



SPRING 2012 NEWSLETTER

From the Editor's Desk

My name is Kathy Cunningham, new administrator for the C-Change project in Canada. I am still learning the ropes but I am very pleased to be a part of the C-Change Project. Since the last publication of the C-Change Newsletter, the team has been busy. During the fall and winter of 2011-2012, the Canadian and Caribbean co-applicants, partners, and research associates have held several meetings. Many of our research associates have graduated from their Bachelors and Masters programs, both in Canada and the Caribbean, and we could not be more proud of their accomplishments and contributions to the C-Change Project! Team members from both Canada and the Caribbean are gearing up for the "Surveying the Past, Mapping the Future" Conference to be held in Grand Cayman March 21-23, 2012, with networking activities planned for C-Change Co-Applicants, Partners and Research Associates.

We have accomplished a lot and we still have more to do!

Kathy Cunningham, Editor

In January 2012, C-Change was pleased to present to the Social Science and Humanities Research Council and the International Development Research Centre its Mid-Term Report. This was a major undertaking for which I want to thank all C-Change team members who contributed. The Report highlighted our continuing involvement with C-Change communities in Canada and the Caribbean and the developments of our C-CATs communities of practice, our expanding student involvement, research activities in cooperative working papers with our partners, and conference participation. C-Change in the "second half" will be an exciting ride. Join in.

Dan Lane, Co-Director Canada

Inside this issue

Community Profile: Georgetown.....	2
C-CATs Canada.....	2
Community Profile: Charlottetown.....	3
Communities in Focus.....	4
Events Calendar	4



© Sarah Lane, Grande Riviere, Trinidad





Georgetown Seawall © M.Sutherland

C-CATs Canada

by Colleen Mercer Clarke, C-Change (Canada) Community Coordinator

In the Canadian C-CHANGE project, the C-CATs (Community Action Teams) are the main contact between project researchers and the partner communities, ensuring a two way flow of information, ideas and useful tools. In the early days of the project much of the contact with our communities was educational – on both sides. C-CHANGE researchers met with community leaders and presented the current science on climate change and the potential impacts to sea level rise and severe weather, the goals and objectives of our research, and the tools that C-CHANGE was developing and that we hoped would prove useful in planning for adaptation at the local level. Our community partners have responded enthusiastically, sharing data and knowledge on local conditions, issues and needs. Meetings have already been held on site in all the partner communities, and more direct collaboration is planned for the coming year, with a particular focus on the translation of research products into deliverables useful to community educators and decision-makers.

In Isle Madame, Nova Scotia, C-CHANGE researchers spent time this summer working with local scientists to perfect a simple, but effective tool that can be applied locally to identify on the land the future heights of projected sea level rise and storm surges, enabling local residents to more fully understand the challenges their community

(Continued on page 3)

By Dr. Michael Sutherland, C-Change Community Champion—Georgetown

Guyana was a Dutch colony in the 17th century and became a British colony in the early 19th century. It is the 3rd smallest country in South America the only country on the continent where English is the official language. Encompassing about 214,970 kilometres (83,000 square miles), Guyana consists of three major rivers, coastal plains, mineral rich regions, dense rainforests, savannah grasslands, and high mountains. The coastal plains lie up to 1 metre below high spring tide level of the Atlantic Ocean.

Georgetown is the capital of Guyana and its largest city. This urban centre has a population of more than 240,000 persons representing Guyana's many ethnicities and races. The city is the location of most major businesses in the country, and is the centre of government. A cultural heritage restoration programme has enlivened the historic sector of Georgetown creating a new tourist attraction, adding visitors to those from the Caribbean region and elsewhere who visit the city for vacations, business, sporting events, and festivals. Situated in the north of the country on the coastal plains adjacent to the Atlantic

Ocean, and located on the east bank of the Demerara River, Georgetown is highly susceptible to flooding. Canals protected by sluices and laid out north-south and east-west help to drain flood waters from the city. One of the famous features of Georgetown is its long seawall completed in 1882. The seawall was also built to protect the city (and other parts of the coast) from flooding and erosion. Serious flooding has occurred due to breaches in the seawall. The city cannot ignore climate change threats such as sea level rise.

