

***Delivering public science:  
Who, where and with what resources?***

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**A federal-academic science partnership model:  
THE CANADIAN RIVERS INSTITUTE**

***Allen Curry*** (Director)

***Kelly Munkittrick*** (Associate Director)

and

***Joseph Culp*** (Fellow and EC Project Chief)



[www.unb.ca/cri](http://www.unb.ca/cri)  
[www.canadianriversinstitute.ca](http://www.canadianriversinstitute.ca)



# ***Canadian Rivers Institute***

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***Outstanding fresh water and estuarine ecosystems science,  
serving the needs of society***

## ***Our Mission***

- To advance aquatic research and provide education on the structure and function of fresh water and estuarine ecosystems, improving their management to promote sustainable use of water resources

## ***Our Objectives***

- Pursue the immediacy of water issues by merging curiosity and applied, needs-based sciences in an international centre of excellence through networks that include universities, government agencies, NGOs and industry.



# *Canadian Rivers Institute*

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## *Our approach*

### **Knowledge and Understanding**

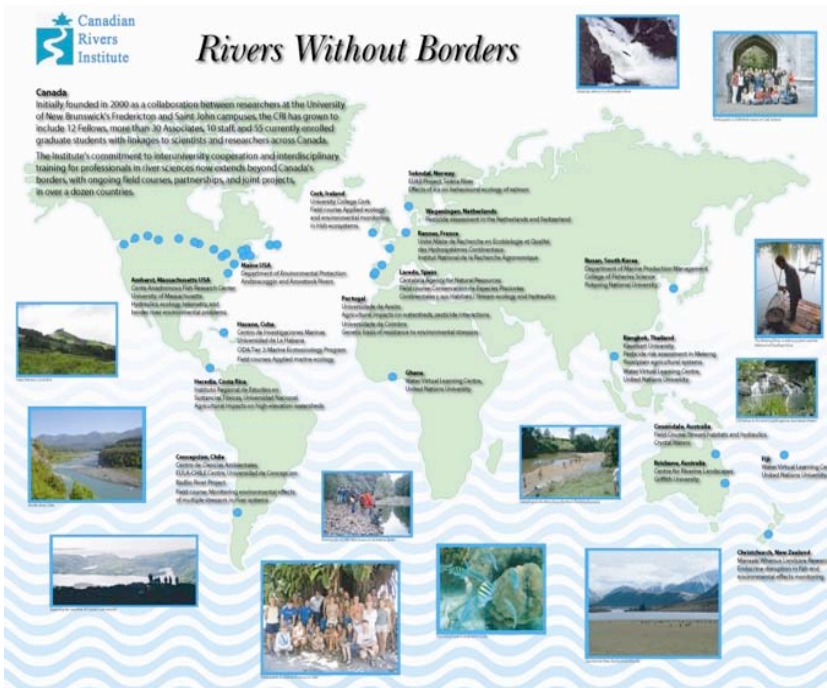
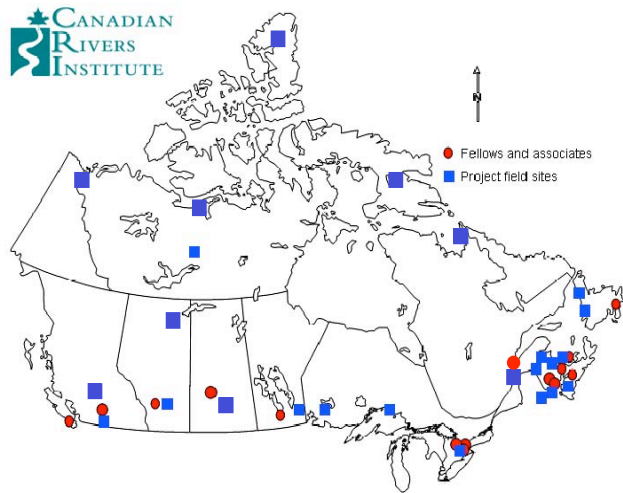
- How do rivers, lakes, groundwater, and estuaries work?
- How do humans impact water?
- How can we fix these problems?
- How do we protect water while sustaining our needs?

