Canadian Rivers Institute

UNB

ANNUAL REPORT 2012-2013

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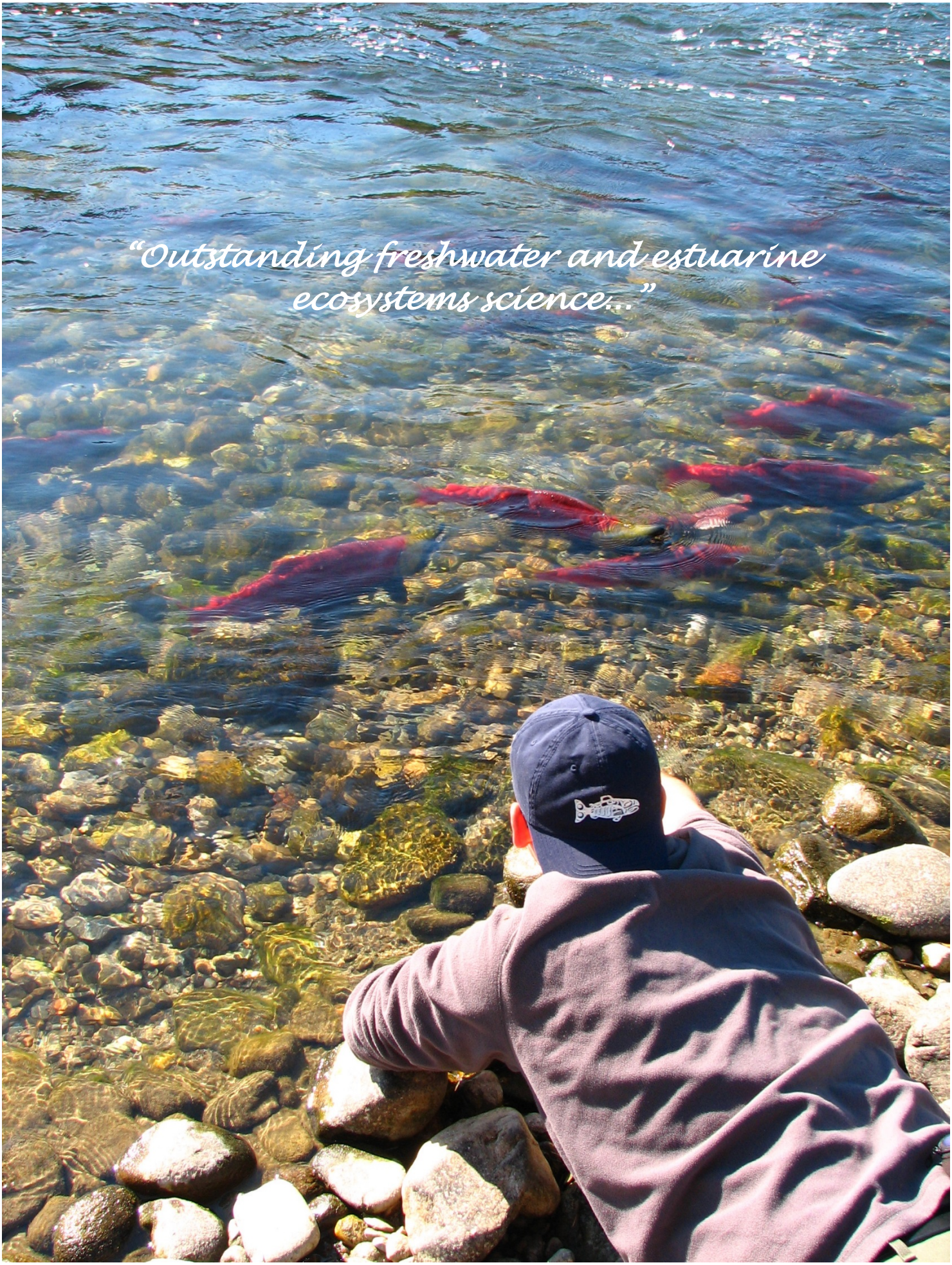
"Outstanding freshwater and estuarine ecosystems science..."

