

GAIL L. CHMURA

cv

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EDUCATION

Ph.D. Marine Sciences, Minor Geology, Louisiana State University.

Dissertation: Palynological and Carbon-Isotopic Techniques for Reconstruction of Paleomarch Salinity Zones.

M.S. Plant and Soil Science, University of Rhode Island.

Thesis: Morphological, Physical and Chemical Characteristics of a Ditched and Unditched Tidal Salt Marsh Soil.

B.S. Magna Cum Laude, Wildlife Biology, University of Massachusetts, Amherst.

PROFESSIONAL EXPERIENCE

Professor - Department of Geography, McGill University 6/2020- present

Associate Professor - Department of Geography, McGill University 6/96-5/2020.

Associate Faculty - McGill School of Environment.

James Chair Department of Earth Sciences, St. Francis Xavier University, Antigonish, Nova Scotia. Held during sabbatical year 2011-2012.

Director, Global Environmental and Climate and Global Change Centre (>50 members from 7 universities within Quebec, funded by the Quebec government). 2008-2011.

U.S. National Research Council - U.S. EPA NHEER Lab, Atlantic Ecology Division, Narragansett, RI. Fellowship granted during sabbatical leave year 1996-1997. Conducted research on geological indicators of estuarine water quality.

Assistant Professor - Department of Geography, McGill University. Member, McGill Centre for Climate and Global Change Research. 4/90 to 6/96.

Fulbright Scholar - Department of Marine Geology, Netherlands Institute for Sea Research. 11/88-10/89.

National Sea Grant Fellow - Legislative aide to the U.S. House of Representatives Committee on Merchant Marine and Fisheries, Subcommittee on Fisheries and Wildlife Conservation and the Environment. Negotiated compromise legislation which allowed passage of expanded Dingell-Johnson Bill (providing funding for fisheries management through excise taxes); provided scientific and political advice regarding development of environmental legislation.

RESEARCH FUNDING

Note that Canada Research Council Grants, FQRNT and NB grants include no faculty salary or overhead and overheads of agencies are generally ~25% or nil.

- ECCC, “Informing Nature Smart Climate Solutions Fund regarding coastal wetlands”, \$40,000, 2023-2024.
- Canada Department of Fisheries and Oceans, “The Sediment Record of Oyster and Eelgrass Beds in Prince Edward Island Estuaries”, \$60,000, 2022-2023.
- Mitacs Accelerate Program, “Climate feedback associated with the management of freshwater impoundments”, \$80,000, 2022-2025.
- Ducks Unlimited Canada, “Climate feedback of waterfowl impoundments”, \$50,000, 2022-2025.
- Parks Canada Agency, “Blue Carbon Field Sample Collection and Laboratory Analysis of Sediment Carbon Stocks in Salt Marsh Ecosystems”, \$61,695, 2021-2024.
- ECCC CAAF, Wetlands as nature-based climate-change solutions: Quantifying carbon-capture potential while building a stronger green economy”, \$6 million, 04/2022-03/2027; (Chmura 4.6%), PI I Creed (U Toronto)
- New Brunswick Environmental Trust Fund, “Increasing Accuracy of Measurements of New Brunswick’s Blue Carbon Stocks”, \$15,000, 2020-21.
- New Brunswick Environmental Trust Fund, “Assessing Sustainability of New Brunswick Saltmarshes”, \$48,000, 2020-21.
- Gulf of Maine Council Collaborative Action Grant in support of “Gaining Carbon Credits for Wetland Restoration” training session; US\$9,000, 2019-20 (with J Karberg & D. Burdick).
- New Brunswick Environmental Trust Fund, “Quantifying Blue Carbon Storage with Restoration of New Brunswick Salt Marshes”, \$22,000. 2019-20.
- New Brunswick Environmental Trust Fund, “Improving Maps of New Brunswick’s Salt Marsh Areas”, \$25,000. 2019-2020.
- New Brunswick Wildlife Trust Fund, “Controls of marsh hydrology, elevation and climate on availability of the Maritime Ringlet’s Nectar Sources”, \$8,000 (with Serge Jolicoeur, UMoncton). 2019-20.
- McGill Sustainability Systems Initiative, “Are salt marshes within watersheds dominated by urban or agricultural landscapes sustainable?”, 2019-2020, \$9,800, PI Nagissa Mahmoudi, Dept Earth & Planetary Sciences.
- Natural Sciences and Engineering Research Council (NSERC) Discovery Grant, “Resilience of Estuarine Ecosystems with Environmental Change”, 2018-24, \$150,000/\$30,000 each year McGill fund #236469
- Environment and Climate Change Canada, “Blue Carbon Potential in the Bay of Fundy” 2018, \$20,198, McGill fund # 247483 ECCC/PWGSC 3000664606
- New Brunswick Wildlife Trust Fund, “Availability of Nectar Sources of the Maritime Ringlet: Importance of Climate and Marsh Hydrology”, \$9,300 (with Serge Jolicoeur, UMoncton). 2018-19.
- Environment and Climate Change Canada Habitat Stewardship Program - Species at Risk Stream, “The Future Critical Salt Marsh Habitat Components for Species at Risk on Chaleur Bay”, 2017-19, \$143,151. McGill fund #24434

- New Brunswick Wildlife Trust Fund, “Monitoring blooming of the Maritime Ringlet nectar sources in the context of climate change and marsh hydrology”, \$18,000 (with Serge Jolicoeur, UMoncton). 2017-18
- Environment and Climate Change Canada Habitat Stewardship Program - Species at Risk Stream, “Where to Preserve Future Critical Salt Marsh Habitat for Species at Risk on Chaleur Bay”, 2016-18, \$68,512.
- Commission for Environmental Cooperation, “Analysis of Policy Opportunities for Blue Carbon in Canada”, 2016, \$15,000 (PI, with I Galiana, A Spooner, N Catto, & G Garver).
- New Brunswick Wildlife Trust Fund, “Monitoring blooming of the Maritime Ringlet’s nectar sources in the context of climate”, \$8,000 (with Serge Jolicoeur, UMoncton).
- Commission for Environmental Cooperation, “Blue Carbon in Northern Marshes: Assessing Processes, Stocks and Rates in Undisturbed, Drained and Restored Marshes”, 2014-2015, \$41,903 (with D. Burdick, UNH).
- Commission for Environmental Cooperation, “North America’s Blue Carbon: Assessing Salt Marsh, Seagrass and Mangrove Carbon Sinks”, 2014-2015, \$84,992 (with F. Short, UNH).
- NSERC Discovery, “Coastal Ecosystems: Climate Change and Anthropogenic Impacts”, 2013-18, \$33,000/yr.
- Fonds québécois de la recherche sur la nature et les technologies Regroupements stratégiques Program (Quebec Science Funding Council Research Centre Program), "Global Environmental and Climate Change Centre", 2011-13, \$100,000, (PI Chmura with 55 others)
- Ministère du Développement économique, de l’Innovation et de l’Exportation, "Collaborations TERI-McGill en développement durable: changements climatiques, biocarburants et politiques urbaines", Oct 2010, \$11k.
- CFCAS Outreach Grant, “Communicating results of climate change research: development and deployment of tools for data management, access, integration and understanding”, 2010, \$80k. (with R. Sieber).
- South Florida Water Management District, A Preliminary Study of the Presence of a Carbonate Layer in Tree Island Soil in WCA-3, 2008, US\$25k.
- SSHRC Major Collaborative Research Initiative, “The Indian Ocean World: The Making of the First Global Economy in the Context of Human-Environment Interaction”, 2010-2017, \$2,500,000. (with G. Campbell).
- GEOIDE National Centre of Excellence, “Participatory Geoweb for Engaging the Public on Global Environmental Change”, 2008-2012, \$950,000. (with PI Sieber with 9 researchers)
- BOREAS (European Science Foundation and SSHRC) 2006-2009, “Social change and the environment in Nordic prehistory: Evidence from Finland and northern Canada”, €99,200 (roughly 50% of €205,200 awarded to McGill participants: Chmura & Costopoulos).
- NSERC Discovery, “Coastal Futures and Human Legacies”, 2006-11, \$140,500/\$28,100 each year
- World Wildlife Fund, “Impact of 2 degree global temperature rise on Canada’s Atlantic fisheries”, (PI with Pohle and Van Guelpen), US\$ 10,000, 2005.
- Natural Resources Canada Climate Change Action Fund, "Climate Change and Thermal Sensitivity of Commercial Marine Species" (PI with Pohle, Van Guelpen and Page), \$350,500, 2002-05.
- NSERC Discovery, “Human disturbance and estuarine change”, \$105,840, 2002-06.

- NSERC Network Grant, “Collaborative research network program on the impacts of atmospheric Hg deposition on large scale ecosystems in Canada (COMERN)”(with Lucotte and 47 others), \$12.64 million over 5 yr (2001-2006).
- Natural Resources Canada Climate Change Action Fund, “The Fate of Salt Marshes in Atlantic Canada”, \$40,300, 2000-01.
- FCAR Team Equipment Grant, “Freeze-drier for sediment geochemistry”, \$27,000, 2000.
- Royal Bank Teaching and Learning Improvement Fund: Development of a Semester Program for the McGill School of Environment – Watersheds to Coastal Waters: Making Connections in the Bay of Fundy, 2000-2001, \$3,000
- Huntsman University Faculty Research Fellowship, “The balance between belowground plant production and surface sediment deposition in Fundy salt marshes”, \$1,000, 99-00.
- NSERC Equipment Grant, “Portable high-resolution GPS system for multidisciplinary geosciences/physical geography research”, with Mareshcal, J.C., Moore, T., Chouteau, M., Pollard, W., Stix, J., Gaonac, H H., & Lapointe, M., \$54,539, 1999.
- NSERC Major Facilities Access Grant, “Support of the Huntsman Marine Science Centre as a national and regional research facility”, J. Allen and 19 others, \$170,000, 1999-02.
- NSERC, “Sediment accumulation in salt marshes of the Bay of Fundy”, \$83,160, 1998-02.
- FCAR équipe, "Biogeochemistry of wetlands: carbon dynamics", with T. Moore, R. Knowles, N. Roulet, and P. Richard, \$105,000 1998-2001.
- Huntsman Marine Science Centre Research Fellowship, “Gradients in plant productivity and sediment accretion of salt marshes on the New Brunswick coast, Bay of Fundy, \$2,000, 98-99.
- USEPA “Pilot Samples for Dinoflagellate Cyst Study of New Bedford Harbor”, \$3,500, 1997.
- Bank of Nova Scotia Environmental Science Award. “Pilot studies of historical patterns of heavy metal deposition in New Brunswick salt marsh sediments,” \$2,000, 1997
- FCAR “Centre de recherche sur le climat et les changements à l’échelle du globe” with N. Roulet and McGill Centre for Climate and Global Change Research members (11), \$171,760/yr, 1997-00.
- FCAR “Centre de recherche sur le climat et les changements à l’échelle du globe- equipment grant” with N. Roulet and McGill Centre for Climate and Global Change Research members, \$51,961/yr, 1997.
- FCAR équipe, "Biogeochemistry of wetlands in a changing climate", with T. Moore, R. Knowles, and N. Roulet, \$48 000/yr, 1995-98.
- FCAR “Centre de recherche sur le climat et les changements à l’échelle du globe” with L. Mysak and McGill Centre for Climate and Global Change Research members, \$110,000/yr, 1994-97.
- US Geological Survey, “Palynomorph studies of Mississippi fan deposits”, \$1500, 1994.
- NSERC Research Grant, "Processes and patterns of palynomorph deposition in deltaic systems", \$17 370/yr, 1994-98.
- Ogeltree Fellowship (for research at Huntsman Marine Science Centre), \$2 500, 1993.
- McGill Centre for Climate & Global Change Research / Faculty of Graduate Studies & Research, Equipment Grant, \$6,330, 1992.
- FCAR équipe, "Les milieux humides: biogéochimie, ecologie et microbiologie", with T. Moore and R. Knowles, \$34 200/yr 1992-95.
- NSERC Equipment Grant, \$11 843, 1992.

- NSERC Operational Grant, "The Nature of Fluvial Transported Pollen Assemblages and their Use in Ecological Reconstructions", \$18 000/yr, 1991-94.
- McGill Faculty of Science & Faculty of Graduate Studies and Research, Equipment Grant, \$18 384, 1990.
- McGill Faculty of Graduate Studies & Research, Computer Equipment Grant, \$2 000, 1990.
- McGill Faculty of Graduate Studies & Research, Travel Grant to 8th IPC, Aix-en-Provence, France, Sept., 1992.
- European Union of Geosciences, Travel Grant to EUG V, Strasbourg, France, March 1989.
- AASP Travel Grant to 7th International Palynological Congress (IPC), Brisbane, Australia, August, 1988.

Grants from Royal Canadian Geographic Society to undergraduates I have supervised:

- Beaumier. 2007. "Tracing nutrient enrichment in Canadian salt marshes", \$2,500.
- Flanary. 2006. "Plant zonation and geomorphic factors at a recovering salt marsh", \$2,000.
- MacDonald. 2005. "Analysis of Changes in the Anthropogenic and Natural Hydrological Networks Resulting from Dyke Abandonment in Bay of Fundy Salt Marshes", \$1,800.
- Hung. "Sources of total mercury as reflected in salt marsh sediments in the Bay of Fundy," \$1,800.
- Paquette, 1999. "Influence of tidal flooding on marsh elevations", \$1,400.
- Crago. 1998. "Effects of winter ice on surface sediment accumulation in Fundy salt marshes," \$1,500.

FELLOWSHIPS, HONORS AND AWARDS

Appointed to Council of Canadian Academies panel

American Geophysical Union Editors' Citation for Excellence in Refereeing for the *Journal of Geophysical Research- Biogeosciences*, 2013.

James Chair, St. Francis Xavier University, 2011-2012.

Nominated by UNEP and ECCC to serve as a Lead Author, *IPCC Guidelines on National Greenhouse Gas Inventories* 2011-2013

U.S. National Research Council Fellowship, January -September 1997

Appointed to Canadian National Committee for liaison to the International Quaternary Association.

Best Poster Award from American Association of Stratigraphic Palynologists: Variations in *Pediastrum* Assemblages in Mississippi Tributaries (with student, Gillespie), presented at 1994 Annual Meeting.

Fulbright Fellowship to conduct graduate study in the Netherlands 1988.

Sea Grant Fellowship to serve with U.S. Congress 1980.

Nystrom Award nominee, American Association of Geographers, 1991 Annual Meeting.

Lipsey Scholarship for most outstanding Louisiana State University Marine Sciences graduate student in 1988.

