

COASTAL ZONE CANADA CONFERENCE

www.czcatoronto2016.com



RESILIENCE THROUGH COLLABORATION

Chestnut Residence and Conference Centre
89 Chestnut Street
Toronto | Ontario | M5G 1R1 | 416.977.0707

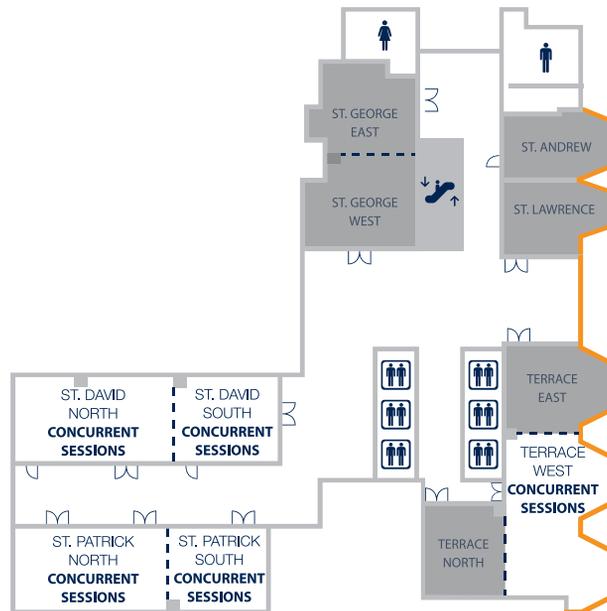
2016 PROGRAM | JUNE 12-16

CHESTNUT RESIDENCE AND CONFERENCE CENTRE FLOOR PLAN

2nd floor



3rd floor





DR. PETER RICKETTS, PRESIDENT COASTAL ZONE CANADA ASSOCIATION

On behalf of the Coastal Zone Canada Association, I would like to welcome you to our Coastal Zone Canada 2016 conference in Toronto. Thanks to you we have assembled a very exciting set of presentations that address coastal and ocean management and climate change adaptation. We also have an excellent set of guest speakers that will explore the conference theme of resilience through collaboration in their keynote presentations on global ocean governance, nature based shorelines, enhancing resilience of coastal cities, and large scale restoration initiatives. Thank you for coming to Toronto to explore these issues with your colleagues from across Canada, the United States of America and abroad. I hope you have an excellent experience at the CZC 2016!

THANK YOU TO OUR CONFERENCE PARTNERS!



Physical & Environmental Sciences
UNIVERSITY OF TORONTO
SCARBOROUGH

**Conservation
ONTARIO**
Natural Champions

CZC 2016 CONFERENCE ORGANIZERS

Steering Committee	<p>Peter Zuzek, Baird (Chair) Dr. Peter Ricketts, Carleton Mike Parkes, KPMG Brad Fay</p>
Local Organizing Committee	<p>Jen Gibson, Baird Ashley Venton, Baird Harprit Kaur, Baird</p>
Technical Committee	<p>Dr. Larry Hildebrand, WMU Mathew Wells, University of Toronto Jamie Alley, University of Victoria Jody McKenna, ECCC Janette Anderson, ECCC</p>
Communication Committee	<p>Andrew Lewin, DFO Alexi Baccardax Westcott, Dalhousie University Victoria Fernandez, CBCL</p>
Youth Employer Forum	<p>Andrew Lewin, DFO Julia Hatcher, ECCC Bryan Flood, University of Toronto Sam Mehlretter, Baird Kevin McNamara, McMaster Ryan Coelho</p>
Natural and Nature Based Features Workshop	<p>Dr. Julie Rosati, USACE Bryan Hinterberger, USACE Gene Clark, Wisconsin Sea Grant Heather Weitzner, NY Sea Grant Shannon Doherty, NY DEC Kate Hayes, Credit Valley CA Gord MacPherson, Toronto Region CA</p>

On behalf of the Coastal Zone Canada Association and the conference delegates, I would like to extend our sincere thanks to all the committee volunteers who contributed to CZC 2016 in Toronto!

- Pete Zuzek, Conference Chair

Sunday, June 12, 2016

13:00 - 19:00

Registration Desk Opens

Venue: Chestnut Convention Centre, 2nd Floor

14:00 - 18:00

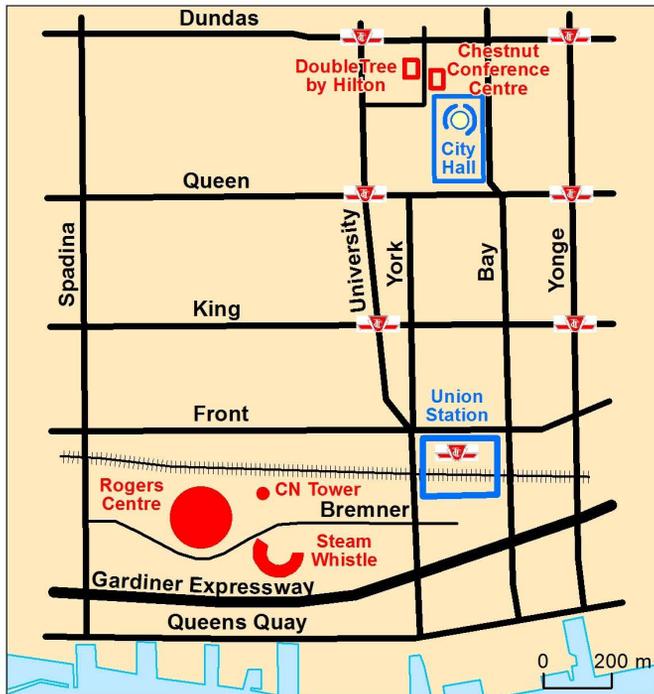
Youth-Employer Forum (Free to Registrants, \$20 for Others)