MESSAGE FROM THE CHAIRMAN

It has been both a privilege and a pleasure to be able to contribute in a small way to the creation and evolution of the Canadian Rivers Institute.

Founded in 2001, CRI has been steadfastly dedicated to raising the profile and quality of research on rivers both within Canada and around the world, and to addressing a series of critical water issues. More than a decade later, with numerous accolades including the 2005 NSERC Synergy Award for Innovation, the Institute's contribution to the study of river science has garnered it international recognition.

We have been especially fortunate to have had Dr. Allen Curry as the Director of the CRI since 2004. Under his leadership, the CRI has grown to include 18 Science Directors, eight partner universities and three private sector partnerships stretching from PEI to BC, plus two international partnerships in Italy and Mexico.

As we commence the next chapter in the evolution of the Institute, I want to thank Dr. Curry and his colleagues for a job well done. We are very proud of what has been accomplished on their watch!

John D. McLaughlin,
CRI Management Board, Chair

THE MANAGEMENT BOARD 2012

CRI Management Board Members 2012

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Centre Eau Terre Environnent

David Boerner, Director General, Water Science/Technology
Environment Canada

David Burns, Vice President Research
University of New Brunswick

Richard Butts, Director General
Knowledge, Innovation and Technology
Agri-Environment Services Branch,
Agriculture and Agri-Food Canada

Karen Clarke-Whistler, Chief Environment Officer
TD Bank Financial Group

Robert Gilmour, Vice President Research & Graduate Studies
University of Prince Edward Island

Perry Haines, Assistant Deputy Minister
NB Environment

Karen Kidd, Science Directors Board Chair
Canada Research Chair in Chemical Contamination of Food Webs,
University of New Brunswick, Saint John

John McLaughlin, (Chair) Professor Emeritus and President Emeritus
University of New Brunswick,

Fred Whoriskey, Executive Director,
Ocean Tracking Network, Dalhousie University

MESSAGE FROM THE DIRECTOR

marked another exciting year for the Canadian Rivers Institute. We made the full transition to our new model thanks to the efforts of our dedicated management team, staff, and especially Executive Director, Sue Farquharson. This new model allowed CRI to ramp up interactions with our network members, students, and partners, both nationally and internationally. This was made evident with the launch of our new web site, www.canadianriversinstitute.com, and our growing social media presence. Stay tuned for more outreach by the CRI when NB WATERS, CRI's geospatial water information site, comes online in 2013.

The foundation of CRI has always been centered on its science, with new research funding in excess of $2M in 2012. CRI's most significant funding contributions were made by NSERC, Tri-Council, Environment Canada, New Brunswick Environment and the Canadian Water Network (CWN) research grants, totaling $1.5M. With the support of these agencies and a number of additional funders, CRI has been able to continue to engage in leading research including innovative projects such as HydroNET, the CWN Saint John Harbour and Northumberland Strait Environmental Monitoring Partnerships, as well as range of additional projects that continue to build a comprehensive monitoring program for aquatic systems across the province of New Brunswick and beyond.

Our network is dedicated to providing objective professional research addressing the challenges facing rivers today. From partner universities, Canada Research Chairs, and private sector partnerships stretching from coast to coast in Canada, and globally from Italy to Mexico, our network continues to grow. The CRI Science Directors Board members, led by their Chair Dr. Karen Kidd, continue to receive accolades for their effective research outcomes that inform water policy decisions across the country. For example, CRI Science Director and Environment Canada research scientist, Dr. Joseph Culp received the prestigious Queen's Diamond Jubilee Medal this year for his work with the Circumpolar Biodiversity Monitoring Program and his dedication to the preservation of the Arctic. Our research goals for the five next years are now highlighted in our new CRI Research Plan

(2013), which illustrates how our network will advance an understanding in science to facilitate management outcomes that support healthy river ecosystems.