Best paper award by Coal Section of Geological Society of America: Mineralogical Characteristics of an Underclay in the Barataria Basin, Mississippi Delta, presented at 1986 Annual Meeting.

One of 10 highest rated papers at American Association of Petroleum Geologists 1986 Annual Meeting: Accretion and Origin of Organic Horizons in the Mississippi Delta.

Rockefeller Scholarship, 1987-88.

MEDIA COVERAGE AND PUBLIC OUTREACH

Story Maps

- **“Coastal Squeeze and the Future of New Brunswick Salt Marshes”** Prepared for New Brunswick Environmental Trust Fund. It shows which salt marshes on both New Brunswick’s coastlines have room for migration with rising sea level, and conversely, where they are the most threatened. This can guide coastal wetland conservation. <https://tinyurl.com/NBSaltmarshes>
- **“The Maritime Ringlet and Its Salt Marshes”** Prepared for Environment and Climate Change Canada’s Species at Risk Program. It shows where this endangered species’ habitat is threatened by coastal squeeze, providing education for the public and guidance for enhanced coastal wetland conservation. Links: <https://tinyurl.com/RingletMap> (English); <https://tinyurl.com/FrRinglet> (French)
- **“Bay of Fundy Carbon Story (Map)”** Prepared for Environment and Climate Change Canada to demonstrate the value of Bay of Fundy coastal wetlands as carbon sinks. Link: <https://arcg.is/0DqLzm>.

Television Coverage

- Live Interview on CTV’s Nationally broadcast morning program, May 30, 2018
- Feature Story “Blue carbon ~ the billion-dollar resource you’ve never heard of” on CBC TV News Network, May 23, 2018 (https://twitter.com/Brett_CBC/status/999259296557879297) and as website version <https://www.cbc.ca/news/canada/nova-scotia/blue-carbon-billion-dollar-resource-1.4579249>
- **UN Framework Convention on Climate Change (COP 11)** November, 2005. My research on climate change and its impact on Canada’s commercial marine fisheries were featured at a press conference at this COP. Coverage appeared on CBC News World, and newspapers such as Montreal’s *le Devoir* and *The Gazette*.

Radio Coverage

- CBC Radio’s “What on Earth”, show aired on May 9, 2021, also available as a podcast
- On May 23 –24, 2018 the hosts of 13 different CBC radio programs interviewed me on blue carbon.
- My research on Atlantic Canada salt marshes had previously received public exposure through newspaper reports and radio interviews in 2001. I was featured in the CBC Radio One-Saint John series “Changes in the Bay” Part 2-Saltmarshes (Sept 12) and Part 4-Undoing the Damage (Sept 14) both archived at www.nb.ca/Saint-John/realinterviews.html.
- A feature highlighting my field research (interview on the salt marsh) was aired on Sept 4, 2001 and is archived at www.charlottetown.cbc.ca/archives.html (see “Marshin”).

Newspapers and Magazines

- Blue Carbon: the Climate Change Solution You’ve Probably Never Heard Of, *The Narwhal*, Sept 30, 2020, <https://thenarwhal.ca/blue-carbon-climate-change-canada/>
- New Brunswick newspaper, *The Northern Light* “McGill researchers get down to the nitty-gritty at Daly Point salt marsh”, front page story, Oct 17, 2017
- New Brunswick newspaper, *The Northern Light* “Project on butterfly food source taking place in Bathurst”, Aug 16, 2016, front page story
- The magazine *Natural History* requested that I submit a short article on my research in the Bay of Fundy. The piece was featured in spring 2003 (see pub list).

Keynote / Plenary Lectures and Webinars

- 1) “Unpacking freshwater’s role: Climate mitigation measures in freshwater systems”, March 16, 2023. Webinar organized by the **Stockholm International Water Institute**.
- 2) “Future Directions in Blue Carbon Research” **Keynote** speaker, **Canada-Korea Conference on Science and Technology**, Niagara Falls, ON. July 4-8, 2022.
- 3) “Marketing Tidal Wetland Soils (aka Blue Carbon): What Research is Needed?” **Keynote** speaker. Soil Science Society of America International Annual Meeting. Salt Lake City, Utah, Nov 2021.
- 4) “Climate Change and the Future of Blue Carbon” Society of Wetland Scientists **Webinar** April 14, 2016
- 5) “Blue Carbon and Climate Change”, **Keynote** speaker. SWS 2015 Annual Meeting, Providence, RI, May 31 – June 4.

Public Talks and other Outreach

- 1) **New Brunswick Nature** Annual Province-wide Event, Banquet Speaker: “Should a Butterfly be Worried about Sea Level Rise?” June 2, 2018.
- 2) **New Brunswick Nature** Annual Province-wide Event, Leader of Nature Walks at Daly Point Salt Marsh, June 2 & 3, 2018.
- 3) **Asia-Pacific Economic Forum - Blue Economy Forum**, “The Value of Preserving and Restoring Mangroves and Salt Marshes: Blue Carbon and More”, Hainan, China, 6/28/2016.
- 4) **The Bernard and Susan Master 2015 Moonlight on the Marsh Distinguished Lecture Series, Everglades Wetland Research Park**, “Losing Money with the Mud? How Sea Level Rise Will Affect Salt Marsh and Mangrove Wetlands.” Florida Gulf Coast University, Naples, Florida. Jan 15, 2015;
- 5) **Seminole Tribal Historic Preservation Office & Florida Field Archeology class of Florida Gulf Coast Univ**, “The Enigmatic Carbonate Layer in Everglades Tree Island Peats”. June 11, 2011
- 6) **Convention on Biological Diversity, United Nations Environment Program Blue Carbon Side Event** at 16th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, “Opportunities to Enhance Carbon Storage and Diversity in Eastern Canada’s Coastal Zone Montreal”, May 3, 2012.
- 7) Saltmarshes and Dykelands of the Bay of Fundy, Montreal **Field Naturalists Club**, Redpath Museum, McGill, Jan 2003.

PUBLICATIONS AND PRESENTATIONS (9/2023)

Google Scholar lists > 9,290 citations of my work as of 2/8/2023, and an H-index of 41

Refereed Journal Articles

(names in **boldface** denotes contribution as a grad student or post-doc, **underlined boldface** denotes undergrad, when publication is the result of student research I directed, I usually place my name last)

- 1) Chmura GL, **Galiana I.** *in preparation*. Blue carbon can shift decisions for managing coastlines: a case study in the St. Lawrence dykelands. For *Ocean and Coastal Management*.
- 2) Peros MC, Kanik NJ, Pausata FSR, **Agosta G’meiner A**, Reinhardt EG, Pupo FM, Dandoy S, Martínez López JG, Brahim YA, Chmura GL, Collins S, Roksandic M, Buhay WM.

- Under revision.* Abrupt ITCZ variability, droughts, and hurricane activity following the end of the African Humid Period. *Nature Geosciences*.
- 3) **van Ardenne** LB, Wollenberg JT, Mozdzer TJ, Biswas A, Chmura GL. *In preparation.* Blue carbon losses with salt marsh drainage. For *PNAS*.
 - 4) van Ardenne LB, Kalacska M, Chmura GL. *In preparation.* Finding a needle in haystack: mapping salt marsh forbs. *Remote Sensing*.
 - 5) **Comer-Warner** S, Ullah S, **Ampuero Reyes** W, Krause S, Chmura GL. *Under review.* Variability of gas flux estimates from static, closed chambers with flux calculation method. *Ecological Engineering*.
 - 6) **Comer-Warner** S, Ullah S, **Dey** A, Stagg CL, Elsey-Quirk T, Swarzenski CM, Sgouridis F, Krause S, Chmura GL 2023. Elevated temperature and nutrients lead to increased N₂O emissions and incomplete denitrification from *Spartina alterniflora* and *Spartina patens* across two climate regions (Quebec, Canada and Louisiana, U.S.A.) *Biogeochemistry*
 - 7) Maxwell TL,..... Chmura GL,(and 83 others). 2023. Global dataset of soil organic carbon in tidal marshes. *Scientific Data*
 - 8) Pendea, IF; Kanavilhi, N; Kurissery, S; Chmura, GL 2023. Carbon Stocks and Recent Rates of Carbon Sequestration in Nutrient-Rich Freshwater Wetlands from Lake Simcoe Watershed (Southern Canada). *Journal of Geophysical Research: Biogeosciences*, 128, e2023JG007561. <https://doi.org/10.1029/2023JG007561>.
 - 9) **Noel** PE, **Sharma** B, Chmura GL. 2023. Invertebrate communities of Bay of Fundy salt marsh pools: comparison of a natural and recovering marsh. *Frontiers in Ecology and Conservation Special Issue "Women in Conservation"*.
 - 10) Qi X, Chmura GL. 2023. Invasive *Spartina alterniflora* marshes in China: a blue carbon sink at the expense of other ecosystem services. *Frontiers in Ecology and the Environment*. doi:10.1002/fee.2611
 - 11) **Pendea** IF, Chmura GL. 2022. Reconstruction of wetland development across a postglacial chronosequence based on palynomorph and carbon/nitrogen modern analogues. *Review of Palaeobotany and Palynology* 305.
 - 12) **Ampuero Reyes** W, Chmura GL. 2022. Contribution of belowground biomass to salt marsh soil volume. *Estuarine Coastal and Shelf Science* 275.
 - 13) Saintilan N.....Chmura GL...(20 additional authors).....2022. Constraints on the adjustment of tidal marshes to accelerating sea level rise. *Science* 377:523-527. DOI: 10.1126/science.abo7872
 - 14) **Comer-Warner** S, Ullah S, **Ampuero Reyes** W, Krause S, Chmura GL. 2022. Methane emissions from *Spartina alterniflora* are higher than from invasive *Phragmites australis* and other elevation zones in a St. Lawrence Estuary Salt Marsh. *Environmental Research: Ecology*
 - 15) van Ardenne LB, Chmura GL. 2021. Applying Lidar to map salt marsh inland boundaries. *Remote Sensing*.
 - 16) van Ardenne LB, Hughes JF, Chmura GL. 2021. Tidal Marsh Sediment and Carbon Accretion on a Geomorphologically Dynamic Coastline. *JGR-Biogeosciences*.
 - 17) **Rusk** BA, Cormier L, Jolicoeur S, Chmura GL. 2021. Photographic Monitoring of Blooming of Critical Salt Marsh Nectar Sources by Citizen Scientists. *Northeastern Naturalist*.
 - 18) Drever R, Cook-Patton SC, Akhter F, Badiou PH, Chmura GL, Davidson SJ, Desjardins RL, Dyk A, Fargione JE, Fellows M, Filewod B, Hessing-Lewis M, Jayasundara S, Keeton W,

- Kroeger T, Lark TJ, Le E, Leavitt S, LeClerc M-E, Lemprière TC, Metsaranta J, McConkey B, Neilson E, Puric-Mladenovic D, Rodrigue S, Soolanayakanahally RY, Spawn SA, St-Laurent GP, Strack M, Smyth C, Thevathasan N, Voicu M, Williams CA, Woodbury PB, Worth DE, Xu Z, Yeo S, Kurz WA. 2021. Natural Climate Solutions for Canada. *Science Advances*. <https://advances.sciencemag.org/content/7/23/eabd6034>
- 19) Balke T, Vovides A, Schwarz C, Chmura GL, Basyuni M. 2021. Monitoring tidal hydrology in coastal wetlands with the "Mini Buoy": applications for mangrove restoration. *Hydrology and Earth System Sciences* 25:1229–1244. <https://doi.org/10.5194/hess-2020-574>
 - 20) Gu J, vanArdenne LB, Chmura GL. 2020. Invasive *Phragmites* increases blue carbon stock and soil volume in a St. Lawrence estuary marsh. *JGR-Biogeosciences* 125 (8), e2019JG005473
 - 21) Macreadie PI, Anton A, Raven JA, Beaumont N, Connolly RM, Friess D, Kelleway J, Kennedy H, Kuwae T, Paul S, Lavery, Lovelock CA, Smale DA, Apostolaki ET, Atwood TB, Baldock J, Bianchi TS, Chmura GL, Eyre BD, Fourqurean JW, Hall-Spencer JM, Huxham M, Hendriks IE, Krause-Jensen D, Laffoley D, Luisetti T, Marbà N, Masque P, McGlathery KJ, Megonigal PJ, Murdiyarso D, Russell BD, Santos R, Serrano O, Silliman BR, Watanabe K, Duarte CM. 2019. The Future of Blue Carbon Science. *Nature Communications* 10:3998. Listed as one of Nature Communications' "Top 50 Earth and Planetary Science Articles" in 2019.
 - 22) Chen S, Chmura GL, Wang Y, Yu D, Ou D, Chen B, Ye Y, Chen G. 2019. Benthic microalgae production offsets the sediment carbon dioxide emission in mangrove in cold seasons. *Limnology and Oceanography* 64:1297–1308.
 - 23) Finlayson CM, Davies GT, Moomaw WR, Chmura GL, Natali SM, Perry JM, Roulet N, Sutton-Grier AE. 2019. The Second Warning to Humanity – Providing a Context for Wetland Management and Policy. *Wetlands* 39(1): 1-5. doi.org/10.1007/s13157-018-1064-z
 - 24) **Wollenberg** JT, Biswas A, Chmura GL. 2018. Greenhouse Gas Flux with Reflooding of a Drained Salt Marsh Soil. *PeerJ*. doi.org/10.7717/peerj.5659
 - 25) **Bush** DF, Sieber RE, Seiler G, Chandler M, Chmura GL. 2018. Bringing Climate Scientist's Tools into Classrooms to Improve Conceptual Understandings. *Journal of Environmental Studies and Sciences* doi.org/10.1007/s13412-018-0525-2
 - 26) **van Ardenne** LB, Jolicouer J, Bérubé D, Burdick D, Chmura GL. 2018. High Resolution Carbon Stock and Soil Data for Three Salt Marshes Along the Northeastern Coast of North America. *Data in Brief*, <https://doi.org/10.1016/j.dib.2018.07.037>
 - 27) **van Ardenne** LB, Jolicouer S, Bérubé D, Burdick D, Chmura GL. 2018. The Importance of Geomorphic Context for Estimating the Carbon Stock of Salt Marshes. *Geoderma* 330:264-275.
 - 28) **Price** AM, Baustian MM, Turner RE, Rabalais NN, Chmura GL. 2018. Dinoflagellate cysts track eutrophication in the northern Gulf of Mexico. *Estuaries and Coasts* 41(5):1322-1336. doi.org/10.1007/s12237-017-0351-x
 - 29) **Roughan**, BL, Kellman, L, Smith E, Chmura GL. 2018. Nitrous Oxide Emissions Reduce the Blue Carbon Value of Marshes on Eutrophic Estuaries. *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/aab63c>.
 - 30) Moomaw WR, Chmura GL, Davies GT, Finlayson CM, Middleton BA, Natali SM, Perry JE, Roulet N, Sutton-Grier AE. 2018. The relationship between wetlands and a changing climate. *Wetlands* 8:183–205. [10.1007/s13157-018-1023-8](https://doi.org/10.1007/s13157-018-1023-8)