Venue: Steam Whistle Brewery (BBQ and Cash Bar)

19:00 - 21:00

Opening Social (Free for Registrants)

Venue: Steam Whistle Brewery (Light hors d'oeuvres and Cash Bar)



Chestnut Conference Centre
89 Chestnut St.

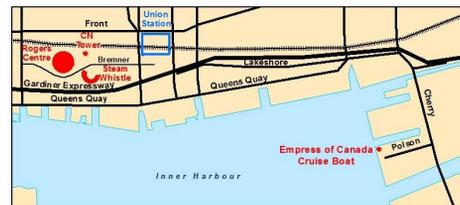
DoubleTree by Hilton Hotel
108 Chestnut St.

Rogers Centre
1 Blue Jays Way

Steam Whistle Brewery
255 Bremner Blvd.

Empress of Canada Cruise Boat
11 Polson St.

 **TTC Subway Station**



Monday, June 13, 2016

07:30 - 17:00

Registration Desk Opens (*Chestnut Convention Centre, 2nd Floor*)

08:30 - 10:00

PL-1 Opening Plenary Session & Keynote Presentations (*Colony Ballroom*)

Innovation in Ocean Management and Governance (*Dr. Biliiana Cicin-Sain, University of Delaware*) / State of Science for Nature Based Shorelines (*Dr. Julie Rosati, USACE*)

10:00 - 10:30

Coffee Break (*Colony Ballroom*)

10:30 - 12:00

OS-1A Tools to Promote Coastal Resilience (*Giovanni Room*)

Products and Services to Promote Coastal Community Resilience (*Heather Stirratt, National Oceanic and Atmospheric Administration*)

Coastal Resilience Planning in the Great Lakes – From Stories to Solutions (*Jeff Stone, Association of State Floodplain Managers*)

Sharing Resilience Knowledge among Coastal Communities: A similarity Approach to using Hazard Vulnerability Indicators (*Greg Oulahan, University of British Columbia*)

Climate Change Impacts and Adaptation in Coastal Communities in Ouidah and Grand-Popo, Bénin and the Saloum Delta, Senegal (*Sebastian Weissenberger, ISE-UQAM*)

OS-1B Regional Water Quality Assessments & Management (*St. David Room*)

Monitoring Water Quality over the Coastline of Eastern Georgian Bay (*Todd Howell, Ontario Ministry of the Environment and Climate Change*)

US National Coastal Condition Assessment (*Mari Nord, United States Environmental Protection Agency, Region 5*)

Baseline Assessment of Aquatic Habitat and Water Quality in the Great Lakes (*Julia Ayyoub, Environment and Climate Change Canada*)

Lake Erie Nutrient Reduction Plan (*Sandra George, Environment and Climate Change Canada*)

12:00 - 13:30

Lunch and Presentation on Youth Employer Forum (*Colony Ballroom*)

Monday, June 13, 2016

07:30 - 17:00

08:30 - 10:00

10:00 - 10:30

10:30 - 12:00

OS-1C Nature Based - Living Shorelines (St. Patrick Room)

Great Lakes Beneficial Use of Dredged Material for Aquatic and Sub-aquatic Habitat Creation/Restoration (*Gene Clark, University of Wisconsin Sea Grant Institute*)

Fostering Living Shoreline Stewardship: A New Solution for Privately Owned Shorelines (*Rosmarie Lohnes, Helping Nature Heal Inc.*)

Testing the GreenShores™ Project Rating and Accreditation System – Two Pilot Projects in British Columbia (*Susan Davidson, Sea Science Inc.*)

Successes, Challenges, and Next Steps for Living Shorelines in Nova Scotia (*Robin Tress, Ecology Action Centre*)

12:00 - 13:30

Monday, June 13, 2016

13:30 - 15:00

OS-2A Great Lakes Protected Areas - Part 1 (Giovanni Room)

Session Introduction and Great Lakes Protected Areas Context (*Scott Parker, Parks Canada*)

Aquatic Protected Areas in the Great Lakes: Past, Present, Future (*Nicholas Mandrak, University of Toronto*)

Standing on the Shore: The Extent of Protected and Other Conservation Lands within the Coastal Plain of the Lower Great Lakes (*Graham Bryan, Environment and Climate Change Canada, Canadian Wildlife Service*)

Biodiversity on the Edge: Conservation Needs of Great Lakes Coastal Species and Habitats (*Dan Kraus, Nature Conservancy of Canada*)

OS-2B Overview of the OceanCanada Partnership (St. David Room)

Overview of the OceanCanada Partnership (*Rashid Sumaila, The University of British Columbia*)

A Systematic Review of Governance at the Land-Sea Interface and Some Implications for Canada's Ocean Research and Policy (*Derek Armitage, University of Waterloo*)