Our science is also supported by CRI's education and training activities led by our Director of Training and Professional Development, Dr. Michelle Gray. Last year we worked with 85 active graduate students and more than 150 students and professionals enrolled in CRI training programmes across Canada and the United States. In addition, 2012-13 marked the second year of our NSERC CREATE-funded WATER programme, which delivers a broad range of water-related training courses involving our network partners.

Another great year of CRI successes has come and gone. I want to thank each and every CRI member, staff, student, and partner for their continued commitment to the CRI mission and your support of my role as CRI Director. Your commitment is the reason CRI has been so successful and will continue to thrive as we collectively advance our knowledge and implement effective change in the water sector both nationally and internationally.

Looking forward to an exciting 2013-14,

Allen Curry,

CRI Director

April 2013

Science Director receives Queen Elizabeth II Diamond Jubilee Medal

Dr. Joseph Culp was presented with the Queen Elizabeth II Diamond Jubilee Medal for his research including:

i) The effects of multiple stressors on ecological condition of rivers
ii) International contributions to the Freshwater Expert Monitoring Group
iii) Arctic rivers during the International Polar Year

Studies in Grand River, Ontario

The research group led by **Dr. Mark Servos** at the University of Waterloo has carried out extensive study of the Grand River, Ontario in co-operation with other CRI scientists. These studies have focused on the occurrence of emerging contaminants of concern in municipal wastewater and their impact on reproductive performance of fish (e.g. darters). Their work has recently expanded to exploring factors that control fish responses to multiple stressors at the watershed scale in support of the development of cumulative effects assessment frameworks.

Partnership Agreement with Laurier and GNWT

Wilfred Laurier University, including **Dr. Deb MacLatchy's** CRI-associated lab, and the Government of the Northwest Territories (GNWT) signed a 10-year (2010-2020) Partnership Agreement. Its purpose is to provide new infrastructure and expertise to the GNWT for environmental research and education in order to expand the Territories' capacity to conduct environmental research and monitoring, and to train the new expertise needed to manage its natural resources for future generations in the face of emerging challenges from climate change and the impacts of growth and development. The Laurier-GNWT Partnership is a step that will help ensure that the water of the NWT "*remains clean, abundant and productive for all time*", as called for by the NWT Water Stewardship Strategy.

Hynes Lecturer 2012-13

We were fortunate to host one of Canada's top environmental scientists, **Dr. David Schindler** from the University of Alberta, as the 2012 Hynes Lecturer. Dr. Schindler was chosen because he is recognized globally for his scientific leadership, and has received many awards for his high-impact science and public education, including the first Stockholm Water Prize (equivalent to the Nobel Prize for water). His public talk, provocatively entitled *"The Oil Sands: Economic Saviour or Environmental Disaster?"*, was given to a packed auditorium on November 16th at the UNB Saint John campus. In this talk he described the impacts the oil sands development is having on the environment and on First Nations communities in Alberta. His science lecture, *"The Dilemma of Controlling Cultural Eutrophication"*, was equally well attended at the Wu Centre, UNB Fredericton campus. Dr. Schindler's research showed that the phosphates used in detergents and released in municipal wastewaters degrade water quality in lakes and the talk focused on the ongoing problem of degraded water quality from excess nutrient inputs.

His talks were insightful and impressive, and were very well attended and received by the public and scientific communities. The graduate students were especially impressed with and grateful for the historical and political perspectives and scientific debates on both issues. In addition, researchers, graduate students and staff of the Canadian Rivers Institute as well as members of the community met with Dr. Schindler during his visit to both UNB campuses. CRI members were extremely pleased with the high public profile of the event, which many felt was our most successful Hynes lecture yet, in terms of its science outreach.

HydroNET

Dr. Rick Cunjak's research group at the University of New Brunswick's Fredericton campus participated in research focusing on studying the effects of regulated flow of fishes and aquatic habitats as part of the national HydroNET network, a five-year national, NSERC-funded Research Network. This group is investigating how river flow regulation in the Tobique River system of northern New Brunswick may affect salmon egg survival, winter condition and survival of salmon parr and pre-smolts, and the population structure of native fish assemblages. As part of this national network, a number of CRI graduate students are also looking at the effects of regulated flow on fishes and aquatic habitats.