### **Education and Training**

- Transfer our knowledge to the next generation of water managers and scientists.
- Train and upgrade skills of water professionals.
- Help the public to understand water issues



# National and Global Presence



- Across Canada and around the world, the science of:
- biomonitoring
  - environmental effects assessment
  - hydrological modeling
  - human impacts on ecosystems
  - restoration

# STRUCTURE

- **Director and Associate Director, Management Board** (university, federal DGs, provincial ADMs, industry, NGOs)
- **15 Fellows** (principal researchers and scientists)
- **6 Canada Research Chairs** at UNB
- **8 Professors and Senior Instructors** (UNB, UPEI, UQ, WLU)
- **3 Federal scientists** with national (EC cumulative effects) and regional (DFO Gulf Region) programmes at UNB (and their scientists and staff)



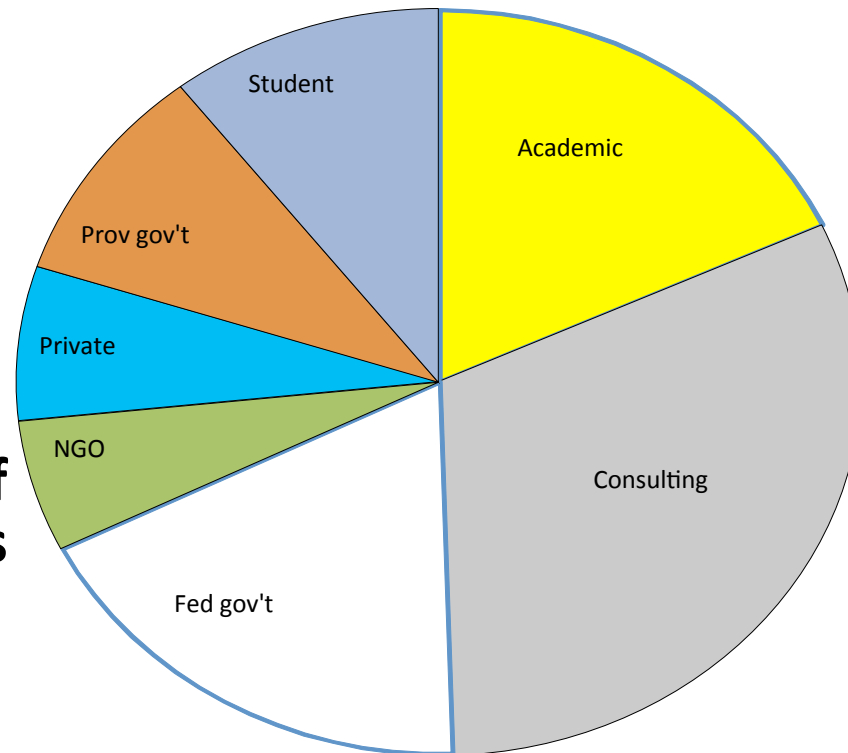
# CRI IMPACTS



## Operational

- Combined annual operating budget >\$5M
- Professional training revenues >\$100,000 / year
- Analytical services >\$300,000
- >100 active graduate students (10 in the first year)