Arctic Ocean Sovereignty? (*Nancy Doubleday, McMaster University*)

Species on the Move in the Northwest Atlantic: Sea of Governance Challenges (*David VanderZwaag, Schulich School of Law, Dalhousie University*)

Creating the Cybercartographic Atlas of the Arctic Ocean (*D. R. Fraser Taylor, Carleton University*)

15:00 - 15:30

Coffee Break (*Colony Ballroom*)

15:30 - 17:00

OS-3A Great Lakes Protected Areas - Part 2 (Giovanni Room)

Methods used to Protect Important Coastal Resources South of the Border Including Case Study of the J.D. Marshall Preserve (*Mike Molnar, Indiana Department of Natural Resources*)

Climate Change Adaptation through Aquatic and Terrestrial Habitat Restoration in Ontario Parks Along northern Lake Erie Shorelines (*Melody Cairns, Ministry of Natural Resources and Forestry*)

Panel Discussion: Challenges and Prospects for Great Lakes Protected Areas (*Patrick Lawrence, University of Toledo*)

OS-3B Climate Change Adaptation (St. David Room)

Wetlands and Flood Attenuation in Ontario: Natural Adaptation to a Changing Climate (*Owen Steele, Ducks Unlimited*)

Investigation of Coral Reef Restoration as a Climate Change Adaptation Approach in Barbados (*Pete Zuzek, Baird & Associates*)

Land Use Planning and Zoning for Climate Change Adaptation: Exploring the Practices of Coastal Communities in Nova Scotia, Canada (*Patricia Manuel, Dalhousie University*)

Virtual Reality of Climate Futures: A Multidisciplinary Method for Communicating Climate Change Impacts (*Alexander Chen, University of Prince Edward Island*)

17:00 - 18:00

CZCA Annual General Meeting (*Giovanni Room - Open Meeting*)

Monday, June 13, 2016

13:30 - 15:00

OS-2C Community, Conservation and Livelihoods: Insights from the Community Conservation Research Network (*St. Patrick Room*)

Fishing Rights and Roundtables: Complementary Collaborative Salmon Management in Clayoquot Sound (*Sharmalene Mendis-Millard, Community Conservation Research Network*)

Analysis of the Changing Linkages between Ecosystem Services and Social Wellbeing in the Context of MPA Implementation in Bluefields, Jamaica (*Cheryl Chan, University of Waterloo*)

Fishing for an Introduced Species: The Case of the Bolivian Amazon (*Alison Macnaughton, University of Victoria*)

Why do Commons Matter for Living with Rapid Environmental Change? Lessons from Community-Based Conservation and Livelihoods (*Prateep Nayak, University of Waterloo*)

15:00 - 15:30

15:30 - 17:00

OS-3C Local & Traditional Knowledge for Coastal Management (*St. Patrick Room*)

Cultural Revitalization, Indigenous Knowledge, and Ecological Sustainability: A Collaborative Videography Research Project (*Hillary Beattie, University of Manitoba*)

Integrating First Nations Culture and Governance with Science and Policy in BC Marine Planning (*Steve Diggon, Coastal First Nations - Great Bear Initiative*)

Charting Passages: An Integrated Approach to Hydrography in the Twenty-First Century (*Glenn Macdonald, Canadian Hydrographic Service, Central and Arctic Region*)

Education About the Salish Sea Ecosystem for Vancouver's Adult Residents (*Deborah Simpson, Royal Roads University*)

17:00 - 18:00

Tuesday, June 14, 2016

07:30 - 17:00

Registration Desk Opens (*Chestnut Convention Centre, 2nd Floor*)

08:30 - 10:00

PL-2 Plenary - Keynote Presentations on Increasing Resilience of Coastal Systems (*Colony Ballroom*)

Global Experience with Coastal Resilience (*Adam Hosking, CH2M*) / Re-alignment of the Mississippi Delta (*Rob Nairn, Baird & Associates*) / Don River Mouth Naturalization Project (*Ken Dion, TRCA*)

10:00 - 10:30

Coffee Break (*Colony Ballroom*)

10:30 - 12:00

OS-4A Measuring and Predicting Coastal Erosion (*Giovanni Room*)

A National Assessment of Coastal Change Hazards for the United States (*Hilary Stockdon, U.S. Geological Survey*)

Projecting Coastlines in PEI to 2100 Based on Past Erosion Rates Using Spatial Analysis (*Candace MacDonald, AGRG, NSCC*)

A GIS-based Model for Predicting Shoreline Erosion in Lakes and Reservoirs (*Anna Gagnon, J.D. Mollard and Associates (2010) Limited*)

CLIVE: A Tool for the Geo-visualization of the Changing Coastlines of Prince Edward Island (*Adam Fenech, University of Prince Edward Island*)

OS-4B Advancements in GIS & Remote Sensing Technology - Part 1 (*St. David Room*)

Advancements in Coastal Mapping with the Chiroptera II Topo-Bathymetric Lidar in Maritime Canada (*Tim Webster, Applied Geomatics Research Group, NSCC*)

Ground Truth Measurements to Support Airborne Bathymetric Lidar Operational Efficiency and Accuracy (*Kate Collins, Applied Geomatics Research Group, NSCC*)

The Impact of Hydrographic Surveying on the Updating of Coastal Zone Terrain Baselines (*Don Ventura, Fugro Pelagos Inc.*)

