Centre
- Increased expertise in environmental and public health risks from animal antimicrobial use
- Refined risk assessment methods for endangered species and environmental health
- Participated in national and international meetings on disease detection and control and on environmental health
- Contributed to endangered species management
- Recognized as unique in North America with respect to fish health expertise

## Personnel

### Staff

<b>Director</b>	Craig Stephen DVM PhD
<b>Scientist</b>	Erin Sifton BSc, DVM, MSc
<b>Consulting Scientist</b>	Kent Gustavson BSc, MSc, PhD

### Board Of Directors

<b>President</b>	Craig Stephen DVM PhD Clinical Associate Professor (Public Health Practice – UBC) Adjunct Professor in Biological Sciences (SFU) and Herd Medicine (U of Sask) Special Graduate Faculty (Population Medicine – U of Guelph)
<b>Vice-President</b>	Carl Ribble DVM MSc PhD Professor and Chair, Population Medicine Ontario Veterinary College University of Guelph
<b>Secretary-Treasurer</b>	Richard Mathias MD FRCPC Professor Health Care and Epidemiology, Faculty of Medicine University of British Columbia
<b>Member</b>	William (Bill) Eaton BSc, MSc, PhD Director of Academic Affairs Pennsylvania State University (York)
<b>Member</b>	John Nightingale PhD President Vancouver Aquarium and Marine Science Centre

Research Collaborators  
Center for Conservation Medicine (Tufts Univ)  
Ontario Veterinary College (Univ Guelph)  
BC Ministry of Environment, Lands & Parks  
BC Ministry of Agriculture, Fisheries & Food  
Health Canada

Research Assistants  
Mark Sheppard BSc DVM  
Joanne Macartney BSc  
Lisa Phillips  
Paul Stephen

## Major Projects

- 1. Health Risks to Wildlife from the Backcountry use of Camelids in British Columbia.**

This risk assessment utilized a survey of camelid owners, a prospective sampling of llamas and alpacas and a literature review to characterize the risks of infectious and parasitic disease transmission to wildlife. The results will be used to help Ministry of Water, Air and Land officials formulate wilderness use policies in British Columbia.

Funded by the Habitat Conservation Fund and Muskwa-Kechika Management Area Funding
- 2. A Critical Review of Public Health Implications of Antimicrobial use in Animals in British Columbia.**

Before the public health risks of antimicrobial use can be determined, it is essential to characterize the extent of drug use in animals and the nature of resistance seen in animal pathogens and commensal bacteria. This project coupled an analysis of several years of diagnostic microbiology data, a policy review and an attempt to quantify antimicrobial use in the province. The results formed the basis of a provincial response to antimicrobial resistance.

Funded by the British Columbia Medical Services Foundation
- 3. Evaluation of Bureau of Veterinary Drugs Guidelines for Assessing Environmental Impacts of Veterinary Drugs**

Health Canada's Bureau of Veterinary Drugs has developed guidelines for assessing the environmental impact of new animal drugs. This project evaluated these guidelines through a case study on carbadox and a critical review of environmental assessment methods as they apply to drugs.

Funded by the Bureau of Veterinary Drugs, Health Canada
- 4. Developing a Model Community-Based Ecosystem Health Program.**

Building on the course, "Measuring and Assessing Coastal Health" presented by the Centre at the Bamfield Marine Station last year, this project undertook a feasibility study for implementing a community-based ecosystem health program.

Funded by the Community Animation Program of Health Canada and Environment Canada.
- 5. Diseases Issues Associated with the Translocation and Captive Breeding of Caribou.**

Centre scientists helped the BC Wildlife Branch characterize the nature and likelihood of disease risk that could affect the success of a captive breeding program intended to help rebuild this threatened species.

Funded by the BC Ministry of Environment, Lands and Parks.
- 6. Evaluating Disease Policy Options for the Captive Breeding of Wood Bison.**

The presence of tuberculosis and brucellosis in Wood Bison is a major obstacle to the planning and implementation of a captive breeding program that can focus on the ecological and social importance of Wood Bison. The CCH presented resource managers with a critical review of international disease control policies that could serve as a model for the Wood Bison recovery project.