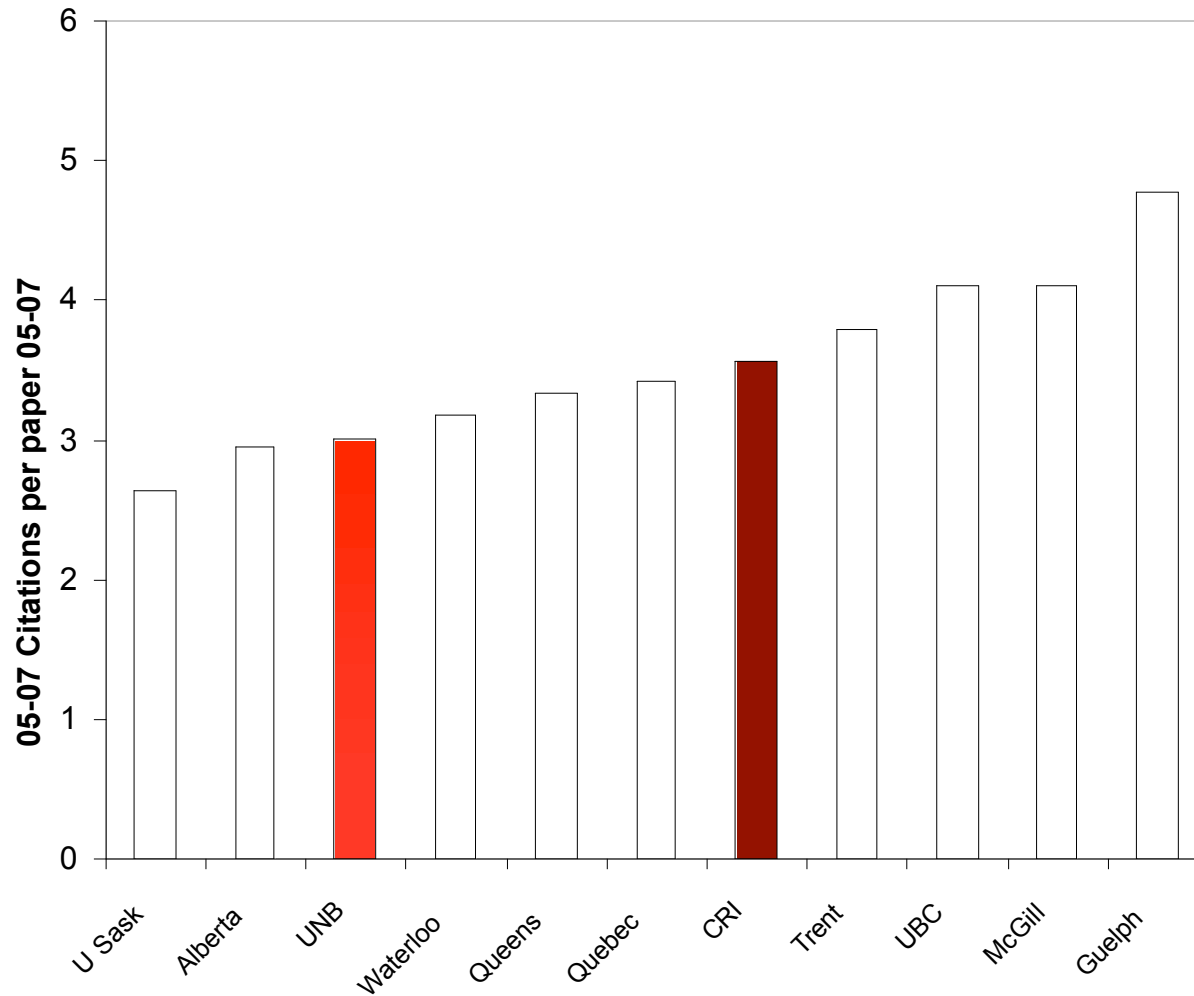
## Career Paths of CRI Graduates



# CRI Impacts



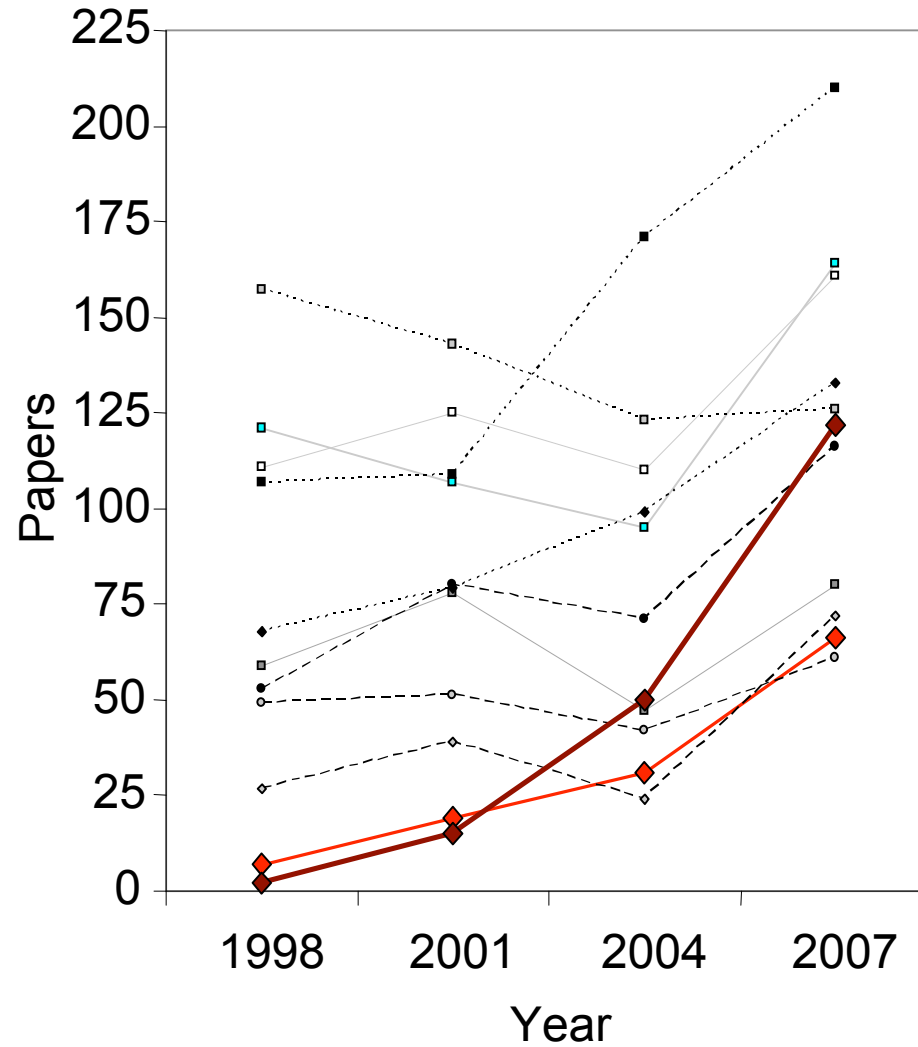
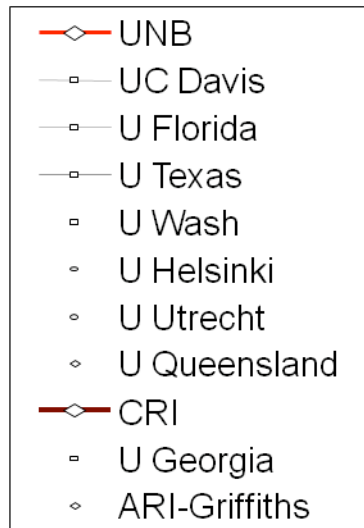
## Academics