Stable Isotopes in Nature Laboratory (SINLAB)

The SINLAB also led by Dr. Rick Cunjak is located at the UNB Fredericton campus and is unique because it is one of the few stable isotope labs in Canada with an ecological focus. The SINLAB continues to be successful earning more than $250K this year and supports CRI student research as well as professionals by providing data analyses for both national and international clientele working in terrestrial, marine and freshwater ecosystems. In the 2012-13 fiscal year, the SINLAB provided services for 9 countries, 8 governments, and 3 consulting firms. Dr. Cunjak's lab also supports a number of graduate students. One of the ongoing student research projects in his lab is the study of how increasingly warm temperatures in our rivers is affecting behaviour and physiology of important species like Atlantic salmon. Along with CRI Associate, Dr. Tommi Linnansaari, Dr. Cunjak is also leading a project aimed at studying similar problems in the Miramichi (NB) and Ouelle (QU) Rivers.

TRAINING AND PROFESSIONAL DEVELOPMENT

The CRI Training Division, led by **Dr. Michelle Gray,** aims to increase capacity and provide fundamental skills development for those tasked with studying, managing and sustaining our aquatic ecosystems. We address those needs by providing training products that meet current interests and requirements. The CRI's training opportunities and programmes are expanding annually. This includes both online and field courses, as well as blended formats, and there have also been partner and face-to-face workshops, which have been held all across Canada and the

Thirteen different training products were offered this past year, covering soft skills like *The Art of Effective Presentations, Time Management, and Technical Writing: The Basics,* as well as courses aimed at promoting more technical skills like *Practical Hydrology* and *Hydrometry,* Canadian Aquatic Biomonitoring Network (CABIN) training, and Stream Restoration. *Learning Cultures* and *Leadership for Change* were also offered and provide examples of additional courses based on partnering workshops offered by Rick Hutchins.

Michelle Gray,

Director, Training and Professional Development

STUDENT LEADERSHIP COMMITTEE

The CRI recognizes that future water resources scientists and professionals require practical support, valuable training as well as meaningful connections to other water resource experts. The CRI Student Leadership Committee (SLC) facilitates programs and opportunities to accomplish this aspect of the CRI mission.

The SLC was restructured in early 2012 to flexibly accommodate the expansion of the CRI network and the first elected SLC commenced its work over the summer. During this time, the SLC completed a guidebook for CRI Students that is currently available on the CRI website. The guidebook provides information on the structure of the CRI, the programs and services offered to students by CRI, and tips on maximizing student involvement.

The primary responsibility of the SLC is organizing the annual student retreat. The retreat balances training and professional development with social interaction to help students expand their contacts and develop collaborations. The 2012-13 fall retreat was attended by almost 30 students and was a resounding success. The retreat was hosted by INRS in Quebec City in conjunction with CRI DAYS. This retreat included two educational field trip options (tours of the Quebec Aquarium or the Hydrology Lab facility at INRS). The training component of the retreat included a workshop in leadership skills with expert facilitator Rick Hutchins. A poster session/mixer gave students the opportunity to discuss their work with the CRI network and provided the perfect transition to the evening social. The positive response to this year's retreat has provided a benchmark for future student retreats.

The SLC will continue to develop opportunities to engage students in professional development, training and networking to help create the next generation of water resource experts.

Jessica Orlofske, SLC Chair (2011-2013)

1st Hynes Scholarship – Christopher Tyrrell

To date, there are 85 active graduate students and more than 20 technical staff members that work for and with the Science Directors.

2012 – 2013 FISCAL REVENUES

The Canadian Rivers Institute generated more than **$2.0 million** in direct research, training and service revenues in 2012-13.

Of total revenues, $251,421.47 was allocated to CRI administrative operations, which recorded total direct expenditures of $216,719.42.

Total Revenues	**$ 2,030,580.62**
Grants	$ 1,490,540.11
Governments	$ 359,742.11
Private Sector	$ 33,243.40
Professional Training	$ 147,055.00

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