- 31) **Wollenberg** JT, Ollerhead J, Chmura GL. 2018. Rapid carbon accumulation following managed realignment on the Bay of Fundy. *Plos One*.
doi.org/10.1371/journal.pone.0193930
- 32) **Khan** AH, Levac E, VanGuelphen L, Pohle G, Chmura GL. 2018. The Effect of Global Climate Change on the Future Distribution of Economically Important Macroalgae (Seaweeds) on the NW Atlantic. *FACETS* doi: 10.1139/facets-2017-0091
- 33) Levac E, **Sandercombe** S, Chmura GL. 2018. The Younger Dryas in palynological records from the northern Northwest Atlantic: Does the terrestrial record lag the marine and air records? *Palaeogeography, Palaeoclimatology, Palaeoecology* 490:269-279.
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ACADEMIC GUEST LECTURES:

- 1) “Advances and Challenges in Blue Carbon Science and Policy: A View from North America” Department of Geology, Presidency University, Kolkata, Dec 2019.
- 2) “Sustainability of Coastal Ecosystems and Their Services with Environmental Change: Identifying Impacts and Mitigation Measures”, School of Marine Science and Ocean Engineering, University of New Hampshire, Durham, Jul 2019.
- 3) “Money for the Mud: How Carbon Markets Can Support Conservation.” Lakehead University, March 28, 2019.
- 4) “Cold Facts on Blue Carbon - Research in the North.” College of the Coast & Environment, Louisiana State University, Feb 15, 2019.
- 5) “Biota to the Mud and Mud to the Markets Why There is a New ‘Love Affair’ with Blue Carbon” Dept of Biology, University of Louisiana at Lafayette, Feb 14, 2019.
- 6) “Blue Carbon Science and Policy: Advances and Challenges.” Dept of Earth and Environmental Sciences, Tulane University, Feb 8, 2019.
- 7) “A review of research on soil carbon in China’s *Spartina alterniflora* marshes.” Blue Carbon Initiative Meeting, Weihai, China, August 28, 2018.

- 8) "How Blue Carbon Can Make a Difference in Wetland Restoration and Mitigation Policy- Examples from Eastern Canada." Blue Carbon Initiative Meeting, Weihai, China, August 28, 2018.
- 9) "Climate Feedbacks of Drainage and Restoration of Salt Marshes in Eastern Canada" Seoul National University, August 24, 2018.
- 10) "Do We Have Enough Data to Market Salt Marsh (Blue) Carbon? - Research Progress and Research Needs". Dept of Geography, Concordia University, April 6, 2018.
- 11) "Do We Have Enough Data to Market Canadian Blue Carbon - Research Progress and Research Needs". Dept of Biology, Dalhousie University, January 29, 2018.
- 12) "Mitigation = Adaptation in Restoration of Reclaimed (drained) Wetlands", KAUST Research Workshop: Blue Carbon - the role of coastal ecosystems in climate change mitigation and adaptation, 20-22 March, 2017, Thuwal, Saudia Arabia.
- 13) "Blue carbon consideration can stimulate restoration of salt marshes and mitigate climate change", Atlantic Canada Peatlands and Wetlands Symposium, Coastal Wetlands Institute, June 6-7, 2017, Shippagan, NB.
- 14) "Blue carbon consideration can stimulate restoration of marine wetlands and mitigate climate change", University of Waterloo World Wetlands Day Symposium, Feb 2, 2017.
- 15) "Climate Change and the Future of Blue Carbon", Webinar. Society for Wetland Scientists, April 14, 2016.
- 16) "Reclamation and Restoration of Northern Atlantic Salt Marshes", Third Institute of Oceanography, Xiamen, China, July 1, 2016
- 17) "Blue Carbon and Climate Change", *Environmental Science and Policy Distinguished Lecture Series*, Florida Atlantic University, Ft. Lauderdale, March 4, 2016.
- 18) "Detecting Sea Level Change and Ecosystem Response", Department of Earth & Environment, Florida International University, Miami, Feb 29, 2016.
- 19) "Blue Carbon and the Future of Canada's Coastline", Dept Geography, Bishop's University, Sherbrooke, QC, October 13, 2015.
- 20) St. Francis Xavier University Department of Earth Sciences, Antigonish, NS, "Carbon Storage in Coastal Ecosystems: Putting Our Coastline on the Carbon Market?" June 27, 2012.
- 21) "Assessing the Permanence of Blue Carbon Sinks with Rising Sea Levels". Invited presentation at workshop on 'Coastal blue carbon: mitigation opportunities and vulnerability to climate change' 2nd Int. Symposium on Effects of Climate Change on the World's Oceans, May 15-19, 2012, Jeosu, Korea. UNEP invited me and covered cost of travel from Antigonish, NS to Korea.
- 22) TERI University, Delhi, "Blue Carbon: an Ecosystem Service of Salt Marshes & Mangroves", February 23, 2011.
- 23) Sihong Nature Reserve, International Symposium on Sihong Wetlands, "Wetland Recovery and Use in Eastern Canada", October 19, 2009.
- 24) Nanjing Normal University, School of Geography Science, Jiangsu Key Lab of Environmental Change & Ecological Construction. "Salt Marshes and Mangroves are the Best Natural Carbon Sinks", October 17, 2009.
- 25) "Wetland Ecology & Management: a Case Study of the Maritime Dikelands" for Concordia Environmental Management course, Nov 17
- 26) Environment Canada (St. Lawrence Centre). Sea level rise, salt marshes, sediments, and perhaps sheep. January 18, 2008.

- 27) McGill University, Department of Biology. Sea level rise, salt marshes, sediments, and sheep. November 14, 2007.
- 28) Bates College, Departments of Geology and Biology. Sea level rise, salt marshes, sediments, and sheep. December 8, 2005.
- 29) Dalhousie University, Departments of Biology and Geology, Sea level rise, salt marshes, sediments, and sheep. January 20, 2005.
- 30) Acadia University, Environmental Science Program and Department of Geology, Sea level rise, salt marshes, sediments, and sheep. January 21, 2005
- 31) Université Laval, Centre d'études nordiques, Salt Marshes and dykelands of the Bay of Fundy. September 2003.
- 32) Saltmarshes and Dykelands of the Bay of Fundy, Montreal Field Naturalists Club, Redpath Museum, McGill, Jan 2003.
- 33) La dune de Bouctouche, (Irving Nature Centre Conference on Salt Marsh Ecology and Restoration) Latitudinal Variations in Salt Marshes. April 1999.
- 34) US EPA, National Health and Environmental Effects Research Lab, Atlantic Ecology Division, "Signals from the Sediment: Indicators of Environmental Change in Estuarine Wetlands, Waters and Watersheds." July 1997
- 35) Atlantic Geoscience Centre, Bedford Institute of Oceanography, "Paleoenvironmental studies at Dipper Harbour salt marsh." March 1996.
- 36) Department of Geography, Louisiana State University. "Fire and Ice: a Paleoenvironmental Study of a Bay of Fundy Saltmarsh." November, 1995.
- 37) Department of Geography, University of Oxford. "Wetlands of The Mississippi Delta: Values, Problems and Management." February, 1990.
- 38) Geological Institute, ETH (Swiss Federal Institute of Technology), Zurich. "Pollen in the Mississippi River: Implications for Coastal, Marine and Climate Research." February, 1990.
- 39) Chesapeake Bay Biological Laboratory, University of Maryland. "Paleoecology of Coastal Wetland Communities: Application of Stable Carbon Isotope and Palynological Techniques." October, 1989.
- 40) Delta Institute, Zeeland, The Netherlands. "Palynological Studies in Coastal Wetlands." April 1989.
- 41) Hugo de Vries Laboaratory, University of Amsterdam. "Pollen Spectra in the Mississippi Delta Plain: Significance of Water Transport." April 1989.
- 42) Department of Marine Geology, Netherlands Institute for Sea Research. "Marine Palynology." February, 1989.
- 43) Institute for Earth Sciences, Free University of Amsterdam. "The Use of Stable Carbon Isotopes for Determination of Paleosalinities in Coastal Wetland Deposits." January 1989.

CONFERENCE PRESENTATIONS (indicates **invited** presentations, student names in **bold-face**, undergraduates underlined)**

- 1) ****Chmura GL. 2023. Differences in Climate Feedbacks of Preservation, Conservation, and Restoration of Tidal Wetlands. World Coastal Forum, Yancheng, China, Sept 25, 2023.**
- 2) Pellatt MG, Kohfeld K, Wu Y, Collingwood A, McNeilly L, Dodge R, McCarthy A, Chmura GL, Olid-Garcia C, Easton H, Cassidy A, Richardson K. 2023. Developing a Blue Carbon Atlas for Canada's Coastal National Parks. CERF biennial meeting, Seattle.

- 3) Pellatt MG, Wu Y, Collingwood A, Kohfeld K, McCarthy A, McNeilly L, Dodge R, Easton H, Cassidy A, Chmura GL, Richardson K. Blue Carbon Dynamics in Canada's Coastal National Parks. Oceans Research in Canada Alliance (ORCA) 2023 National Meeting, June 1-2, St. John's, NL
- 4) Chmura GL, Pellatt MG, Richardson K. 2023. Summer Greenhouse Gas Flux of Salt Marshes in Two National Parks of Atlantic Canada. ACCESS Annual Meeting, Shippagan, NB
- 5) Bérubé D, Jolicoeur S, O'Carroll S, Bonnier Roy F, Diouf S, Allen H, Cormier J, Paquette J, Hébert J, Paulin J, LeBlanc S, Gallant B, LaRochelle S, Tinney W, Chmura GL, van Ardenne L, Ollerhead J, St-Pierre M. Presentation du site web de la base des données géospatiales consolidée des marais maritimes du sud-est du Nouveau-Brunswick (Saint-Thomas-de-Kent/Baie Verte). 2023. ACCESS Annual Meeting, Shippagan, NB
- 6) **Chmura GL. 2022. Questions We Need to Answer in Considering Blue Carbon Sinks. Xihu (China) Forum 2022: Ocean Contribution to Carbon Neutral: Blue Carbon; Zhejiang University.
- 7) **Chmura GL. 2022. Considerations for Future Blue Carbon Research. 4th Chinese Female Scientist Conference, Wenzhou.
- 8) **Chmura GL. 2022. Area of Mangroves, Salt Marshes, and Seagrasses in the Gulf of Mexico and North America. Restore America's Estuaries Summit, New Orleans, LA, December.
- 9) **Comer-Warner S**, Ullah S, Stagg C, Quirk T, Swarzenski, Bulseco A, Chmura G. 2022. The response of greenhouse gas fluxes and nutrient filtration potential to increases in temperature and nutrient loading from salt marsh soils across a climatic gradient. EUG Meeting, Vienna.
- 10) **Dey A**, Chmura GL. 2022. Fate of Calcium Carbonate in Drained Salt Marsh Soils. ACCESS - BoFEP Meeting, Truro, Nova Scotia.
- 11) **Upson M**, van Ardenne, L., Chmura GL. 2022. Controls on Water Table Fluctuations in Two Salt Marshes on New Brunswick's Baie des Chaleurs. ACCESS - BoFEP Meeting, Truro, Nova Scotia Honorable Mention for Best Undergrad Poster Award.
- 12) **Comer-Warner S**, Ullah S, Stagg, C Quirk T, Swarzenski C, Chmura GL. 2022. Drivers of salt marsh greenhouse gas fluxes and nutrient reduction between climatic regions. Joint Aquatic Sciences Meeting, Grand Rapids, Michigan, May 14-20.
- 13) **Dey A**, Chmura GL. 2021. What is the Fate of Calcium Carbonate in Drained Salt Marsh Soils? AGU Fall Conference, New Orleans.
- 14) **Comer-Warner S**, Ullah S, Stagg, C Quirk T, Swarzenski C, Chmura GL. 2021. How will global change impact greenhouse gas fluxes and nitrogen processing in salt marsh soils across a climatic gradient? AGU Fall Conference, New Orleans.
- 15) Chmura GL, Qi X. 2021. Changes in soil blue carbon stocks of China's tidal wetlands with invasion of *Spartina alterniflora*. 26th Biennial Coastal and Estuarine Research Federation Conference, November 1-4 and 8-11, 2021
- 16) **Comer-Warner S**, **Ampuero Reyes W**, Ullah S, Krause S, Chmura GL. 2021. Sea Level Rise but not Invasive Vegetation Affects CH₄ Fluxes from Salt Marsh Soils. ACCESS Annual Meeting, Virtual.
- 17) **Ampuero Reyes W**, Chmura GL 2021. Predicting Contribution of Belowground Biomass to Salt Marsh Soil Volume: A Case Study on the St. Lawrence Estuary. ACCESS Annual Meeting, Virtual.