Coastal Monitoring using Small Unmanned Aerial Systems on Prince Edward Island (*Andrew Clark, University of Prince Edward Island*)

12:00 - 13:30

Lunch, Update on "The Zone Newsletter" and Nicholls Award (*Colony Ballroom*)

Tuesday, June 14, 2016

07:30 - 17:00

08:30 - 10:00

10:00 - 10:30

10:30 - 12:00

OS-4C Community Based Collaboration (St. Patrick Room)

Long Point Causeway Improvement Project: Effective and Efficient Collaboration between Civil Society and Government to Enhance Habitat and Species Resilience (*Brian Craig, Long Point World Biosphere Foundation*)

Discussing the Value of Collaborative Efforts from Community-Based Organizations and Multi-Disciplinary Stakeholders in the Context of Marine Plastic Research and Action (*Ariel Smith, Bluenose Coastal Action Foundation*)

Lake Ontario Integrated Shoreline Strategy: A Collaborative Approach to Coastal Zone Management (*Kate Hayes, Credit Valley Conservation*)

Emplacing Research to Reimagine Narratives of Place Significant to our Lives (*Jennifer McRuer, University of Saskatchewan*)

OS-4D Hydrodynamic Modeling to Support Resource Management (Terrace Room)

Numerical Modeling of the Circulation and Mud Transport in Recreation Bay: Actual Conditions and Remediation Scenarios (*Patrick Ragaz, Kahnawake Environment Protection Office*)

Benthic Boundary Layer Dynamics in the Nearshore Swash Zone of the Thermocline in Large Lakes (*Mijanur Chowdhury, University of Toronto at Scarborough*)

Physical Processes in Toronto Harbour System of Coastal Embayments: Hydrodynamic Modelling for Habitat Restoration (*Bogdan Hlevca, University of Toronto*)

Investigating the Dynamic Water Processes that may Affect the Structural Integrity of a Shallow Water Wreck in Fathom Five National Marine Park (*Bryan Flood, University of Toronto*)

12:00 - 13:30

Tuesday, June 14, 2016

13:30 - 15:00

OS-5A Managing Coastal Flood Risks (*Giovanni Room*)

U.S. Efforts to Manage Flood and Erosion Risks on the Great Lakes (*Jason Hochschild, Association of State Floodplain Managers*)

Truro Flood Study - Solutions for Managing Large Runoff, Rising Fundy Tides, Sedimentation and Ice Jams (*Vincent Leys, CBCL Limited Consulting Engineers*)

The Vulnerability of the Coastline of Prince Edward Island to Flooding and Erosion in a Changing Climate (*Don Jardine, University of Prince Edward Island*)

Addressing Uncertainty in Shoreline Impacts Associated With Great Lakes-St. Lawrence River Water Level Regulation (*Mike Shantz, Environment and Climate Change Canada*)

OS-5B Advancements in GIS & Remote Sensing Technology - Part 2 (*St. David Room*)

The Integration of High-Resolution Imagery and Lidar Data (*Nathan Crowell, AGRG, NSCC*)

Passive and Active: Remote Survey Solutions for the Nearshore; an Integrated Approach (*Don Ventura, Fugro Pelagos Inc.*)

Precise Mapping of Submerged Aquatic Vegetation using Airborne Laser Bathymetry: Examples from Eastern Canada (*Kevin Mcguigan, NSCC-AGRG*)

Coastal Resilience by the Numbers. Strategic Data Management for a Sustainable Coast, an Example from Southeast Trinidad (*Edward Albada, CH2M*)

15:00 - 15:30

Coffee Break (*Colony Ballroom*)

15:30 - 17:00

OS-6A New Great Lakes Governance and Policy Tools (*Giovanni Room*)

New Coastal Protection Tools: Ontario's Great Lakes Protection Act, 2015 (*Rachel Melzer, Ontario Ministry of the Environment and Climate Change*)

An Integrated Systems Approach to Coastal Management (*Scudder Mackey, Ohio Department of Natural Resources*)

Elgin County Shoreline Management Plan (*Pete Zuzek, Baird & Associates*)

Q&A Session on New Governance and Policy Tools (*Rachel Melzer, Ontario Ministry of the Environment and Climate Change, Scudder Mackey, Ohio Department of Natural Resources, Pete Zuzek, Baird & Associates*)

OS-6B GIS Based Decision Support Tools for Coastal Management (*St. David Room*)

Geographic Information and Coastal Zone Management: An Example from Nunavut (*Sarah Arnold, University of Manitoba*)

Geomatics Investigation to Track the Source and Fate of Pelagic Sargassum in the Caribbean (*Peter MacDermott, Baird & Associates*)

A GIS-Based, Participative Multiple-Criteria Decision Analysis of Marine and Coastal Management Areas off Western Newfoundland, Canada (*Rebecca D. E. Brushett, Memorial University of Newfoundland; Grenfell Campus*)

A Policy Risk Assessment through the IEC/ISO 31010 Bowtie Analysis to Link Environmental Monitoring to Decision Making for the Estuaries of the Northumberland Strait, Canada (*Nicole Starnes, University of Waterloo*)

18:00 - 22:00

Gala Dinner Cruise on Lake Ontario (Ticket Required)

Empress of Canada Cruise Boat, Shuttle Bus outside of the Chestnut Conference Centre, Starts at 5:15pm & 6:15pm. Boat departs at 7pm.