# CRI Impacts



## Academics



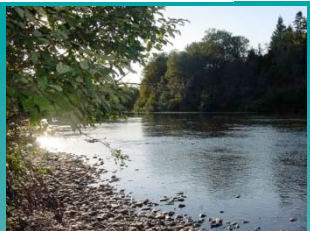
# CRI IMPACTS



## Societal

*Impacting governments' science and policy and the private sector*

- **Municipal:** Fredericton, North Battleford, Saint John
- **Provincial:** NB Clean Water and Fish and Wildlife Acts
- **National:**
  - *Environmental Effects Regulations* for pulp and paper and metal mining (Canadian Fisheries Act)
  - Species at Risk Act and Recovery Teams
  - DFO's Centres of Expertise: Hydropower Impacts on Fish and Fish Habitat; Centre for Offshore Oil and Gas Environmental Research
  - AAFC's National Agri-Environmental Standards Initiative (Environment Chapter, Agricultural Policy Framework)



# ***CRI IMPACTS***

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## **Societal**

*Impacting governments' science and policy and the private sector*

- ***International:***
  - United Nations University – NA virtual learning centre
  - Circumpolar Biodiversity Monitoring Program
  - *EEM* for Chile, Uruguay
- ***Private sector:***
  - J.D. Irving Limited, Manitoba Hydro, Diavik Diamond Mines Inc.



# Why is the CRI Successful?

## Academic

- Planning and strategic investments, e.g., 25% of UNB's CRCs in the CRI

## Societal

- CRI's government-to-academic linkage model
  - ✓ Co-location and embedding of federal science (people) into an academic institution
  - ✓ Federal scientists retain their programmes and add elements of the academic environment, i.e., limited teaching, graduate student supervision, etc.
  - ✓ NOT a separate unit on campus - sharing of office areas, sharing of laboratories (within parameters)
- Private sector approach ***“collaborating to find solutions now pays off significantly in the long term”***



# ***CRI and Government Success***

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The model's underlying philosophy:

***“CRI science becomes your science”***

- Everyday discussions of government science priorities takes place in an academic environment – ***direct communication of need***
- Opportunities for ‘academic’ research are realized
  - existing programmes
  - demand for new ideas/approaches
- Reality of questions/needs incorporated into process
  - experimental design, reality of need for investment over time for a final solution – ***“this is the answer today (gov’t pressure), but the best answer requires time (science reality)”***
- “Objectivity” (real or perceived) of academe incorporated into government science



# ***CRI and Government Success***

## ***“training and education”***

- Exposing new generation of science professionals to gov’t science and policy processes, e.g., CRI’s students
- Creating professional development opportunities for gov’t science people – CRI’s Training programme responds to needs, e.g., EC’s CABIN certification



# *CRI Model*

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- CRI model first priority is NOT developing ‘widgets’
  - we compliment science need/goals of gov’t and private sector, e.g., the supporting science of environmental effects assessment
  - “value-added” for these sectors
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- ***CRI remains an academic institution and thus process based science questions at our core***
- ***CRI Model brings immediacy of gov’t or private sector science need into the mix***