C-Change Georgetown Activities to date

The C-Change Caribbean team from the University of the West Indies (UWI) have from the beginning of the ICURA project been actively engaging partners, collaborators and stakeholders in Georgetown. In December 2009 the first official trip to Georgetown by a Caribbean team member, Dr. Michael Sutherland, was facilitated by the project's collaborator Mr. Rawle Edinboro, Chief Development Planner at the Central Housing and Planning Authority (CHPA), the project's community partner in Georgetown. Assessments were made at that time of CHPA's spatial data needs to support its planning objectives.

Two other subsequent trips by Caribbean team members resulted in further consultations with Mr. Edinboro, and with Mr. Bobby Gossai, Ministry of Agriculture, a former UWI C-Change graduate student who returned to Guyana and became a collaborator for the project. One trip was in May 2011 by Dr. Sonja Teelucksingh who used the opportunity of another motivated trip to liaise with the collaborators. Based upon this and other initiatives both collaborators were supported to attend a conference and an international C-Change meeting in Port of Spain and Grande Riviere, Trinidad and Tobago, respectively. Both events were organized in June 2011 by the Caribbean C-Change team.

Another trip to Georgetown in July 2011 was made by C-Change team members Prof. Patrick Watson, Dr. Michelle Mycoo, Mr. Martin Franklin and Dr. Michael Sutherland. Two meetings were held with stakeholders engaged by the C-Change collaborators, and were attended by representatives from the Ministry of Agriculture (including the Permanent Secretary), the Environmental Protection Agency, the Principal Environmental Health Officer, the CHPA, the Guyana Water Authority, and the University of Guyana. Various needs of Georgetown in relation to climate change were identified and incorporated into future plans. A meeting was also held with community members from the ward of Section 'D', Sophia to engage them in the C-Change process. This is a community in Georgetown that is considered more vulnerable to the effects of climate change, both from a physical and socio-economic perspective. Additionally, a meeting was held with Dr. Paulette Bynoe, Director of the School of Earth and Environmental Sciences, University of Guyana in an effort to engage her cooperation and collaboration with C-Change.

The July trip was also an occasion for Dr. Sutherland to deliver spatial datasets (i.e., vector data including approximately 30,000 building footprints, and road centrelines for Georgetown) to the CHPA fledgling GIS department. This will assist in building capacity at the community partner organization and will facilitate the pursuit of CHPA planning objectives. The datasets were processed by Caribbean C-Change graduate and undergraduate students. Training needs for CHPA GIS staff were also preliminarily discussed.

A number of socioeconomic surveys were done with regard to Georgetown. In the first instance, Mr. Bobby Gossai, then a Masters student in the UWI Department of Economics, completed his MSc thesis on the work of the C-Change project, entitled "Vulnerability to Sea Level Rise in an Urban Centre of a Developing Country: A Case Study of Georgetown, Guyana". In 2010 he assembled a baseline report on existing secondary data, and then conducted primary data collection on the site. Another graduated Masters student, Ms. Kiralise Leung, did a study entitled "Adapting to Flooding in Georgetown: An Investigation of Climate Change, Sea Level Rise, State Policy and Community Practices". The work of Mr. Gossai was expanded to 10 Wards and 1000 respondents were interviewed.

Geomatics modeling and data processing for Georgetown are continuing in earnest. To date spatial data has been collected and processed with regard to buildings, infrastructure, and the environment. Recently, empirical spatial survey data relating to the seawall was collected and are being processed towards building a digital elevation model to support socioeconomic impact analyses of climate change, and in particular sea level rise.