Tuesday, June 14, 2016

13:30 - 15:00

OS-5C Stakeholder Communication and Engagement (St. Patrick Room)

Using Diverse Stakeholder Perspectives to Better Predict and Manage Thresholds in Marine Systems in Atlantic Canada (*Evan Andrews, University of Waterloo*)

Butt Free Beaches: Awareness, Education and Engagement to Reduce Cigarette Filter Pollution (*Rhiannon Moore, Lake Huron Centre for Coastal Conservation*)

Bridging the Gap: The Role of Bridger Organizations in Complex, Multi-Sectoral Communication Networks for Ocean and Coastal Management (*Lee Wilson, Dalhousie University*)

Incentives, Social Networks and Governance: Theoretical Perspectives on Building Stakeholder Support for the Adoption and Implementation of Integrated Management (*Graham Epstein, University of Waterloo*)

OS-5D Integrating Biological Data for Decision Making (Terrace Room)

Opening Access and Increasing Reuse of Atlantic Canada's Biological Data (*Alexi Baccardax Westcott, Atlantic Coastal Zone Information Steering Committee Secretariat*)

Collaborative Efforts to Train Future Scientists How to Share Marine and Coastal Species Distribution Information (*Mary Kennedy, OBIS Canada*)

Gulf of Maine Council's EcoSystem Indicator Partnership: Transitioning to Ecosystem Service Indicators and a New Smartphone App (*James Latimer, U.S*)

15:00 - 15:30

15:30 - 17:00

OS-6C Increasing Resilience of Developed Coastlines (St. Patrick Room)

Fortress of Louisbourg Storm Surge Modeling and Mitigation (*Mike Fullarton, Baird & Associates*)

Comparing the Effectiveness of Armouring Techniques in Protecting the Eroding Coastlines of Augustine Cove, Prince Edward Island, Canada (*Andrew MacDonald, University of Prince Edward Island*)

Gibraltar Point Erosion Mitigation, Toronto Islands (*Mark Kolberg, Baird & Associates*)

Lakeview Waterfront Connection: Using Natural and Structural- Based Features to Maximize Resilience (*Kate Hayes, Credit Valley Conservation*)

18:00 - 22:00

Wednesday, June 15, 2016

07:30 - 14:30

Registration Desk Opens (*Chestnut Convention Centre, 2nd Floor*)

08:30 - 10:00

OS-7A Natural and Nature Based Features Workshop - Part 1 (*Giovanni Room*)

Introduction and Objectives of Workshop (*Randy French, French Planning Services Inc.*)

Rationale for Natural and Nature Based Features (*Julie Rosati, U.S. Army Corps of Engineers*)

Littoral Cells and Regional Sediment Management (*Pete Zuzek, Baird & Associates*)

Shoreline Regeneration along the Toronto Waterfront – A Legacy of Habitat Enhancement and Creation (*Gord MacPherson, Toronto and Region Conservation Authority*)

Rochester 2015 Workshop & Sea Grant Activities in USA (*Heather Weitzner, NY Sea Grant*)

Update on Activities in BC (Tentative) (*Susan Davidson, Sea Science Inc.*)

10:00 - 10:30

Coffee Break (*Colony Ballroom*)

10:30 - 12:00

OS-8A Natural and Nature Based Features Workshop - Part 2 (*Giovanni Room*)

Breakout: Where and When NNBF will Work (*Scudder Mackey, Ohio Department of Natural Resources*)

Breakout: Existing Examples and Potential Future Case Studies (*Gene Clark, University of Wisconsin Sea Grant*)

Breakout: Research Needs on NNBF (*Bryan Hinterberger, USACE*)

Breakout: The Role of Protection Areas and Opportunities for Expansion (*Scott Parker, Parks Canada*)

Breakout: Knowledge Dissemination to Land Owners, Designers, Contractors and Regulatory Staff (*Kate Hayes, Credit Valley Conservation*)

Breakout: Integration of NNBF into our Regulatory Frameworks (*Teresa Labuda, Halton Region Conservation Authority*)

OS-8B Harbours, Ports and Sediment Modeling (*St. David Room*)

Is there an Alternative to Dredging? A Case Study of Wheatley Harbour, Lake Erie (*Jeffrey Doucette, GHD Limited*)

Particle Deposition Beneath Sediment Laden Plumes in Lakes and the Coastal Ocean (*Shahzad Davarpanah Jazi, University of Toronto*)

Risk Management and Security for Marine Terminals and Shipping (*Michael Parkes, KPMG*)

Barbados Shoreline Change Investigation and Results at the Port of Bridgetown (*Kevin Grootendorst, Baird & Associates*)

12:00 - 13:00

Lunch (*Colony Ballroom*)

Wednesday, June 15, 2016

07:30 - 14:30

08:30 - 10:00

OS-7B Marine Spatial Planning (St. David Room)

Policy, Planning and Technical Considerations for MSP in Newfoundland and Labrador (*Keith Mercer, Fisheries and Marine Institute of Memorial University*)

Options for Public Engagement and Governance in Marine Protected Area Management in Pacific Canada (*Jamie Alley, University Centre of the Westfords, University of Victoria, Consulting Geographer; Jamie Alley and Associates*)