Funded by the Government of the Northwest Territories.
- 7. Development of a Fish Health Code of Practice for British Columbia**

Health issues are a major public and political concern affecting salmonid aquaculture in British Columbia. In response to a recommendation from the Environmental Assessment of Salmon Farming, the BC government asked the

CCH to develop the foundation for a Code of Practice that would set a standard for health management of privately and publicly cultured fish.

Funded by the BC Ministry of Agriculture, Fisheries and Food.

**8. Ecology of Infectious Diseases in Great Lakes Fishes: Effects of Lake Management Strategies.**

Disease issues have increasingly been seen to affect fisheries management in the Great Lakes. However, there has not been any systematic attempt to investigate its role. The CCH undertook the task of identifying a research agenda for the Great Lakes that would help establish the need and nature of fish disease management within the context of species management and ecosystem function. Funded by the Great Lakes Fisheries Commission.

**Other**

The CCH undertook a variety of smaller projects including:

- (1) Analysis of a study of the factors affecting antimicrobial decision-making by veterinarians and antimicrobial sales through veterinary wholesaler buying groups (Health Canada);
- (2) Examined the health effects of barotrauma management in rockfish (Fisheries and Oceans);
- (3) Planned an Institute for Coastal Studies (Malaspina University-College);
- (4) Contributed to a disease survey along the Yukon-to-Yellowstone corridor;
- (5) Consulted on wildlife surveys for pathogens in forested watersheds (Capital Regional District);
- (6) Developed a database for tracking medicated feed use in BC (BC Ministry of Agriculture) and
- (7) Advised on the investigation of salmon farms as sources of antimicrobial resistant pathogens (Health Canada).

## **PUBLICATIONS**

Sifton E, Stephen C, Bowie W, Wetzstein, M. (accepted May,2001) Availability and estimates of veterinary antimicrobial purchases in British Columbia, 1997-1998. Canadian Veterinary Journal

Stephen C. 2001. Applying risk assessment to fish health policy and management. ICES Journal of Marine Science. 58(2): 374-379

St. Hilarie, S., Stephen, C., Kent, M., Ribble, C.S. 2001. Sentinels in a bay: A model for assessing disease transmission in fish. ICES Journal of Marine Science. 58(2): 363-373.

Ching H, Leighton B, Stephen C. 2000. Intestinal parasites of raccoons (*Procyon lotor*) from southwest British Columbia. Canadian Journal of Veterinary Research. 64(2):107-111.

Stephen C, Sifton E, Bowie WR, Lewis R. (Submitted) Surveillance of Antimicrobial Sensitivity Data from Animals: Obstacles to Turning Laboratory Data into Public Health Risk Information. Canadian Journal of Infectious Disease

Reid-Smith RJ, McEwen SA, Irwin RJ, McBride G. Bair C, Sifton E. 2000. Quantifying antimicrobial use in Canadian agriculture and veterinary medicine. Proceedings of the International Society Veterinary Epidemiology and Economics. Salt Lake City, Utah.

## **TECHNICAL REPORTS**

Stephen C. 2001. Policy options for establishing a recognized herd of captive, disease-free Wood Bison as part of a conservation management plan. Submitted to the Government of the Northwest Territories, Department of Resources, Wildlife and Economic Development

Sifton E. 2001. Disease risk assessment for an experimental captive breeding program of Mountain Caribou in British Columbia. Report to the BC Ministry of Environment, Lands and Parks, Wildlife Branch.

Stephen C, Sifton E, Bowie W. 2000. Antimicrobial Use in Animals in British Columbia: A Preliminary Investigation of Use and Susceptibility Patterns and An Assessment of Surveillance Opportunities and Obstacles. Report to the BC Medical Services Foundation. Vancouver.