CANADA | CHARLOTTETOWN

By Kathy Cunningham, Kaitlin Fahey and Dan Lane, C-Change Canada

Charlottetown, the capital city of Prince Edward Island is located on the south shore of PEI, just off the east coast of Canada in the Gulf of St. Lawrence. The city is situated on Charlottetown Harbour, which is formed by the confluence of three rivers and which opens onto the Northumberland Strait that separates PEI from the eastern shore of the Province of New Brunswick. The City of Charlottetown's impressive inventory of parks and green spaces (approximately 400 acres), provides a range of passive and active experiences for city dwellers and tourists, and include the award winning Confederation Landing Park, a beautifully landscaped waterfront park. Charlottetown has an extensive and distinct architectural heritage including individual heritage buildings as well as a heritage area located in the downtown core. Known as the "Birthplace of Confederation", Charlottetown was the first meeting place of the Fathers of Confederation in 1864 that ultimately resulted in the uniting of Upper and Lower Canada and the formation of the Dominion of Canada in 1867.

The local economy is dominated by the public sector. The provincial, federal, and municipal levels of government are significant employers in the central part of Queens County, as well as healthcare and secondary and post-secondary education. Other significant economic activities include technological companies, light manufacturing, bio-technology, and machining. The Greater Charlottetown area including the Town of Cornwall and the Town of Stratford has a population of 58,625 residents (2006 Census). The median age of the community is 39.9 years, with 83% of the population over the age of 15. Of those residents over age 15, more than 80% have gained their high school diploma (or equivalent), with 55% having some post-secondary education. Charlottetown is governed by an elected council representing ten wards in the city, and a mayor who is elected at large. Every citizen is represented by a councillor who works to convey concerns and provide answers on City business. The City government has always been very inclusive in encouraging citizen representation on the various committees and advisory boards which assist in the decision making process. The Canadian federal government has four representatives on PEI who sit as Members of the Canadian Parliament (MPs), including one for the federal riding of Charlottetown.

Charlottetown is known as a clean and safe family community, and the centre of activity, amenities, shopping and entertainment in PEI. Charlottetown has become internationally famous for its indoor and outdoor festivals and events. Charlottetown is home to the Confederation Centre of the Arts and, of course, Anne of Green Gables-Canada's longest running musical. Some of the well-known Charlottetown outdoor events include: DiverseCity; Jazz and Blues Festival; Festival of Lights; Fall Flavours Festival; Jack Frost Festival; Charlottetown Festival; and The International Shellfish Festival.

C-Change Charlottetown Activities to Date

The Coastal Zone Canada Association (CZCA) held the ninth Coastal Zone Canada Conference on July 25 to 29, 2010 in Charlottetown on the campus of the University of Prince Edward Island. It was an innovative week of activities for those interested in the management of watersheds and the coastal and marine environment, including members of the federal, provincial, and municipal governments, representatives of community groups, and youths. C-Change was well represented at the conference where it presented in a dedicated workshop session to the C-Change project. Participating C-Change research team members included: Kaitlin Fahey, Sahar Pakdel, Maxx Hartt, Hooman Mostofi, Titus Tienaa, Colleen Mercer Clarke, John Clarke, Don Forbes, Sue Nichols, Michael Sutherland, and Dan Lane. The Charlottetown CZCA meeting made a Conference Declaration that called on government leaders to hold a coastal and oceans summit toward development of a coastal policy for Canada.

C-Change Research Associate Maxwell Hartt completed his Masters of Science (M.Sc.) in Systems Science degree from the University of Ottawa in early 2011. Maxx's research focused on the C-Change community of Charlottetown. He developed a profile of the City's assets in the form of a spatial-temporal model, using Geographical Information Systems (GIS) mapping, and a system dynamics model to represent the impacts of simulated coastal storms affecting the greater Charlottetown area.