Success, Lessons Learned, and Implementing the Marine Plan Partnership (MaPP) – Reflecting on a Marine Spatial Planning Process in British Columbia, Canada (*Charlie Short, Province of BC, Ministry of Forests Lands and Natural Resource Operations*)

OS-7C Mapping the Shifting Contours of Fisheries Knowledge and Governance in Canada's Four Coastal Regions (St. Patrick Room)

Mapping the Shifting Contours of Fisheries Knowledge and Governance in Canada's Four Coastal Regions (*Emily Bingeman, Dalhousie University / Nicole Latulippe, University of Toronto / M Held, Dalhousie University / Saul Milne, University of Victoria / Shelley Denny, Dalhousie University / Lisa Blenkinsop, University of Guelph*)

10:00 - 10:30

10:30 - 12:00

OS-8C Delivering Integrated Resilience for Coastal Cities (St. Patrick Room)

The Resilience Challenge for Coastal Cities (*Matthew Elliott, CH2M*)

Waterfront Development for Resilience – Experience from Toronto (*Lisa Prime, Sustainable Communities Consultant*)

Long-term Infrastructure Resilience – Lessons from New York City (*Adam Hosking, CH2M*)

Shoreline Protection for Resilience (*Adam Hosking, CH2M*)

Implementing Resilience: Funding and Prioritizing with Finite Resources (*Tamineh Saadat, CH2M*)

How do we Deliver Resilient Coastal Cities? Panel Discussion Session (*Matthew Elliott, CH2M*)

12:00 - 13:00

Wednesday, June 15, 2016

13:00 - 14:00

OS-9A Natural and Nature Based Features Workshop - Part 3 (Giovanni Room)

Facilitated Discussion on the Need and Opportunities for a Community of Practice on NNBF (*Randy French, French Planning Services Inc.*)

OS-9B Natural Resource Management (St. David Room)

A Summary of Ontario's Contributions to a Bi-National Initiative to Restore an Extirpated Species, Coregonus Hoyi, to Lake Ontario (*Ryan Zheng, Ontario Ministry of and Natural Resources Forestry*)

Investigating Barriers to the Development Of The Seafood Industry in Coastal British Columbia: Contributions Towards a Research Agenda (*Jamie Alley, University Centre of the Westfords, University of Victoria, Consulting Geographer; Jamie Alley and Associates*)

Rockweed (*Ascophyllum Nodosum*) Harvesting in Nova Scotia: What is Actually Being Removed? (*David Garbary, Department of Biology, St. Francis Xavier University*)

OS-9C Science and Governance Issues for Resource Management (St. Patrick Room)

Assessing and Addressing Cumulative Impacts in Regional Marine and Coastal Planning (*Sharlene Shaikh, WWF-Canada*)

Policy and Governance for Fisheries Management: The Vital Role of Scientific Information at the Science-Policy Interface (*Suzette S. Soomai, Dalhousie University*)

Derelict & Abandoned Vessels in Canadian Waters: Legal Options (*Sarah Shiels, Clifford Shiels Legal*)

14:00 - 14:15

Coffee Break (*Colony Ballroom*)

14:15 - 15:15

PL-3 Interactive Plenary - Canada's Coasts in a Changing Climate (Colony Ballroom)

Informing the Discussion on Impacts and Adaptation in Canada's Coastal Region. Provide Feedback with your Smartphone on NRCAN's Latest Report (*Fiona Warren & Mary-Ann Wilson, Natural Resources Canada*)

15:15 - 15:30

PL-4 Closing Remarks and CZC 2018 (Colony Ballroom)

Introducing CZC 2018 in St. John's Newfoundland! (*Keith Mercer, Memorial University of Newfoundland*)

Thursday, June 16, 2016

09:00 - 16:00

OS-10A Nature Based Shorelines Field Trip (Ticket Required)

Chairperson: Gord MacPherson, TRCA

Venue: Bus loads at Chestnut Convention Centre at 9:00am

GUEST SPEAKERS



Ryan Coelho
Youth-Employer Forum, June 12, 2016 at 2:00pm

Ryan Coelho, a professional career coach and leader of the Millennial Engagement Movement. Ryan works with youth and employers to help navigate the issues of employee engagement, performance, retention and career fulfillment. Refer to Ryan's web site for additional information on his practice.



Dr. Biliana Cicin-Sain
Opening Plenary, June 13, 2016 at 8:30am

Dr. Cicin-Sain is Director of the Gerard J. Mangone Center for Marine Policy and Professor of Marine Policy at the University of Delaware's College of Earth, Ocean, and Environment. She is also the Editor-in-Chief of the international journal *Ocean & Coastal Management* and has authored over 100 publications in marine policy, with an emphasis on cross-cutting issues related to integrated ocean and coastal governance. Her 2000 book, "The Future of U.S. Ocean Policy: Choices for the New Century" has been called the ultimate guide to the emerging debate on U.S. ocean governance and presented a blueprint for national ocean policy reform in the United States.



Dr. Julie Dean Rosati
Opening Plenary, June 13, 2016 at 8:30am

Dr. Rosati received her Master's degree in Civil Engineering from Mississippi State University and a PhD in Oceanography and Coastal Sciences from Louisiana State University. She works for the US Army Corps of Engineers Coastal & Hydraulics Laboratory Engineering, Research and Development Centre. Dr. Rosati manages research and demonstration projects on natural and nature based features, coastal systems resilience, long-term evolution of tidal inlets and beaches, and regional sediment management.