Stephen C, Sheppard M. 2001. Environmental Assessment of Carbadox in Swine Production: Literature review. Report to Health Canada, Bureau of Veterinary Drugs

Stephen C, Ribble C, Bowie W. 2001 Overview of Information on Environmental Risks of Veterinary Antimicrobial and Antiparasitic Drugs. Report to Health Canada, Bureau of Veterinary Drugs

Stephen C. 2001. Review of BVD Guidelines for the Environmental Assessment of New Veterinary Drugs. Report to Health Canada, Bureau of Veterinary Drugs

Gustavson, KR, 2001. Information to Support Community-based Ecosystem Health Decisions in Bamfield, British Columbia: Program Proposal. Prepared for the Community Animation Program. BC. 27pp

## **PUBLICATIONS IN PROGRESS**

Stephen, C, Ribble, CS. Death, Disease and Deformity: Using Outbreaks of Disease in Animals as Sentinels for Emerging Environmental Health Risks. J Global Change

Adams, V.J., Ribble, C.S., Stephen, C, Schwantje, H. A review of animal rabies cases in the Pacific Northwest, 1914-1998.

Adams, VJ, Stephen C, Ribble CS, Schwantje H. Assessing animal disease surveillance in British Columbia and the ability to detect changing rabies risk.

Adams, VJ, Stephen C, Ribble CS, Schwantje H. Prospective assessment of adverse human-animal interactions and retrospective evaluation of human exposures resulting in rabies post-exposure prophylaxis in British Columbia

Sophie St-Hilaire, Carl S. Ribble, Craig Stephen, Eric Anderson, Gael Kurath, and Micheal L. Kent. Epidemiological investigation of infectious hematopoietic necrosis virus in salt water net-pen reared Atlantic salmon in British Columbia, Canada

Sifton E, Stephen C, Reid-Smith RJ. An assessment of national veterinary antimicrobial use paper in Canada.

## **PRESENTATIONS**

Ribble, C. Macartney, J., Stephen, C. 2000. Epidemiological Principles for Disease Control. OIE International Workshop on Animal Disposal Alternatives. Winnipeg. June.

Stephen C, Sifton E, Sheppard, M. 2001. Health Management Codes of Practice: Lessons learned. Western Fish Disease Conference. June. Victoria, BC.

Stephen C. 2001. Animals as indicators of public health risks : BC and historical examples. Symposium on zoonotic and communicable diseases. UBC Centre for Disease Control. Vancouver.

## **GRADUATE STUDENT ACTIVITY**

McLaws, M. 2001-present. Critical evaluation of animal/food safety surveillance in Canada. Doctor of Philosophy. Ontario Veterinary College, University of Guelph.

## **EDUCATION**

Applied Epidemiology (BIOL 437). A 3 credit senior undergraduate course presented at Malaspina University-College that provided students a unique opportunity to apply the principles of epidemiology to important health issues affected people, animals and environments.

Risk Assessment Workshop for the Great Lakes Fisheries Commission. This 2-day workshop to be presented in 2002 will discuss the role of risk assessment in fisheries management in the great Lakes.

Foodborne disease: a socioecological perspective. 2000. Guest lecturer for undergraduate foodborne epidemiology course. University of Guelph, Guelph, Ontario

## **Appointments**

Principle Investigator. Board of Technical Experts. Great Lakes Fisheries Commission. Ecology of Infectious Diseases in Great Lakes Fishes: Effects of Lake Management Strategies. 2001-2002. (C. Stephen)

Scientist. UBC Centre for Disease Control. Epidemiology Services (C. Stephen)

## **FUNDING**

The CCH continued to receive funding through both competitive grants and research contracts. Contracts were provided this year solely from provincial, territorial and federal government agencies and accounted for 60% of our research income.

In total, the CCH attracted \$263,000 directly plus it's efforts attracted research funds for graduate students at other institutions. As in previous years, research funds held by the Centre were managed partly by the CCH Society and partly by partner organizations. The report of the annual audit of the CCH Society is attached to this report.

## **Budget 2001-2002**

<b><i>ITEM</i></b>	<b><i>INCOME</i></b>	<b><i>EXPENSES</i></b>	<b><i>BALANCE</i></b>
Salary and Benefits	250,000	175,000	75,000
Administrative costs	9,000	8,000	1,000
Travel	5,000	3,000	2,000
Supplies and Equipment	3,000	3,000	0
<b>Total</b>	<b>267,000</b>	<b>189,000</b>	<b>78,000</b>