- 18) Chmura GL. 2021. Increasing Accuracy of Measurements of Eastern Canada's Blue Carbon Stocks. ACCESS Annual Meeting, Virtual.
- 19) Chmura GL. 2021. Calculating Accumulation Rates of Blue Carbon in Salt Marsh Soils of Eastern Canada – Does Reduced Decomposition Result in More Constant Rates Over Time? Peruvian Wetlands Congress, Peru, February 5-7.
- 20) Ladd C, Vovides A, Schwarz C, Chmura G, Basyuni M, Maza M, Balke. 2021. The Mini Buoy: a novel hydrodynamics sensor for long-term deployments in coastal wetlands. EGU General Assembly, Vienna.
- 21) ****Chmura GL. 2021. Coastal Squeeze and the Future of New Brunswick Salt Marshes, New Brunswick Environmental Network Conference "Protecting Biodiversity in the Age of the Climate Crisis", April 2021 (virtual).**
- 22) Chmura GL, Qi X. 2021. Changes in soil blue carbon stocks of China's tidal wetlands with invasion of *Spartina alterniflora*. 13th International Symposium on Biogeochemistry of Wetlands, Baton Rouge, LA.
- 23) **Sah A, Chmura GL. 2021. Soil Carbon Loss from Conversion of Mangroves to Aquaculture Ponds and Rice Fields, Sundarbans, India. Peruvian Wetlands Congress, Peru, February 5-7.**
- 24) **Sah A, Chmura GL. 2021. Soil Carbon Loss from Conversion of Mangroves to Aquaculture Ponds and Rice Fields. 13th International Symposium on Biogeochemistry of Wetlands, Baton Rouge, LA.**
- 25) **Sah A, Chmura GL. 2020. Carbon Storage in Active Rice Fields and Aquaculture Ponds That Were Previously Mangroves. AGU Fall Conference, San Francisco.**
- 26) **Comer-Warner S, Ampuero Reyes W, Ullah S, Krause S, Chmura GL. 2020. How will sea level rise impact greenhouse gas fluxes from salt marsh soils? AGU Fall Conference, San Francisco**
- 27) Chmura GL, van Ardenne LB. 2020. A Model for Estimating Organic Carbon Storage When Tidal Flooding Is Returned to Drained Agricultural Salt Marshes. AGU Fall Conference, San Francisco
- 28) **Ampuero Reyes W, Chmura GL. 2020. Relación entre volumen y biomasa de las raíces, rizomas y hojarasca de especies típicas de un humedal norteamericano. Spanish oral presentation in EcoTalk event of Centro de Estudiantes de Biología de la Universidad Nacional Agraria La Molina, December 13-27.**
- 29) **Sah A, Chmura GL. 2020. Soil Carbon Loss from Conversion of Mangroves to Aquaculture Ponds and Rice Fields, Sundarbans, India. Society of Wetland Scientists.**
- 30) **Comer-Warner S, Ampuero Reyes W, Ullah S, Krause S, Chmura GL. 2020. How will sea level rise impact greenhouse gas fluxes from salt marsh soils? Society for Wetland Scientists.**
- 31) **Ampuero Reyes W, Chmura G.L. 2020. Mass and volume contributions of belowground biomass to a St. Lawrence estuary salt marsh soil. New England Estuarine Research Society Fall Meeting, October 20-22**
- 32) Chmura GL, van Ardenne LB. 2020. Return of tidal flooding to drained agricultural marshes has immediate benefits in terms of carbon storage. RARGOM Annual Science Meeting, Oct
- 33) Chmura GL, van Ardenne LB. 2020. Reflooding Drained Salt Marshes has Immediate Carbon Storage Benefits. New England Estuarine Research Society Fall Meeting.
- 34) **Sah A, Chmura GL. 2019. Potential Blue Carbon Losses from Aquacultural Transformations of India's Mangroves. 5th International Mangrove Swamps. Mangrove Macrobenthos and Management Conference, Singapore, July.**

- 35) Chmura GL. 2019. Calculating Accumulation Rates of Blue Carbon in Maritime Saltmarsh Soils – Does Reduced Decomposition Result in More Constant Rates Over Time? ACCESS Annual Meeting, Halifax.
- 36) Chmura GL, vanArdenne LB, Jolicoeur S. 2019. Controls of Marsh Hydrology, Climate and Photoperiod on Availability of the Maritime Ringlet's Nectar Sources. ACCESS Annual Meeting, Halifax.
- 37) Chmura GL, vanArdenne LB. 2019. The Bay of Fundy Blue Carbon Story (Map). ACCESS Annual Meeting, Halifax.
- 38) Chmura GL, Torio D, Short F, vanArdenne L, Fajardo P. 2019. Indirect Threats to Blue Carbon Wetlands. Invited presentation in symposium on The Critical Role of Wetlands in International Climate Solutions: Emerging Opportunities. SWS Meeting, Baltimore, May.
- 39) Chmura GL. 2019. Identifying Predictors of Blue Carbon (Salt Marsh Soil Organic Carbon) Accumulation Rates – Examples from Eastern Canada. Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting, San Juan, March.
- 40) Chmura GL, vanArdenne LB. 2018. "The Maritime Ringlet and Its Salt Marshes" Story Map: an Outreach Tool For ECCC'S Habitat Stewardship Program – Species at Risk. ACCESS Annual Meeting, St. John's, May 23-26.
- 41) Chmura GL, **Cockburn** CF, Poirier A, vanArdenne LB, Jolicoeur S. 2018. Using Growing Degree Days to Assess Synchronicity in the Maritime Ringlet and Its Nectar Sources. ACCESS Annual Meeting, St. John's, May 23-26.
- 42) Chmura GL, **vanArdenne** LB, **Wollenberg** JT, Mozdzer TJ, Biswas A. 2018. Blue carbon losses with salt marsh drainage. 12th International Symposium on Biogeochemistry of Wetlands, Coral Gables, Florida, April 23-26.
- 43) **Price** AM, Turner RE, Pospelova V, Chmura GL, Coffin MRS, Latimer JS, Rabalais NN. 2018. Monitoring Water Quality in Northwest Atlantic Coastal Waters Using Dinoflagellate Cysts. NEERS Spring 2018 meeting, Portsmouth, NH, April 26-28, 2018
- 44) **Sadler** MK, Chmura GL, **Levoy** S. 2017. Contribution of Aboveground Growth to Salt Marsh Soil Carbon in Highly Eutrophic Estuaries. CERF biannual meeting Providence, RI, Nov.
- 45) **Levoy** S, Chmura GL. 2017. Impact of Eutrophication on *Spartina patens* Belowground Biomass. CERF biannual meeting Providence, RI, Nov. – Awarded prize for best grad student poster.
- 46) Kalacska M, Chmura GL, Lucanus O, Bérubé D, Arroyo-Mora J. 2017. Structure from Motion (SfM) Will Revolutionize Analyses of Salt Marsh Landscapes. CERF biannual meeting Providence, RI, Nov.
- 47) **Sadler** MK, Chmura GL, **Levoy** S. 2017. Contribution of Aboveground Growth to Salt Marsh Soil Carbon in Prince Edward Island Estuaries. ACCESS Annual Meeting, Montreal, QC, May. **Best Undergrad POSTER award.**
- 48) **Wollenberg** JT, Ollerhead J, Chmura GL. 2017. Estimating Short-Term Carbon Accumulation Following Managed Realignment. ACCESS Annual Meeting, Montreal, QC, May. **Best Graduate Oral Presentation award.**
- 49) **Rusk** BA, Cormier L, Jolicoeur S, Chmura GL. 2017. Photographic Monitoring of Nectar Sources of Chaleur Bay's Endangered Maritime Ringlet Butterfly. ACCESS Annual Meeting, Montreal, QC, May.
- 50) **van Ardenne** LB, Chmura GL. 2017. Where Will Coastal Squeeze Threaten Chaleur Bay's Endangered Maritime Ringlet Butterfly? ACCESS Annual Meeting, Montreal, QC, May.

- 51) Pendea IF, Chmura GL. 2017. Between a Rock and Hard Place – Wetland Woes on James Bay’s Rebounding Coastline. ACCESS Annual Meeting, Montreal, QC, May.
- 52) Pendea IF, Chmura GL. 2016. Coastal squeeze through wetland succession on the rebounding coastline of James Bay. ESA Annual Meeting, August, Ft. Lauderdale.
- 53) **Gros M, Koutsavakis J, Levoy S, Normand S, Ward MK**, Chmura GL. 2016. Reconstruction of the History of Dyke Construction and Failure near Caraquet on Chaleur Bay. ACCESS Meeting, Charlottetown, PE, May. Poster - product of GEOG 550 class.
- 54) **Dragieva AP**, Torio DD, Chmura GL, Arroyo-Mora JP. 2016. What Do Canada’s Marine Protected Areas Protect? ACCESS Meeting, Charlottetown, PE, May. **Best Undergrad POSTER award.**
- 55) **Wollenberg J**, Mozdzer TJ, Biswas A, Chmura GL. 2016. Comparing Organic Matter Decay in a Flooded and Dyked Salt Marsh: the Impact of Land Use Change on Carbon Storage. ACCESS Meeting, Charlottetown, PE, May.
- 56) **van Ardenne LB**, Chmura GL. 2016. Marsh Wide Carbon Storage of Northern Salt Marshes. ACCESS Meeting, Charlottetown, PE, May. **Best Graduate Poster Award**
- 57) ****Chmura GL**. 2015. Response of Northern Tidal Marshes to Sea Level Change. Society for Wetland Scientists Annual Meeting, Providence, RI. *Plenary talk.*
- 58) Short F, **Torio D**, Chmura GL. 2015. Seagrass blue carbon resources of North America. Coastal and Estuarine Research Federation Biennial Meeting 8-12 November, Portland, OR.
- 59) Chmura GL, **Roughan B**, Kelman L, Smith E. 2015. Eutrophication is also a climate problem – nitrous oxide emissions from saltmarshes in agricultural watersheds. Coastal and Estuarine Research Federation Biennial Meeting 8-12 November, Portland, OR
- 60) **Price AM**, Pospelova V, **Coffin MRS**, Latimer JS, Chmura GL. 2015. Dinoflagellate cysts as indicators of water quality in northwestern Atlantic estuaries. Coastal and Estuarine Research Federation Biennial Meeting 8-12 November, Portland, OR.
- 61) **van Ardenne L**, Chmura GL. 2015. Variability in carbon stocks of northern salt marshes. Coastal and Estuarine Research Federation Biennial Meeting 8-12 November, Portland, OR.
- 62) **Price AM**, Pospelova V, **Coffin MRS**, Latimer JS, Chmura GL. 2015. The impact of estuary Type on the spatial distribution of dinoflagellate cyst assemblages in NE USA and PEI estuaries. Atlantic Canada Coastal and Estuarine Science Society (ACCESS) 2015 conference. St. Andrews, NB.
- 63) **Price AM**, Pospelova V, Latimer JS, Chmura GL. 2015. Coastal Eutrophication and Biogeography in Northeast United States (Maine To Delaware) estuaries as Recorded by Dinoflagellate cysts. Joint Assembly AGU-CGU-GAC-MAC. Montreal, QC.
- 64) ****Chmura, GL and Pendea IF**. 2014. Response of Northern Tidal Marshes to Sea Level Change. Geological Society of America Annual Meeting, Vancouver, BC Oct 19-22.
- 65) **van Ardenne LB, Lambert-Rivest G, Deane JS**, Chmura GL. 2014. Determining Carbon Stocks in Northern Salt Marshes. Geological Society of America Annual Meeting, Vancouver, BC Oct 19-22.
- 66) **Price AM***, Baustian M, Turner RE, Rabalais NN, Chmura GL. 2014. Fossilized Phytoplankton Record Increasing Eutrophication in the Gulf of Mexico “Dead Zone.” The Geological Society of America conference. Vancouver, BC.
- 67) **Price AM**, Pospelova V, Latimer JS and Chmura GL. 2014. Coastal Eutrophication in Northeast US Estuaries: Dinoflagellate Cysts as Bioindicators. Geological Society of America Annual Meeting, Vancouver, BC Oct 19-22.
- 68) **Torio DD**, Chmura, GL. 2014. Impacts of Sea Level Rise on Marsh as Fish Habitat. Coastal Zone Canada, Halifax, NS, June.

- 69) **Roughan** BL, Kellman L, Chmura GL. 2014. Nitrogen-loading Affects Blue Carbon Potential of Prince Edward Island Salt Marshes. Coastal Zone Canada, Halifax, NS, June.
- 70) Chmura, GL. 2014. Salt Marshes Contribute to Global Biodiversity. Coastal Zone Canada, Halifax, NS, June.
- 71) **van Ardenne** LB, Chmura, GL. 2014. Carbon Loss from Agricultural Transformation of Bay of Fundy Salt Marshes. Coastal Zone Canada, Halifax, NS, June.
- 72) Chmura GL. 2014. Return of Ecosystem Services with Marsh Restoration and Recovery in Eastern Canada. ACCESS Meeting, Halifax, NS, June.
- 73) **Roughan** BL, Kellman L, Chmura GL. 2014. Elevated N₂O Flux from Salt Marshes Located in Nitrogen-Loaded Prince Edward Island Estuaries Reduces Blue Carbon Potential. ACCESS Meeting, Halifax, NS, June.
- 74) **van Ardenne** LB, Chmura GL. 2014. Modelling Carbon Losses from Bay of Fundy Dykelands. ACCESS Meeting, Halifax, NS, June.
- 75) **Angrove** KG, Chmura, GL. 2014. The Silver Lining of Smelters and Storms: Refining Sediment Accumulation Rates in New Brunswick Salt Marshes. ACCESS Meeting, Halifax, NS, June.
- 76) **Torrio** DD, Chmura GL, Short F, Arroyo-Mora P, Hatvany M, **Fajardo** P, **vanArdenne** L. 2014. Mapping the Distribution of Seagrasses in Canada. ACCESS Meeting, Halifax, NS, June.
- 77) **Torrio**, DD and Chmura, GL. 2014. Does Sea Level Rise Enhance Fish Habitat in Salt Marshes? ACCESS Meeting, Halifax, NS, June.
- 78) **Price** AM, Pospelova V, Chmura GL, Latimer JS. 2014. Dinoflagellate Cysts as Indicators of Water Quality in Northeast US Estuaries. NEERS Meeting, Salem, MA, May.
- 79) **van Ardenne** LB, Chmura GL. 2014. Modelling CO₂ Emissions from Reclaimed Salt Marshes in the Bay of Fundy. NEERS Meeting, Salem, MA, May.
- 80) **Chmura, GL. 2014. Return of Ecosystem Services with Marsh Restoration and Recovery. NEERS Meeting, Salem, MA, May.
- 81) **Chmura GL, Kellman, L. 2014. Seasonal Greenhouse Gas Fluxes from a Macrotidal and Microtidal Cold Temperate Salt Marsh. Joint Aquatic Sciences Meeting, Portland, OR, May.
- 82) Chmura GL. 2013. Considering tidal marshes in IPCC national greenhouse gas inventories – research needs. 22nd Biennial Conference of the Coastal and Estuarine Research Federation Nov 3-7, 2013
- 83) **Roughan** B, Kellman L and Chmura GL. 2013. Nitrous Oxide (N₂O) Flux from 5 Salt Marshes in Estuaries along the Gulf of St. Lawrence. AGU meeting, San Francisco Dec 9-13.
- 84) **Bush** DF, Chmura GL, Sieber R. 2013. Does an Individual's Digital and Physical Geography Impact Perceptions of and Learning about Climate Change? AGU Chapman Conference Communicating Climate Science: A Historic Look to the Future. June 8-13, Granby, CO.
- 85) Levac E, **Neulieb** T, Southon J, Lewis M, Pendea IF, Chmura GL. 2013. Potential pitfalls of pollen dating. CANQUA.
- 86) **McGuire**, A. and Chmura, G.L. 2013. Accretion, Sediment, and Pollen Accumulation in Salt Marshes of Kouchibouguac National Park, NB and Covehead Bay, PEI. Atlantic Canada Coastal and Estuarine Science Society, Lawrencetown, NS, May. Awarded 1st place for undergraduate poster presentation.