Adam Hosking
Plenary - Increasing Resilience of Coastal Systems, June 14, 2016 at 8:30am

Adam Hosking is CH2M's Global Technology Leader, with responsibility for Water Resources and Ecosystem Management, including flood and coastal risk management and climate change adaptation services (see web link below). A Fellow of the UK Institute of Water and Environmental Management and a Chartered Scientist, Adam has over 20 years professional experience, including 5 years working in the USA. With a background in coastal geomorphology, Adam has focused on sustainable coastal risk management throughout his career. He has provided technical leadership for coastal resilience studies in many parts of the world, including the UK, Caribbean, USA, Middle East and Singapore. These projects have included leadership of the development of the industry guidance on the preparation of 'Shoreline Management Plans' in the UK, development of the planning framework for the State of Louisiana's 2007 'Comprehensive Master Plan for a Sustainable Coast' and led resilience planning for the New York City Department of Environmental Protection following Hurricane Sandy. Adam's presentation will review CH2M's global experiences and lessons for delivering sustainable coastal resilience in Canada. <http://www.ch2m.com/what-we-do/water/waterresources-ecosystem-management>



Dr. Robert B. Nairn
Plenary - Increasing Resilience of Coastal Systems, June 14, 2016 at 8:30am

Dr. Nairn is a Principal of Baird & Associates and has over 30 years experience as a river and coastal engineer. He is the Team Leader for the Baird team on the Changing Course Design Competition to re-align the lower Mississippi River. Baird works exclusively in coastal, river and port planning, science and engineering and have ten offices in six countries across the globe. Dr. Nairn completed his undergraduate and master degrees at Queen's University in Canada and his PhD at Imperial College in London, England. He has worked on challenging coastal and river engineering projects in over 50 countries including many of the world's largest deltas in North and South America, Africa and Asia.



Kenneth Dion

Plenary - Increasing Resilience of Coastal Systems, June 14, 2016 at 8:30am

Ken Dion is the Senior Manager of Special Projects in the Project Management Office of the Toronto and Region Conservation Authority (TRCA). Since March 2001, Ken has managed several large Environmental Assessment projects including the Lakeview Waterfront Connection Project, the Don Mouth Naturalization and Port Lands Flood Protection Project, and the Lower Don River West Remedial Flood Protection Project. In addition to these large multi-faceted EAs, Ken has overseen the construction of a railway bridge lengthening project over the Don River at Union Station, Toronto. This railway bridge project, in conjunction with the construction of a Flood Protection Landform in the West Don Lands, was critical in providing flood protection to downtown Toronto, while also serving as the foundation for the new Corktown Commons and 2015 Panam Games Athlete Village. Currently, Ken is overseeing TRCA's involvement in the Port Lands Due Diligence work in collaboration with Waterfront Toronto, City of Toronto and Toronto Port Lands Company. This due diligence work will seek to refine the design, cost and implementation strategies for the combined concepts that result from the Don Mouth EA and Lower Don Lands Master Plan Class EA. Ken also supervised TRCA's involvement in the Detailed Design process of the Lakeview Waterfront Connection Project, in support of the Region of Peel and Credit Valley Conservation. Ken oversees, mentors and advises the works led by other Project Managers in the Project Management Office. They are currently working on such projects as the Scarborough Waterfront Park Project, Gibraltar Point Erosion Control Project, and Humber Bay Project.



Fiona Warren

Interactive Plenary, June 15, 2016 at 2:15pm

Fiona Warren is a senior science advisor with the Climate Change Impacts and Adaptation Division at Natural Resources Canada. She has worked on the issue of climate change impacts and adaptation for 15 years, with a strong focus on science assessments. Most recently, she was a scientific editor, project coordinator and a lead author for the 2016 report 'Canada's Marine Coasts in a Changing Climate.' She led the development of the 2014 report 'Canada in Changing Climate: Sector Perspectives on Impacts and Adaptation' (as well as serving as lead scientific editor and a lead author), and was an editor and author on earlier Canadian assessments (2004 and 2008). She was also a contributing author to the North America chapter of the IPCC 5th Assessment Report, and has been

an expert reviewer of several reports and papers on climate change issues.

Mary-Ann Wilson

Interactive Plenary, June 15, 2016 at 2:15pm

Mary-Ann Wilson is a Program Manager with the Climate Change Impacts and Adaptation Division at Natural Resources Canada. Under Canada's Adaptation Platform program, she co-chairs multi-stakeholder coastal and energy working groups which include government, industry, professional associations, non-government organizations and academia. Since 2009, she has lead many collaborative initiatives, from science to action, focused on integrating climate change into decision-making to increase the resilience of communities and the economy. In addition, Mary-Ann has over 25 years of experience in water management working both nationally with the federal government and locally for a Conservation Authority in Eastern Ontario.



Baird.

Innovation Engineered.



Who We Are

Where water meets land, you find environmental forces hard at work. You also find Baird. From planning, to science, restoration planning, design and construction, we balance the forces of nature with the needs of stakeholders. Complex coastal projects can put reputations to the test. That's why clients worldwide trust us. We stake our reputation on each and every project.