Charlottetown also hosted the Conference *Rising Tides: Preparing for Climate Change* Conference on April 29, 2011 in which C-Change Partners Don Jardine and Don Poole participated. At this conference, they spoke about the history of storms and climate in Prince Edward Island, and the current planning issues that must be overcome for the City of Charlottetown to manage more frequent severe storms and the impacts of flooding and storm surge issues on the City.

C-Change members Don Forbes, Sue Nichols, Colleen Mercer Clarke, Tim Webster, and Dan Lane were hosted by C-Change Charlottetown Community Partner Don Poole, Manager of Planning Department and made a presentation to the Mayor and Charlottetown City Council on May 24, 2011. At this meeting, C-Change presented Council with updated work on the simulation of Charlottetown flooding and was briefed on recent development activities planned for the Charlottetown waterfront. Opportunities for ongoing community involvement and upcoming activities of interest to C-Change and Charlottetown were also discussed.

The City of Charlottetown is recognized as an important data-rich municipality among the C-Change communities. C-Change work in this community provides valuable insight into operating communities of practice and managing adaptation to storms and sea level rise for the C-Change project overall.

(Continued from page 2)

may face. C-CHANGE continues to explore positive relationships with both the regional municipal government and the local development association, as well as building collaboration with the private sector and the communication sector on the island.

Working through the C-CAT in Charlottetown, Prince Edward Island, members of the research team made presentations to the current Mayor and Council, bolstering support for an active local team, who have already moved to incorporate sea level rise and storm surge parameters in their guidelines for new development. C-CHANGE models for run-up have been shared with municipal staff, to assist in planning initiatives as well as in emergency preparedness.

On the west coast, C-CHANGE researchers have been actively building a better understanding of the knowledge base, resources and responsibilities of individuals resident and/or working in our partner town of Gibsons, British Columbia. The potential applications for the survey tools being developed by C-CHANGE research team have gained interest from several of our other partner communities.

In the Arctic, in addition to field research on local conditions, together with colleagues from the City of Iqaluit and the government of Nunavut, we ran a workshop on climate change adaptation at the Annual Congress of the Canadian Society of Landscape Architects (CSLA). The workshops were well attended by both locals and congress delegates, sparking interest in the project in individuals from all Canada's coasts, including the Great Lakes.

In 2012, the primary goal for the C-CATs is to further develop collaborative relationships among our partner communities here in Canada, and to search out the means by which we can expand those relationships to include colleagues from our Caribbean partners. During the highly productive meetings held in Trinidad in June 2011, the commonalities of the challenges facing all the C-CHANGE partner communities was evident, and the enthusiasm and willingness to work together with colleagues and friends in Canada was inspiring.



December 2010 Storm Surge, Charlottetown, PEI © D. Poole

Communities in Focus

Do you have photographs of one (or more) of the C-Change Communities that you would like to share with the C-Change Team?

Please email your high resolution photos (along with your name, and date & location of photo) to: administrator@coastalchange.ca

Photos will be posted on the C-Change Facebook site, and may be featured in future issues of the C-Change Newsletter (credit will be given to photographer).



C-Change 2012 Upcoming Events

FEB	24-25	Fishermen and Scientists Research Society Meeting	Truro, NS
MAR	5-6	Atlantic Canada Adaptation Solutions (ACAS) Conference	Halifax, NS
	7-8	Canadian Coastal Climate Assessment (Natural Resources Canada)	Halifax, NS
	21-23	50/50 Conference—Surveying the Past, Mapping the Future	Grand Caymans
APRIL	25-27	Trinidad and Tobago at 50: A Model Nation? SALISES Conference	UWI St. Augustine Campus, Trinidad
MAY	29-1	Islands of the World XII Conference 2012: Globalisation: Adapting to Change	The Virgin Islands
JUNE	9-14	Coastal Zone Canada Association 2012 Conference	Rimouski, PQ

© D. Poole, Charlottetown, Dec. 2010 Flooding

C-Change

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**Social Sciences and Humanities
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