- 87) **Price**, A. and Chmura, G.L. 2013. Can Dinoflagellate Cysts be Used to Monitor Eutrophication in Prince Edward Island Estuaries? Atlantic Canada Coastal and Estuarine Science Society, Lawrencetown, NS, May. Awarded 2nd place for graduate oral presentation.
- 88) **Khan**, A.H., Levac, E. and Chmura, G.L. 2013. The Effect of Global Climate Change on the Future Distribution of Macroalgae (Seaweeds) on the NW Atlantic. Atlantic Canada Coastal and Estuarine Science Society, Lawrencetown, NS, May.
- 89) **Roughan**, B. Kellman, L. and Chmura, G.L. 2013. Nitrous Oxide (N₂O) Fluxes from Salt Marsh Cores Vary with Tidal Flooding and Nitrogen-Addition. Atlantic Canada Coastal and Estuarine Science Society, Lawrencetown, NS, May.
- 90) ***Chmura**, G.L. 2013. What We Should Know Before Marketing Blue Carbon? New England Estuarine Research Society, Portland, ME, April.
- 91) **Kryczka**, R.J. and Chmura, G.L. 2013. Which Salt Marsh Plant Species Require Nitrogen to Deal with Osmotic Stress? New England Estuarine Research Society, Portland, ME, April.
- 92) Chmura, G.L. and Pendea, I.F. 2012. Using palynological signatures to attribute rates of carbon storage to paleo-wetlands. Meeting of AASP - The Palynological Society, Lexington, July 21-25.
- 93) **Neulieb**, T., Levac, E., Southon, J., Lewis, M., Pendea, I.F., Chmura, G.L. 2012. Dating pollen to refine marine reservoir age in the northwestern North Atlantic.. Radiocarbon 2012 Conference, Paris July 9-13.
- 94) Paquette, J., **Graf**, M., Chmura, G.L. and **Butler**, C. 2012. Calcrete on Everglades tree islands: hiatus or outcome of human occupation and tree development? 22nd *Goldschmidt* Geochemistry Conference, Montréal, June 24-29.
- 95) **Torio**, D. and Chmura, G.L. 2012. Assessing Coastal Squeeze of Tidal Marshes. 10th International Coastal Zone Canada Conference, June 9–14, 2012 Rimouski, Quebec.
- 96) **Hughes**, C., **Grant**, A., Gail L. Chmura, G.L. The Digital Divide in Atlantic Canada. 10th International Coastal Zone Canada Conference, June 9–14, 2012 Rimouski, Quebec.
- 97) **Khan**, A.H., Levac, E. and Chmura, G.L. 2012. Potential impact of global warming on ranges of commercial fish species in the Northwest Atlantic. 10th International Coastal Zone Canada Conference, June 9–14, 2012 Rimouski, Quebec.
- 98) Chmura, G.L. and Kellman, L. 2012. Do Tidal Salt Marshes Release Greenhouse Gases During the Spring Thaw? 9th INTECOL International Wetlands Conference, June 3-8, Orlando, FL.
- 99) Chmura, G.L. and **Torio**, D. 2012. Assessing the permanence of Blue Carbon sinks with rising sea levels. 2nd Int. Symposium on Effects of Climate Change on the World's Oceans, May 15-19, Jeosu, Korea.
- 100) **Khan**, A.H., Levac, E. and Chmura, G.L. 2012. Potential impact of global warming on ranges of commercial fish species in the Northwest Atlantic. 2nd Int. Symposium on Effects of Climate Change on the World's Oceans, May 15-19, Jeosu, Korea.
- 101) **Roy-Dufresne**, E., Chmura, G.L and Millien, V. 2012. Projected distribution of the white-footed mouse with climate change: a question of time and space. AAG meeting, New York, Feb 2012.
- 102) **Torio**, D. and Chmura, G.L. 2012. A landscape ecology approach to assess the impacts of sea level rise and coastal development on salt marshes. AAG meeting, New York, Feb 2012.

- 103) Levac, E., **Sandercombe**, S. and Chmura, G.L. 2012. Abrupt climate change recorded in the Bay of Islands, Newfoundland. AAG meeting, New York, Feb 2012.
- 104) Chmura, G.L. and **Pendea**, I.F. 2011. High resolution record of carbon accumulation rates during boreal peatland initiation. AGU meeting, San Francisco.
- 105) Burdick, D., Moore, G. and Chmura, G.L. 2011. Estimating benefits from tidal marsh restoration using monitoring indicators and ecosystem services. Coastal and Estuarine Research Federation 21st Biennial Conference, Nov 5-10.
- 106) Chmura, G.L., **Shatilla**, N.J., **Rodrigues-Gervais**, K. 2011 The contribution of vegetation to tidal marsh accretion is underestimated by measurements of mass of organic matter. Coastal and Estuarine Research Federation 21st Biennial Conference, Nov 5-10.
- 107) **Marrotte**, R., and Chmura, G.L. 2011. Morphology of *Nymphaea* and *Nuphar* Sclereids and the Effect of Palynological Processing Techniques. Quebec-Ontario Paleolimnology Symposium, May 25-27, 2011.
- 108) **Torio**, D.D, and G.L. Chmura. 2011. Using Fuzzy Logic to Map the Threat of Coastal Squeeze to Marshes at Wells Reserve and Portland, Maine. Atlantic Canada Coastal and Estuarine Science Society, Antigonish, NS, May 2011.
- 109) **Torio**, D.D, and G.L. Chmura. 2011. Using Fuzzy Logic to Map the Threat of Coastal Squeeze to Marshes at Wells Reserve and Portland, Maine. New England Estuarine Research Society, Port Jefferson, NY, May 2011
- 110) Chmura, G.L. and Graf, M.-T. 2011. The Human Trigger for Development of Tree Islands in the Florida Everglades. AGU Chapman Conference on Climates, Past Landscapes, and Civilizations. Santa Fe, New Mexico, March 21-25.
- 111) Chmura, G.L. Kellman, L. and Guntenspergen, G.R. 2010. Climate Feedbacks of a Northern Macrotidal and Microtidal Salt Marsh. American Geophysical Union Fall Meeting 13–17 December.
- 112) **Marrotte**, R., Chmura, G.L., and Graf, M.-T. 2010. The Utility of *Nymphaea* and *Nuphar* Sclereids in Paleoecological Reconstructions. American Association of Stratigraphic Palynologists Meeting, Halifax, NS, Sept 2010. **Awarded Best Student Poster of Conference**
- 113) **Sandercombe**, S., Levac, E and Chmura, G.L. 2010. Documenting the response of Newfoundland forests to Holocene climatic variability using a high resolution sediment core from Bay of Islands, Newfoundland. American Association of Stratigraphic Palynologists Meeting, Halifax, NS, Sept 2010.
- 114) **Torio**, D.D., A.S. **Grant**, and G.L. Chmura. 2010. How do We Assess the Susceptibility of Salt Marshes to Coastal Squeeze? Joint meeting of the New England Estuarine Research Society and Atlantic Canada Coastal and Estuarine Science Society, May 2010.
- 115) **Shatilla**, N.J. and G.L. Chmura. 2010. Can We Assume a Constant Relationship Between Mass and Volume of Organic Matter in Tidal Salt Marsh Soil? Joint meeting of the New England Estuarine Research Society and Atlantic Canada Coastal and Estuarine Science Society, May 2010.
- 116) Costopoulos, A., Chmura, G., Zubrow, E. Okkonen, J., **Vaneekchout**, S., **Pendea**, I. F. 2010. Regional shoreline displacement variation as a constraint on human settlement patterns: A historical example from Northern Canada and a Prehistoric example from Northern Finland. IPY Oslo Science Conference 2010, Oslo, Norway from 8-12 June 2010.
- 117) Chmura, G.L. 2009. Surprising Vegetation Responses to Marsh Fertilization. Estuarine Research Federation Meeting, Portland, OR, November 2-5.

- 118) Chmura, G.L. **Rahemtulla**, H. and Sieber, R. 2009. VGI in the Consultation and Restoration of Coastal Marshes. Oceans Management Conference, Ottawa.
- 119) **Pendea**, I.P. and Chmura, G.L. 2009. New Shoreline Displacement Model for the Last 7 ka from Eastern James Bay, Northern Quebec. CANQUA Biennial Meeting, May.
- 120) Chmura, G.L. and **Pendea**, I.P. 2009. Reconstructing Wetland Succession on Rebounding Coastlines Using Modern Analogues. CANQUA Biennial Meeting, May.
- 121) Chmura, G.L., Burdick, D.M., Moore, G.E. 2009. Restoration of Ecosystem Services in Salt Marshes. 8th Bay of Fundy Science Workshop, May 26-29, Wolfville, NS.
- 122) Moore, G.E., Burdick, D.M., Peter, C.R. and Chmura, G.L. 2009. Valuation of Ecosystem Services in Restored Salt Marshes. New England Estuarine Research Society Meeting, April, Salem Massachusetts.
- 123) **Charbonneau** DJ, Chmura GL. 2009. Importance of Mangroves and Salt Marshes to Global Biodiversity. New England Estuarine Research Society Meeting, April, Salem MA.
- 124) **Graf** M-T, Paquette J, Schwadron M, Stone PA, Ross M, Chmura GL. 2008. Geochemical Analysis of Carbonate Layers in Tree Island Peats. Greater Everglades Ecosystem Restoration Planning, Policy and Science Meeting For Everglades Restoration 2050 – Advancing the Science to Achieve Success, July 28-August 1, 2008 | Naples, FL.
- 125) **Pendea** IF, Pospelova V, Chmura GL. 2008. Near-shore dinoflagellate cysts assemblages of the late Tyrrell Sea phase at Old Factory Lake, eastern James Bay, Québec. Eighth International Conference on Modern and Fossil Dinoflagellates May 4 to May 10, Montreal.
- 126) Chmura GL, Van Guelpen L, Pohle GW. 2008. Potential Impacts of Climate Change on Marine Fisheries of Eastern Canada. Atlantic Climate Change 2008: Risk, Responses and Tools for Action. Halifax, NS March 4-5.
- 127) Chmura GL. 2008. Climate Change and Sustainability of the Carbon Sink in Maritime Salt Marshes. Atlantic Climate Change 2008: Risk, Responses and Tools for Action. Halifax, NS March 4-5.
- 128) **Graf** M-T, Schwadron M, Stone, PA, Ross M, Chmura GL. 2007. Controls on Carbonate Layer Development in Tree Island Peats. Tree Island Workshop I, Florida Atlantic University.
- 129) **Yu** O, Chmura GL. 2007. Sheep Grazing on a St. Lawrence Estuary Salt Marsh. Estuarine Research Federation Meeting, Providence, RI, Nov.2007.
- 130) Chmura GL, Van Guelpen L, Pohle GW. 2007. Climate Change and Range Shifts of Northwest Atlantic Commercial Species. Estuarine Research Federation Meeting, Providence, RI, Nov. 2007.
- 131) **Pendea** IF, Costopoulos A, Pospelova V, Chmura GL. 2007. Paleoecological reconstruction of the late Tyrell Sea phase at Old Factory Lake, eastern James Bay, Québec. CANQUA Biennial Meeting, Ottawa, June, 2007.
- 132) **Graf** M-T, Shaw J, Chmura GL. 2007. Reassessing proposed rates of recent eustatic sea level rise in Atlantic Canada. CANQUA Biennial Meeting, Ottawa, June, 2007.
- 133) Chmura GL, Kellman LM. 2007. Greenhouse gas flux from two types of New Brunswick salt marshes. Atlantic Canada Coastal and Estuarine Science Society, Cape Breton University, Sydney, NS, May 16-17.
- 134) **Graf** M-T, Chmura GL. 2007. Using Pollen modern analogues to locate a buried dikeland soil in a restored upper Bay of Fundy salt marsh. American Association of Geographers Annual Meeting, San Francisco, April 2007.

- 135) Chmura GL, Van Guelpen L, Pohle GW. 2007. Greenhouse Warming and Changes in Biogeographic Ranges of Marine Species on the NW Atlantic. American Association of Geographers Annual Meeting, San Francisco, April 2007.
- 136) Chmura GL. 2006. Effects of Nutrient Enrichment on Fundy Salt Marsh Vegetation. 7th Bay of Fundy Workshop, St. Andrews, Oct. 24-27.
- 137) **Flanary EA**, Chmura, GL. 2006. Vegetation Distribution at John Lusby, a Recovering Salt Marsh in the Cumberland Basin. 7th Bay of Fundy Workshop, St. Andrews, Oct. 24-27.
- 138) **MacDonald** GK, Chmura GL, van Proosdij D. 2006. The Hybrid Tidal Channel Network of Recovering Salt Marshes. 7th Bay of Fundy Workshop, St. Andrews, Oct. 24-27.
- 139) Chmura GL, Van Guelpen L, Pohle GW, **Vereault SA**, **Flanary EA**. 2006. Sea Surface Temperature Changes & Biogeographic Ranges of Commercial Marine Species. 7th Bay of Fundy Workshop, St. Andrews, Oct. 24-27.
- 140) **Noel PE**, Chmura GL. 2006. Spatial and Environmental Variability of Pools on a Natural and a Recovering Salt Marsh in the Bay of Fundy. 7th Bay of Fundy Workshop, St. Andrews, Oct. 24-27.
- 141) **Byers SE**, Chmura GL. 2006. Greater resistance of macrotidal Bay of Fundy marshes to sea-level rise. Society of Wetland Scientists, Cairns and 7th Bay of Fundy Workshop, St. Andrews, Oct. 24-27.
- 142) Chmura GL, Kellman LM. 2006. Restoration of Fundy Marshes will transform agricultural lands to improved carbon and methane sinks BIOCAP national conference entitled *Towards a Sustainable Bioeconomy: Biosphere solutions for energy and the environment*. Oct 31-Nov 1, Ottawa.
- 143) Chmura GL, Stone PA, Ross MS. 2006. Non-pollen Microfossils as Indicators of Past Hydroperiod in the Everglades. Greater Everglades Ecosystem Restoration Conference. Buena Vista, FL, June.
- 144) **Graf M-T**, Chmura GL. 2006. Using pollen and palynomorphs to distinguish between four different grassland land use types in the salt marshes and dikelands of the upper Bay of Fundy, Canada. Geological Association of Canada, Montreal, May.
- 145) Chmura GL, Van Guelpen L, Pohle GW, **Vereault SA**, **Flanary EA**. 2006. Sea Surface Temperature Changes & Biogeographic Ranges of Commercial Marine Species Atlantic Canada Coastal and Estuarine Science Society, Fredericton, May.
- 146) **Noel PE**, Chmura GL. 2006. Macroinvertebrate communities of salt marsh pools: comparison of a natural and recovering marsh. Atlantic Canada Coastal and Estuarine Science Society, Fredericton, May.
- 147) **Vereault S**, Chmura GL. 2006. Potential Changes in Sea Surface Temperature and Migration of Atlantic Salmon Smolts in the Northwest Atlantic. Atlantic Canada Coastal and Estuarine Science Society, Fredericton, May.
- 148) **Noel PE**, **Macdonald** GK, **Byers SE**, Chmura GL. 2006. Recovery, Resilience, and Resistance of Bay of Fundy Salt Marshes. New England Estuarine Research Society, Massachusetts, April.
- 149) **Byers SE**, **MacDonald** GK, **Noel PE**, Chmura GL. 2006. Recovery, Resistance and Resilience of Bay of Fundy Salt Marshes. Global Environment and Climate Change Centre Day, Montreal, March.
- 150) Chmura GL, Van Guelpen L, Pohle GW, **Vereault SA**, **Flanary EA**. 2006. Sea Surface Temperature Changes & Biogeographic Ranges of Commercial Marine Species. DFO-FSRS

Workshop on the Inshore Ecosystem and Significant Areas of the Scotian Shelf, Jan 16-19, Halifax.