What We Do

- Coastal Management
- Watershed Investigations
- Ports & Harbours
- Waterfront Developments
- Metocean Studies
- Water Quality Solutions
- Hazard & Risk Assessments
- Erosion & Sedimentation
- Flooding Investigations
- Hydraulics & Hydrology
- Physical Modeling
- Software Solutions

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Great Coastal Cities: Becoming More Resilient

Becoming resilient means minimizing the impacts of climate change, rising sea levels, extreme weather, natural disasters and security threats so a city's communities and infrastructure are safe and secure. CH2M works closely with city leaders and stakeholders to create a prioritized resiliency implementation plan – one leaders can be confident provides a holistic, cost-effective and practical path to becoming a resilient city.

A key focus of our solutions is that they are city wide and highly customized to each city's needs.

CH2M helps cities anticipate and prepare for significant events that may negatively affect city operations, including:

- **SEA-LEVEL RISE:** We help cities assess vulnerabilities and develop solutions to mitigate the impact of sea-level rise, salt water intrusion, coastal erosion, and flooding.
- **EXTREME WEATHER:** CH2M develops integrated solutions for effective adaptation and response to extreme weather, including storm surge, stormwater flooding and drought.
- **INTEGRATED STORMWATER MANAGEMENT:** Our solutions help ensure drainage, conveyance and storage are sized and located for optimal results, minimizing flooding risk.
- **EARTHQUAKE RESILIENCE:** CH2M's globally recognized expertise helps cities identify, assess and mitigate potential issues before the significant event occurs.

Delivering Resilience for Miami

We conducted an assessment of projected sea-level rise, extreme rainfall and wind; modeling the extent of inundation and storm surge; and evaluating the risk and cost of those climate change factors to wastewater facilities within Miami-Dade's \$3.3 billion Ocean Outfall Legislation Program. This 11-year program, with 28 capital projects, is the culmination of a regulatory mandate by the Florida Legislature to stop all wastewater discharge to the ocean by 2025.



Becoming a Resilient City

CHARACTERIZE



Define and appraise hazards, to confirm impacted areas. Identify 'at risk' assets and infrastructure. Consider interdependence and criticalities among assets.

ANALYZE



Assess asset and system vulnerabilities, determine consequences of exposure and resultant risk for events of various probabilities.

PLAN



Consider system and asset level actions to manage risks, appraise performance in risk reduction, with a focus on interdependencies and cascading impacts.

IMPLEMENT



Develop a resilient city framework, including mitigation costs, implementation timeframes, funding strategies and sequencing.





Great Cities: Green Solutions and Pathways to Funding Success

Our robust resiliency implementation plans include creative funding strategies, actionable next steps and highly customized infrastructure-based solutions for making your city as resilient as it can be.

As cities around the world look to smart, competitive solutions increasing the resilience of their infrastructure and technologies, city leaders face the daunting task of prioritizing and funding city-wide improvement projects while aligning their many departments and jurisdictions around a unified vision and implementation plan.

Taking a systems approach to coastal city resilience, CH2M brings full expertise in all infrastructure sectors to work with our coastal science and engineering teams, to develop integrated city-wide resilience plans. Bringing decision-making tools, creative funding solutions, and cutting edge scheduling software, we help city managers implement that plan as an optimized city resilience program.



Green Solutions for Urban Resilience

The Nature Conservancy and CH2M established an exciting 5-year collaboration in an effort to advance urban conservation, secure water and reduce coastal and inland flood risks. Howard Beach, Queens, New York, was selected as a flood risk reduction case study for the project because this neighborhood, hit hard during Hurricane Sandy, is low-lying and densely populated.

Contact Us

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Outcomes:

- In conjunction with sea walls and flood gates, natural infrastructure such as wetlands, marshes, mussel beds, dunes and native vegetation were found to be cost-effective in reducing the ingress of flood waters and minimizing erosion.
- The Nature Conservancy and CH2M included an innovative cost-benefit analysis for investment in natural solutions to quantify economic returns in terms of risk reduction, ecosystem improvements and enhanced property values.



About CH2M

CH2M is a global leader in full-service consulting, design, design-build, operations and program management services. Our partners and clients include governments, cities and businesses in more than 50 countries. To meet their biggest challenges, we tap deeply integrated capabilities across our organization — in urban environments, transportation, water, environmental, nuclear, oil & gas and industrial. And we draw on the exceptional skills and creativity of 25,000 teammates with an outstanding track record of expertly executing projects both big and small. We combine local delivery teams deeply rooted in the community with global experts and best practices so we can remain flexible to evolving project demands. Because when we help our clients stay competitive, we help society move forward.



COASTAL ZONE CÔTIÈRE CANADA

St. John's
Newfoundland
and Labrador

2018

Subject to Board approval at CZC16, Coastal Zone Canada is returning to St. John's, Newfoundland and Labrador, in 2018. We look forward to welcoming delegates to a province where coastal issues are of critical importance and where the provincial economy is immutably linked to the ocean. Plan on experiencing St. John's in the summer of 2018 - the best time for whale watching, icebergs and seabirds (and fog, actually) as you convene with your colleagues at Memorial University to discuss and learn about cutting edge coastal zone issues.

For more information and to discuss partnership opportunities please contact
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