- 151) **Byers** SE, **McEnroe** NA, **Sabourin** AS, Stone PA, Ross MS, Chmura GL. 2005. Pollen Signatures of Everglades Tree Island Vegetation Zones. ESA-Intecol, Montreal, August.
- 152) Chmura G.L. 2005. You Can Have Your Marsh and Eat It, Too. SWS Annual Meeting, Charleston, SC. June.
- 153) Chmura GL, **Menza** C. 2005. Variability in AOGCM Prediction of Sea Surface Temperature Change on the Scotian and Newfoundland-Labrador Shelf. Adapting to Climate Change in Canada 2005: Understanding Risk and Building Capacity, Natural Resources Canada. May
- 154) **Noel** P, **Heller** E, **Hung** G, Chmura GL. 2004. Multiple Techniques for Identifying the Reclamation Surface of a Recovering Dykeland: Saints Rest Marsh, Saint John, New Brunswick. Bay of Fundy Workshop, Sept 29-Oct, 2004, Cornwallis, NB.
- 155) **Hung** G, Chmura GL. 2004. Spatial Variability of Heavy Metals in Salt Marsh Sediments of the Bay of Fundy. Bay of Fundy Workshop, Sept 29-Oct, 2004, Cornwallis, NB.
- 156) Chmura GL. 2004. The Relationship of Tidal Range to Rates of Vertical marsh Accretion on the Northwest Atlantic, AGU Chapman Conference, Halifax, October.
- 157) **Chmura GL. 2004. Carbon sequestration in mangroves and salt marsh soils: climatic controls and climate feedback INTECOL, Utrecht, The Netherlands.
- 158) **Chmura GL. 2004. The salt marsh carbon sink. AGU Meeting, Montreal, Quebec.
- 159) **Graf** M-T, Chmura GL. 2004. Differentiation of grassland uses with pollen, plant, and fungal spores. International Palynological Congress, Spain.
- 160) Chmura GL, Stone PA. 2004. Paleoeological value of cyanobacteria, algae, and fungal palynomorphs in the Florida Everglades. International Palynological Congress, Spain.
- 161) **Graf** M-T, Chmura GL. 2004. John Lusby Marsh: a dikeland's return to salt marsh conditions. New England Estuarine Research Society Meeting, Burlington, VT.
- 162) **Watson** OJ, **Sanderson** LD, Chmura GL. 2004. Vegetation patterns in the salt marsh at La Pocatière, Québec. New England Estuarine Research Society Meeting, Burlington, VT.
- 163) **Hung** G, Chmura GL. 2004. The importance of geochemical normalization in the interpretation of trace metal sediment data: an example from salt marshes of the Bay of Fundy. New England Estuarine Research Society Meeting, Burlington, VT.
- 164) **Noel** P, **Heller** E, **Hung** G, Chmura GL. 2004. Use of paleoecological techniques to locate buried dykeland soils. New England Estuarine Research Society Meeting, Burlington, VT.
- 165) **Pospelova** V, Chmura GL. 2003. Implications of inlet alterations of New England back-barrier lagoons on dinoflagellate populations: evidence from dinoflagellate cysts. Estuarine Research Federation Biannual Meeting, Seattle, Washington.
- 166) Chmura GL, Sundberg KL, Boumans RM, **Paquette** CH. 2003. Changes in saltmarsh surface elevation due to variability in evapotranspiration and tidal flooding. Estuarine Research Federation Biannual Meeting, Seattle, Washington.
- 167) Chmura GL, Santos A, **Pospelova** V, **Spasojevic** Z, Latimer JS. 2003. Paleoecological Response to Development of an Urban Estuary. CANQUA Biannual Meeting, Halifax, NS.
- 168) Stone PA, Gleason PJ, Chmura GL., 2003, Peat stratigraphy and long-term succession of bayhead tree-islands in the northeastern Everglades: GEER program and abstracts, Joint conference on the science and restoration of the Greater Everglades and Florida Bay Ecosystem "From Kissimmee to the Keys" (April 13-18, Palm Harbor, Florida), p. 529-530.

- 169) **Pospelova**, V., Chmura, G.L., and Latimer, J.S. 2003. Dinoflagellate cysts as indicators of human impact on estuaries. CAG Annual Meeting, May 27-31, Victoria, B.C.
- 170) Stone, P. A., Ross, M. S., Ruiz, P.L., Reed, D.L. and Chmura, G. L. 2003. Organic-sediment stratigraphy of elongated tree-islands, Everglades National Park. Ecological Society of America Annual Meeting.
- 171) Gleason PJ, Stone PA, Ross MS, Chmura GL. 2002. Mound and ridge tree islands in the Everglade peatland. Geological Society of America Annual Meeting, Denver, CO, Oct.
- 172) **Chmura, G.L., Anisfeld, S., Cahoon, D. and Lynch. J. 2002. Global Carbon Sequestration in Soils of Tidal Salt marshes and Mangrove Swamps. Wetlands, Carbon Sequestering and Methane Workshop, Lake Placid, NY.
- 173) ****Pospelova**, V. and Chmura, G. 2002. Modern dinoflagellate cysts and their spatial distribution along environmental gradients in southern New England estuaries. Workshop on middle latitude dinoflagellates and their cysts, Dartmouth, NS.
- 174) Chmura GL. 2001. Century-scale salt marsh accretion rates in Eastern Canada. Canadian Quaternary Association Biannual Meeting, Whitehorse, Yukon Territory, Aug 20-24.
- 175) Boothman WS, Pesch CE, Latimer JS, Chmura GL, **Pospelova V**, **Spasojevic Z**. 2001. Historical reconstruction of contaminant and ecological conditions in an urban harbor (New Bedford, MA, USA).
- 176) Latimer J, Boothman W, Chmura GL. 2001. A case study of the reference condition approach to nitrogen management in estuaries. Estuarine Research Federation Biannual Meeting, Nov.
- 177) Chmura GL, Santos A, **Pospelova V**, **Spasojevic Z**, Latimer J. 2001. Estuarine Paleoproductivity: a Comparison of Three Indicators. Estuarine Research Federation Biannual Meeting, Nov.
- 178) **Pospelova V**, Chmura GL, Boothman W, Latimer JS. 2001. Spatial distribution of modern dinoflagellate cysts along environmental gradients in Buzzards Bay embayments (Massachusetts) Estuarine Research Federation Biannual Meeting, Nov.
- 179) **Pospelova V**, Chmura GL, Boothman W, Latimer JS. 2001. How do dinoflagellate cysts reflect pollution gradients in Massachusetts (USA) estuaries? Canadian Association of Geographers Annual Meeting, Montreal.
- 180) **Pospelova V**, Chmura GL. 2001. Modern Dinoflagellate Cysts in Estuarine Systems of New England (USA). American Association of Stratigraphic Palynologists Annual Meeting, Oct.
- 181) Chmura GL, **Pospelova V**, **Spasojevic Z**, Latimer JS. 2001. Paleoecology of a Severely Polluted Harbor. Canadian Association of Geographers Annual Meeting, Montreal.
- 182) **Pelletier J**, Chmura GL. 2001 Saltmarsh Accretion and Sea Level Change in North America. Canadian Association of Geographers Annual Meeting, Montreal.
- 183) Boothman W, Pesch C, Chmura GL, Latimer JS. 2001. Environmental Histories and Environmental Management of Coastal Waters. Canadian Association of Geographers Annual Meeting, Montreal.
- 184) **Pospelova V**, Chmura GL. 2000. Dinoflagellate cyst records and human disturbance in New Bedford Harbor, Massachusetts (USA). Northeast Estuarine Research Society Meeting, Block Island, Rhode Island.
- 185) **Spasojevic Z**, Chmura GL, Latimer JS, Boothman WS. 2000. The Biogenic Silica Sediment Record in New Bedford Harbor, Massachusetts. Northeast Estuarine Research Society Meeting, Block Island, Rhode Island.

- 186) **Beecher** CB, Chmura GL. 2000. Two centuries of wetland plant community variability in Bay of Fundy salt marshes. Coastal Zone 2000, Saint John, New Brunswick.
- 187) **Pospelova** V, Chmura GL. 2000. Dinoflagellate cysts and environmental change induced by human activity in New Bedford Harbor, Massachusetts (USA). Proceedings of the 2nd International Conference on Application of Micro-and Meioorganisms to Environmental Problems, Winnipeg, Canada. pp 102-104. (refereed abstract).
- 188) **Connor** R, Chmura GL, Moore TR. 2000. A carbon budget of a northern macrotidal salt marsh. INTERCOL IV, August 6-12, Quebec.
- 189) **Pospelova** V, Chmura GL. 1999. Variability of dinoflagellate cyst assemblages in estuaries of Rhode Island, USA. Biennial Meeting of the Estuarine Research Federation.
- 190) **Beecher** CB, **Josephs** NK, Chmura GL. 1999. Impact of Past and Future Climate Change on Distribution of Organisms in the Western Atlantic. Biennial Meeting of the Estuarine Research Federation.
- 191) Chmura GL. 1999. Tidal Saline Wetland Carbon Sinks from the Last Glacial Maximum to Today. INQUA Congress, Durban, South Africa.
- 192) Chmura GL, **Clegg** Y, **Helmer** LL. 1999. Variation in Carbon accumulation Rates in Bay of Fundy Salt Marshes. American Geophysical Union Spring Meeting.
- 193) **Sunderland** EM, Chmura GL. 1999. Historical patterns of mercury loading in the Bay of Fundy region: from the past to the future. 3rd Bay of Fundy Science Workshop.
- 194) Chmura GL, **Helmer** LL, **Beecher** CB, **Coffey** A, **Crago** R. 1999. Spatial and Temporal Variation in Sediment Accumulation Rates along the New Brunswick Coast, Bay of Fundy. 3rd Bay of Fundy Science Workshop.
- 195) **Pospelova** V, Chmura GL. 1998. Modern Distribution of Dinoflagellate Cysts in Estuarine Systems of Southern New England, U.S.A. Sixth International Conference on Modern and Fossil Dinoflagellates
- 196) Boothman W, Latimer J, Cobb D, Kiddon J, McKinney R, Jayaraman S, Keith D, Chmura GL, Scott D. 1997. Historical Reconstruction of Contaminants and Natural Stressors and Ecological Condition in an Urbanized Estuary. Society for Environmental Toxicology and Chemistry National Meeting.
- 197) Chmura GL. 1997. Transgressive Wetland Evolution in Absence of Human Stressors. Estuarine Research Federation Biennial Meeting.
- 198) Latimer J, Boothman W, Tobin R, Keith D, Kiddon J, Scott D, Jayaraman S, McKinney R, Cobb D, Chmura G. 1997. Historical Reconstruction of Contaminant Level and Ecological Effects in a Highly Contaminated Estuary. Estuarine Research Federation Biennial Meeting.
- 199) Chmura GL. 1997. The Coastal Wetland Carbon Sink on the Northwestern Atlantic. CANQUA.
- 200) ** Chmura GL, **Sunderland** EMHA. 1996. Historical Uncertainties Associated with Mercury Release in Eastern Canada. Second Regional Mercury Meeting between Eastern Canada and the Northeast US, Focus on the Gulf of Maine Ecosystem.
- 201) **Clegg** YT, Chmura, G.L. 1996. Historical Interpretation of Sedimentary Lead Concentrations in Dipper Harbour Salt Marsh, Bay of Fundy. Regional Association for Research on the Gulf of Maine, St. Andrews, NB.

- 202) **Fraser**, A.L. and Chmura, G.L. 1996. Fate of Salt Marsh Productivity with Increasing Tidal Range in the Bay of Fundy. Coastal Zone Canada '96, Rimouski, QC.
- 203) **Sunderland** EMHA, Chmura GL. 1996. Historical Patterns of Trace Metal Concentrations in Sediments from a Bay of Fundy Salt Marsh. Coastal Zone Canada '96, Rimouski, QC.
- 204) **Chmura GL. 1996. Paleo-wetland Evolution in the Mississippi Delta Plain. Symposium on Recent and Ancient Delta Systems; International Palynological Congress.
- 205) Chmura GL, **Helmer** LL. 1995. Salt Marsh Stability at Dipper Harbour, Bay of Fundy. Biennial Meeting of Estuarine Research Federation.
- 206) **Chmura GL, Sasser CE, Swarzenski C. 1995. Allogenic controls on carbon accumulation in floating marshes of the Mississippi Delta plain. Part of Geological Society of America Coal Geology Division Special Symposium: Coastal Settings of Peat Formation and their Stratigraphic Record: Ecosystems, Allocycles, and Sequences. GSA Annual Meeting.
- 207) Chmura GL, **Smirnov** A. 1995. Seasonal Variation in the Pollen Load of the Atchafalaya River, USA. AASP Annual Meeting.
- 208) ****Helmer** LL, Chmura GL. 1995. Two Hundred Years at Dipper Harbour, New Brunswick: a Paleoenvironmental Study of Salt Marsh Dynamics. CANQUA-CGRG Joint Meeting, St. John's, NF.
- 209) **Connor** RF, Chmura GL. 1995. Seasonal Carbon Budget of the Dipper Harbour Salt Marsh: A Macrotidal System on the Bay of Fundy, New Brunswick. CAG Annual Meeting.
- 210) **Daoust** RJ, Chmura GL, Moore TR. 1995. Marsh Sediment Geochemistry: Paleoeological Trends and Modern Management Implications. Gulf Estuarine Research Society Annual Meeting. **Awarded 2nd prize for best student presentation.**
- 211) **Chmura GL. 1994. Paleoenvironmental Significance of a "Middle" Marsh Zone in the Bay of Fundy. The Second Annual Coastal Wetland Ecology and Management Symposium.
- 212) **Connor** RF, Chmura GL. 1994. Belowground Productivity of Three Dominant Plant Species in the Dipper Harbout Saltmarsh, Bay of Fundy. The Second Annual Coastal Wetland Ecology and Management Symposium.
- 213) Chmura GL, Dortch Q, Rabalais NN, Turner RE. 1994. Modern Distribution of Pollen and Dinoflagellate Cysts Along a Nearshore Transect in Louisiana Coastal Waters. AASP Annual Meeting.
- 214) Chmura GL. 1994. Pollen in Clams, Flocs, and Pellets: Lessons from a Trek on a Dutch Tidal Flat. AASP Annual Meeting.
- 215) **Gillespie** C, Chmura GL. 1994. Variations in *Pediastrum* Assemblages in Mississippi Tributaries. AASP Annual Meeting. **Best poster award.**
- 216) **Smirnov** AN, Chmura GL, **Campbell** ID. 1993. Comparison of River-Born Pollen Assemblages on a Velocity Profile in the Atchafalaya and Mississippi Rivers. AASP Annual Meeting.
- 217) **Daoust** RJ, Chmura GL. 1993. Sea Level Change Near Point Lepreau, Bay of Fundy. ASLO & SWS Annual Meeting.
- 218) Chmura GL. 1992. Palynofacies of Sub-environments of the Modern Mississippi Delta. 8th International Palynological Congress, Aix-en-Provence.
- 219) Chmura GL, **Kearsley JB**. 1992. Pollen Inputs to the Mississippi River. 8th International Palynological Congress, Aix-en-Provence.
- 220) **Campbell** ID, Chmura GL. 1992. Pollen in the Atchafalaya River, U.S.A. 8th International Palynological Congress, Aix-en-Provence.

- 221) Chmura GL, Costanza R, Kesters EC. 1992. Modelling Coastal Marsh Stability in Response to Sea Level Rise. Joint Annual Meeting Geological Association of Canada & Mineralogical Association of Canada, Wolfville, NS.
- 222) Chmura GL. 1991. Classification of Paleomarch Vegetation Zones of the Mississippi Delta with Stable Carbon Isotope and Palynological Techniques. Annual Meeting of the Association of American Geographers, p. 32.
- 223) **Mathison** SW, Chmura GL. 1991. Foraminiferal Test Linings in Palynological Preparations from Coastal Marshes of Louisiana. Presentation at the 1990 CANQUA meeting, Fredericton, published in *Atlantic Geology* 27(3):238.
- 224) Chmura, G.L. and E.C. Kesters. 1989. Storm Deposition and Cesium-137 Accumulation in Fine-grained Marsh Sediments of the Mississippi Delta Plain. European Union of Geosciences V, March 1989, Strasbourg, France. *TERRA* 1(1):411.
- 225) Chmura GL, Aharon P. 1988. The Use of Stable Carbon Isotope Analyses for Identification of Paleosalinities in Buried Coastal Wetlands. American Quaternary Association Programs and Abstracts of the Tenth Biennial Meeting, p.58.
- 226)** Chmura GL, Kesters EC, Ferrell RE, Jr. 1986. Mineralogical Characteristics of an Underclay in the Barataria Basin, Mississippi Delta. GSA Annual Meeting, San Antonio, TX. **Best paper award, Coal Section.**
- 227) **Kesters EC, Chmura GL, McBride RA. 1986. Accretion and Origin of Organic Horizons in the Mississippi Delta. AAPG 1986 Annual Meeting, Atlanta, GA.
- 228) Chmura GL, Aharon P, Socki RA, Patrick WH, Jr. 1985. The Potential of a $\delta^{13}\text{C}$ Signature for Wetland Deposits in Coastal Louisiana. *Transactions, American Geophysical Union* 66(51):1280.

TEACHING

COURSES TAUGHT:

Huntsman Marine Science Centre:

Coastal Marsh Plant Ecology (GEOG 497)

McGill University: (200-400 undergraduate level, 500+ graduate level)

Environmental Systems (GEOG 203)

Global Change: Past, Present and Future (GEOG 205)

Wetlands / Advanced Wetlands (GEOG 470/670)

Historical Ecology Techniques (Quaternary Paleoecology), (GEOG 550)

Ecological Restoration (GEOG 555)

Ecological Biogeography (GEOG 350)

Undergraduate Research Project (GEOG 396)

Ecology of Coastal Waters (GEOG 497A)

Research in Atlantic Canada (ENVR 466A), 6 cr

Preparation for Graduate Research (GEOG 631), 6 cr

Advanced Biogeography (GEOG 613)

Special Topics in Physical Geography (GEOG 626)

Contributions to courses:

Subarctic Field Studies in Geography

Physical Geography Field Studies

ADVISING:

- B.Sc. Geography students (1997-99; 2002-2005)
- Coordinator, Geography Honours Program 1991-93, 2005-06 (33 students)
- McGill Environmental Studies Program 1990-93 (89 students)
- McGill Biogeography Faculty Program, 1990-93 (7 students)

RESEARCH DIRECTED

POSTDOCS (AND POSITION THAT FOLLOWED)

Comer-Warner, S. 1/2020-12/2022. The effect of future global climate and land-use change on greenhouse gas fluxes and microbial processes in salt marshes. Marie Skłodowska-Curie Individual Fellowship, now Assistant Prof at U. Birmingham.

Qi, Xiangzhen. 9/2017-10/2018. Soil carbon storage in China's invasive *Spartina alterniflora*. Professor at Nanjing Normal University.

Campbell, I. 1992. Variation in Pollen Assemblages of the Atchafalaya River, Louisiana. Advisor on climate change to Canadian Environment Minister.

Ph.D.

1. Ampuero Reyes, W. (9/21-) Climate feedback of marsh impoundments.
2. Dey, A. (9/20-) Fate of inorganic carbon in drained salt marshes
3. Gu, J. (9/18-9/19) Changes in the St. Lawrence salt marshes' blue carbon stocks with invasion of *Phragmites australis*.

4. Price, A. (9/12-8/16) Dinoflagellate cysts as indicators of nutrient loading. Awarded NSERC Ph.D. fellowship and research awards from GSA and CAP. Awarded NSERC postdoc at LSU, working with N. Rabalais.
5. Torio, D. (1/10- 12/15) Vulnerability of salt marshes and mangroves to rising sea level – documenting the coastal squeeze. Postdoc at UNH.
6. Pendea, F. (5/06-7/11) Paleoenvironmental change on the coastline of James Bay. (NSERC Scholarship, GSA research grant), Associate Professor, Lakehead University
7. Pospelova, V. (9/97-6/03) Dinoflagellate cyst assemblages and environmental factors controlling their distribution in New England (USA) estuaries. (NSERC & FCAR scholarships and GSA research grant, Full Prof., U. Victoria)

M.Sc.

1. Wang, Y (9/23-) Impact of nutrient enrichment on salt marsh vegetation.
2. Plant, R (9/23-) Greenhouse gas flux of dykeland ditches.
3. Ampuero-Reyes, W. (9/19-9/21) Contribution of belowground organic matter to salt marsh sediment volume. **Living and research stipend funded by Govt of Peru.**
4. Sah, A. (9/18-9/21) Impact of aquaculture on blue carbon stocks in West Bengal, India..
5. Levoy, S (9/15-) Nutrient loading and sustainability of PEI salt marshes. **Awarded NSERC fellowship**
6. Wollenberg, J (9/15-8/17) Value of restoring agricultural marshes. **Awarded fellowships from NSERC and FQRNT**
7. Fajardo, P (9/09-8/17, includes maternity leave) Community-based mangrove management in West Mexico: Assessing the sustainability of small-scale selective wood harvesting. **Awarded research funding from WWF.**
8. vanArdenne, L (9/13-8/16) Variability in salt marsh carbon stocks with geomorphology and drainage. **Awarded NSERC fellowship, Best Grad Student Poster Award at 2016 Meeting of Atlantic Canada Coastal and Estuarine Science Society.** Employed as full time research Associate
9. AgostaG'Meiner, A (9/13- 8/16) Late Holocene paleoenvironmental change in Cuba. Received **research award from AASP.**
10. Roughan, B (9/12-4/14) Effects of nitrogen loading on greenhouse gas fluxes from tidal salt marshes. (based at St. Francis Xavier University, co-supervised with L. Kellman) employed as environmental technician
11. Neulieb, T. (9/10-12/13) Parameterizing the ¹⁴C reservoir effect in marine carbonates. Co-supervised with E. Levac. Employed as Geological Technician.
12. Roy-Dufresne, E. (9/10-12/12) The climate and environmental envelope of the white-footed mouse. Co-supervised with V. Millien, Redpath Museum. Post-doc at CSIRO.
13. Hasan, A. (9/10-12/12) Future distribution of eastern Canada's marine commercial species with global climate change. Co-supervised with E. Levac. Employed in Env Consulting Firm.
14. Sandercombe, S. (9/09-12/11) Abrupt climate change recorded in the Bay of Islands, Newfoundland. Co-supervised with E. Levac. Environmental advisor to BC indigenous tribe.
15. Yu, O. (9/06-6/09) Effects of sheep grazing on soil carbon in a St. Lawrence salt marsh.
16. Byers, S. (9/04-12/06) Macrophyte production in recovering salt marshes. **(McGill Stearn Fellowship)**

17. Noel, P.E. (9/03-7/06) Resilience of pool habitat in a Bay of Fundy salt marsh : a comparative study. (NSERC Industrial Fellowship) Employed by Nature Conservancy of New Brunswick.
18. Hung, G. (9/03-10/05) Metal accumulation in salt marsh sediments, Bay of Fundy.
19. Graf, M. (9/01-12/04) Paleoecological techniques for detection of agronomic soil horizons in a restored saltmarsh. (includes maternity leave, **FCAR scholarship**)
20. Spasojevic, Z. (9/99-8/02) Biogenic silica and diatom centric/pennate ratios as indicators of historical coastal pollution.
21. Beecher, B. (9/98-8/01) Pollen signatures of salt marsh vegetation.
22. Clegg, Y. (9/95-11/99) Historical inventory of sedimentary carbon and metals in a Bay of Fundy salt marsh. Consultant for Council for Environmental Concern (environmental arm of NAFTA).
23. Connor, R. (9/93-12/95) A Carbon Budget for a Bay of Fundy Salt Marsh. FCAR student fellowship. World Water Council Program coordinator.
24. Smirnov, A. (9/92-10/94) Fluvial Transport of Pollen. Received US\$1,500 research grant from Geological Society of America. IT specialist for Geological Survey of Canada.

HONOURS THESES & INDEPENDENT STUDIES DIRECTED

1. Upson, M, 2022. Controls on Water Table Fluctuations in Two Salt Marshes on New Brunswick's Baie des Chaleurs. **Won Honorable Mention for Best Undergrad Poster Award at ACCESS annual conference.**
2. Durrenberger, O. 2020. Variation in Saltmarsh Soil Properties at la Pocatiere, Quebec
3. Sadler, M. 2016. Rates of Salt Marsh Litter Decomposition with Nitrogen Loading. NSERC undergraduate research awardee
4. Dragieva, AM. 2016. North America's Marine Protected Areas. **Won best poster award at ACCESS annual conference.**
5. Lambert-Rivest, G. 2015. Is salt marsh production higher than agricultural production? Honours. MSc student.
6. Angrove, K 2014 Refining dating of marsh deposits with palynological and heavy metal profiles.
7. McGuire, A. 2013. Palynological record of landscape change in salt marshes of PEI and NB. **Won best poster award at ACCESS annual conference.**
8. MacDonald, R. 2012. Vegetation production and greenhouse gas flux in two Canadian salt marshes. B.Sc. Honours, McGill School of Environment.
9. Hughes, C. 2012. Do Maritime NGOs face a digital divide?
10. Marrotte, R. 2010. The utility of Nymphaeaceae sclereids for environmental reconstructions. B.Sc. Honours Geography. NSERC undergraduate research awardee
11. Grant, A. 2010. Does Canadian Coastal VGI face a digital divide? GEOG 396
12. Liu, I. 2010. The macro-charcoal record in sediments of Old Factory Lake bog. GEOG 396
13. Charboneau, D. 2009. Importance of North American wetlands to global biodiversity, NSERC undergraduate research awardee.
14. Lemieux, E. 2008. How important are wetlands to threatened and endangered species? Honours, MSE.
15. Beamier, M. 2008. Does N content of grasses reflect N availability to Maritime salt marshes? Honours, MSE
16. Pelltier, J. 2008. Comparison of root production in two New Brunswick marshes.

17. Wiseman, N. 2008. Comparison of root production to fertilization treatments. MSE
18. Flanary, E. 2006. Geomorphological predictors of plant distribution in Fundy's largest salt marsh. Employed by ESRI, Redlands CA. Honours, Geography
19. De Young, A. 2006. Seasonal variation in soil water chemistry in a micro and macro-tidal salt marshes of New Brunswick Flanary, E. 2006. Vegetation patterns in a recovering salt marsh. Independent study
20. Reverdy-Théveniaud, X. 2006. Root contributions to salt marsh soils of the Maritimes. Lab practicum for EPS
21. Milano, M. 2006. Root contributions to salt marsh soils of the Maritimes. Lab practicum for EPS
22. Vereault, S. 2006. Potential changes in sea surface temperature and Atlantic salmon smolt migration in the Northwest Atlantic. Honours, Geography. M.A. student Dalhousie.
23. MacDonald, G. 2006. Tidal channel networks in a recovering and reference salt marsh in the Bay of Fundy. Honours, Geography. M.Sc. student, McGill Dept. Natural Resources.
24. Hung, G. 2002. Accumulation of Pb in tidal marsh sediments.
25. Pelltier, J. 2001. Review of accretion rates in No. American saltmarshes.
26. Keenlside, S. 2000. Population driven Hg emissions from urban New England.
27. Liutak, J. 1999. Landfill VOC emissions control.
28. Paquette, C. 1999. Marsh elevation change over a growing season. Employed by Ontario Dept. of Environment.
29. Mayo, S. 1999. Assessment of quality of environmental information on the Internet.
30. Crago, R. 1998. Surficial sediment accumulation rates of salt marshes on the Fundy coast of New Brunswick.
31. Beecher, C.B. 1998. Dating of early forest clearance at Chance Harbour, Point Lepreau Peninsula, New Brunswick
32. Rabbat, D. 1998. Variability in water chemistry of Rhode Island salt ponds.
33. Possmayer, M. 1997. Tidal Amplitude as a Stress to Growth of *Spartina alterniflora*.
34. Borden, J. 1997. Sampling water quality gradients in coastal waters of Rhode Island. (URI, Dept. of Natural Resource Science)
35. Sunderland, E. 1996. Historic Sources of Mercury in the Canadian Maritime Provinces. Partial funding from Royal Canadian Geographical Society, \$3,000. Ph.D. Simon Fraser, employed by USEPA to work on Hg modelling.
36. Bell, M. 1996. Latitudinal Controls on Diversity of Salt Marsh Vegetation. Ph.D., Cambridge University.
37. Bornhold, B. 1996. Pigment Analysis of Salt Marsh Sediments. M.Sc., U. Victoria
38. Fraser, A. 1996. Relationship of Tidal Range and Standing Crop of *Spartina alterniflora* in the Bay of Fundy.
39. Bercovitch, J. 1995. Temporal Variation in DOC Flux from a Bay of Fundy Salt Marsh. Partial funding from Royal Canadian Geographical Society, \$3,500.
40. Helmer, L. 1995. Determination of Sediment Accretion Rates for the Dipper Harbour Salt Marsh Using Pollen, Charcoal, and Historical Evidence. Partial funding from Royal Canadian Geographical Society, \$2,000. Employed as environmental education instructor.
41. Lubke, R. 1995. Sediment characteristics of a Bay of Fundy Salt Marsh. Employed as research assistant at University of Durban.

42. Knack, H. 1995. The Origin and Effects of Sand and Organic-rich Sediment Deposits on a Bay of Fundy Salt Marsh; Dipper Harbour, New Brunswick. Resource Management Officer, Parks Canada.
43. Dales, A. 1995. Aspect and Wildfire Induced Variations in Vegetation and Soil Properties at Mt. Carmel, Israel. Enrolled in Masters of Planning at UToronto.
44. Bercovitch, J. 1994. Estimating Water Volume Discharge through Dipper Harbour Marsh. Chiropractor.
45. Gillespie, C. 1994. *Pediastrum* as a Paleoindicator. Received Best Poster Award from American Association of Stratigraphic Palynologists at 1994 Annual Meeting. Employed as a micropaleontological assistant.
46. Haasz, D. 1994. A Spatial Analysis of Herbivore of Red Oak. Completed M.S. program at New Mexico State University.
47. Chase, P. 1993. The Influence of Tidal Inundation and Interspecific Competition on Salt Marsh Perennial Zonation.
48. Daoust, R. 1993. Sea level rise in Dipper Harbor, Bay of Fundy. Funded by grant from Royal Canadian Geographical Society, \$3,600. Ph.D., Florida International University.
- Daoust, R. J., Chmura, G.L. and Moore, T.R. 1995. Marsh Sediment Geochemistry: Paleocological Trends and Modern Management Implications. Gulf Estuarine Research Society Annual Meeting, March. Awarded 2nd prize for best student presentation on joint paper at 1995 Gulf Estuarine Society Annual Meeting. Environmental Consultant.
49. Cole, A. 1993. The Autecology of *Plantago maritima*.
50. Costello, A. 1992. Pollen Assemblages in Surface Sediments, Northern Gulf of Mexico. M.Sc. McMaster.
51. Kearsley, J.B. 1992. Aerial Pollen Inputs to Mississippi River Water. Volunteer research student, co-authored poster presentation. M.S. (palynology) Univ. of Arizona, now practicing M.D.
52. Mathison, S.W. 1991. Foraminiferal Linings in Palynological Preparations of Barataria Basin, Louisiana. M.S. Yale, Ph.D. Guelph Univ.
53. McSweeney, K. 1991. Creating an Ecology-Oriented Interpretive Trail Guide for the Mont St. Hilaire Nature Conservation Centre (site of UNESCO biosphere reserve). Professor.

NSERC & SURA UNDERGRADUATE RESEARCH AWARDEES SUPERVISED

- Scott, M. 2023. Sediment Record of Estuarine Eutrophication
- Brais, C. 2022. Climate feedback from salt marshes in 2 Canadian national parks.
- Sadler, M. 2016. Variation in litter decomposition in salt marshes subject to N input
- Lambert-Rivest, G 2014. Productivity of Kamouraska's drained salt marshes.
- Marrotte, R. 2010. Nymphaeaceae sclereids.
- Charbonneau, D. 2009. Use of US salt marshes and mangroves by endangered species.
- Murison, L. 2008. (Co-supervised with Levac from Bishops)
- Li, Y. 2008. Tidal Marsh Sustainability: Past, Present and Future
- MacDonald, G. 2006. Salt marsh recovery on the Bay of Fundy.
- Sabourin, A. 2005. Mapping hydrologic characteristics of Fundy marshes.
- Rodrique-Gervais, K. 2003. Contributions of organic matter to soils in natural and recovering salt marshes.
- Smith, S. 2000. Elevation of low marsh/high marsh transitions over a gradient of tidal range.
- Paquette, C. 1999. See above

- James, Z. 1993. Comparison of Pollen Assemblages in Lakes and River Water in the Mississippi River Drainage Basin. M.Sc. NSERC fellowship, McGill.
- Davidson, N. 1992. Pollen Sources of the Mississippi River, Minnesota.
- Robinson, N. 1992. Pollen Sources of the Minnesota River.

PARTICIPATION IN COMMITTEES FOR GRADUATE SUPERVISION

- Cottrell, B. (M.Sc.) Analysis of Entanglement Rates and Improving Necropsy Methods of Large Whales Using Remote Sensing Techniques
- Svob, S. (M.Sc.) An Assessment of Carbon Variability across Costa Rica using Forest Management Data, Dept. Geography.
- Bush, D.F. (PhD) The Role of Culture, Geography and Psychology in Educating the Public on Climate Science, Dept. Geography
- Snirer, E. (M.Sc.) Soil and plant changes around recent, experimental clandestine graves. Dept. Geography
- Mloszewska, A.M. (M.Sc.) Contrasting taphonomic regimes within temperate latitudes: preservation of skeletal carbonate in macrotidal environments. Dept. of Earth & Planetary Sciences.
- Davies, C. (M.Sc.) A geomorphic perspective on assessing Atlantic salmon productivity in rivers. Dept. Geography
- Mueller, D. (M.Sc.) A bipolar comparison of glacial cryo-ecosystems. Dept. Geography
- Robinson, S. (Ph.D.) The long-term carbon dynamics of discontinuously frozen peatlands, Fort Simpson area, Northwest Territories. Department of Geography.
- Bjornsson, H. (Ph.D.) Modelling of rapid climatic variability in the late Quaternary. Department of Atmospheric and Ocean Sciences.
- Zdanowic, C. (Ph.D.) Microparticles in a deep core from the Penny Ice Cap, Baffin Island (NWT): Holocene Paleoclimatic Significance. Department of Geography.
- Barr, J. (M.A.) 1995. The historical roots and emergence of Quebec's contemporary environmental movement: 1880-1980. Department of Geography.
- Dunham, B. (M.Sc.) Environmental histories from deltaic salt marsh ponds. Department of Geography.
- Richardson, K. (Ph.D.) Scale and patterns of tropical biodiversity. Department of Geography.
- Omondi, P. (Ph.D.) 1995. Wildlife and human conflicts in Kenya's rangelands: the case of the Masai Mara Region. Department of Geography.
- Bubier, J. (Ph.D.) 1994. The relationship between peatland plant distribution and methane flux in northern latitudes. Department of Geography.

PARTICIPATION IN COMMITTEES FOR STUDENT EXAMINATION OR ADVISING

B.S. thesis:

Torkelson (2022 – Dept. Geology, Bates College)

Beirne (2005 – Dept. Geology, Bates College)

M.Sc. thesis:

Vosman, (2018-Dept Earth Sciences, Saint Francis Xavier University); DeGea (2015, Geography). Mloszewska (2007-2008, Earth & Planetary Sciences); Little (2005 – Dept. Geology, Brock University); Musclow (2005 – Earth and Planetary Sciences, McGill); De Maioi

Sukic (2001 – Agricultural Economics, McGill); Simard, A. (1996 - biologie/geologie, Université du Québec à Montréal); Ditata, M. (1991 - geography, McGill)

Ph.D. comprehensive:

Geography Dept: Braiden (2015); Kothawala, D. (2005); Cabrera-Garcia, L. (2002); Dressler, W. (2001) Knötsch, C. (1991); Hayes, A. (1993); Podmore, J. (1995); McShane, F. (1995)
Others: Mosdossy (McGill Natural Resource Science - 2021);

Ph.D. defense:

Leblanc (2022 – McGill; Gauthier (2020-Biology, McGill); Frail-Gauthier (2018-Geology Dept, Dalhousie University); Owers (2018-Dept Geography, University of Wollongong); Brault (2017–Geography); Malhotra (2015 – Geography); Murphy (2009- Geography); Talbot (2009 – Geography); McEnroe (2008- Geography); St.-Germain (2006–Dept. Natural Resource Sciences); Dalle (2006 – Dept. Plant Sciences); Wang (2005–Atmosphere & Ocean Sciences); Sawada (2001–U. Ottawa); Hull (1999- Geography); Klaucke (1995 - Geology); Reeves (1993 - Geography); Nast (1992 - Geography); Marshall (1991-Geography)

SERVICE to COMMUNITY

Editorial and Reviewer Roles

- Associate Editor, Global Change and the Future Ocean (specialty section of *Frontiers in Marine Science*)
- Expert Reviewer for the First Order Draft of the *Synthesis Report* of the **IPCC Sixth Assessment Report** (2022)
- Expert Reviewer, Second Order Draft of the WGII contribution to the **IPCC Sixth Assessment Report, Chapters 3: Ocean and Coastal Ecosystems and their Services, 4 North America** (2021)
- Guest Editor, *Remote Sensing* (2020-2022)
- Guest Editor, *Northeast Naturalist* (2016-2017)
- Past Associate Editor, *Wetlands*
- Past Member of Editorial Board – *The Canadian Geographer*
- Member of review panel for San Francisco's South Bay Salt Pond Restoration Project
- Review panelist for USEPA's 2004 funding program on "Effects of Climate Change on Ecosystem Services Provided by Coral Reefs and Tidal Marshes".
- Review Panelist for Paleoecology Workshop sponsored by Florida Bay Interagency Program Management Committee, Workshop, Jan 1998.
- Occasional reviewer of research proposals for USA NSF, CanNSERC, CanSSHRC, USNOAA, USNASA, USDOE, NERC (UK), Canadian Geological Survey, National Geographic Society, and American Chemical Society Petroleum Research Fund; internal reviewer of EPA publications
- Occasional reviewer of manuscripts submitted to the journals *Global Biogeochemical Cycles*, *Estuarine, Coastal and Shelf Science*, *Estuaries and Coasts*, *Atmospheric Environment*, *Environmental Management*, *Wetlands*, *Hydrobiologia*, *Marine Geology*, *Journal of Coastal Research*, *Quaternary Research*, *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology*, *Palaos*, *Canadian Journal of Botany*, *The Holocene*, *Applied Vegetation Science*, and *Regional Environmental Change*.

Other

- Co-author, “Water and Climate Change Mitigation” to be published by jointly by the UNDP-Water Governance Facility, German Corporation for International Cooperation, Potsdam Institute for Climate Impact Research and Stockholm Resilience Centre.
- Member, Council of Canadian Academies expert panel on “The Potential for Naturally Occurring Carbon Sinks to Help Meet Canada’s Greenhouse Gas Emissions Reduction Goals”, 2021-2022.
- Lead Author, *IPCC Guidelines on National Greenhouse Gas Inventories* 2011-2013
- Scientific Program Committee, 12th and 13th International Symposium on Biogeochemistry of Wetlands, 2018 & 2020.
- President, Atlantic Canada Coastal and Estuarine Science Society, 2013-2015.
- Board Member (2013-2015) Coastal and Estuarine Research Federation
- Elected President (1997); Vice-president (1995); Canadian Quaternary Association.
- Invited (and funded) by United Nations Environment Program to participate in Blue Carbon Workshop. As one of 6 scientists invited, I reviewed research on carbon in tidal salt marshes. (Other scientists covered mangroves, seagrasses, coral, pelagic ocean, and modelling.)
- Organizer (program and logistics) of 2014, 2017, and 2022 conferences of Atlantic Canada Coastal and Estuarine Science Society
- Co-convenor of Session: **Assessing carbon storage and greenhouse gas emissions in coastal and inland aquatic systems for the American Geophysical Union Annual Ocean Sciences Meeting**, San Francisco, Dec 2010.
- October 2016 North American Blue Carbon Experts and Partners Meeting: Science for Policy, Falmouth, MA - invited by Commission for Environmental Cooperation.
- April 2015 North American Blue Carbon, Forest Carbon and Land Cover Experts Meeting, Quintana Roo, Mexico – invited by Commission for Environmental Cooperation. May 2010
- The United Nations Environment Program funded participation in the "Blue Forest Workshop" held at UNESCO headquarters. One expert was brought in for each ecosystem - I was considered the world expert on carbon stored in salt marshes.
- In May 2004 I was one of 3 keynote speakers in the session “Estuarine Ecosystems and Links to Upland Watersheds” at the American Geophysical Union Conference.
- Participant in trade missions of Quebec's Ministère du Développement économique, Innovation et Exportation: The ministry, which oversees Quebec's science funding council, FQRNT, requested that I accompany the mission to China (Oct 2009) and India (Jan 2010). There I visited with numerous research labs to discuss Quebec research in climate change and potential links between institutions and researchers.
- Invited Workshop Participant, US National Oceanic and Atmospheric Administration “Directions for Research on Mitigating Regional Ecological Impacts of Sea Level Rise”, Beaufort, NC, Feb 2004.
- Invited participant (travel funded by sponsoring organization):
 - Workshop on Coastal Blue Carbon: Mitigation Opportunities and Vulnerability to Change, May 14, 2012, 2nd International Symposium: Effects of Climate Change on the World's Oceans. (Sponsored by United Nations Environment Program)
 - Gulf of Maine Council /US Fish and Wildlife Service Workshop on Conservation of Regionally Significant Habitats in Passamaquoddy Bay, July 1996, St. Andrews, New Brunswick

- Gulf of Maine Council /US Fish and Wildlife Service Workshop on Identification of Priority Habitats in Passamaquoddy and Cobscook Bays, March 1996, St. Andrews New Brunswick
- Bay of Fundy Issues: Fundy Marine Ecosystem Science Project (meeting to assess research needs), March 1996, Wolfville, Nova Scotia
- NSF Workshop on Global Change Research, April 5-6, 1993; Atlanta, Georgia
- Board of Directors, Huntsman Marine Science Centre
- Users' Committee, Huntsman Marine Science Centre
- Canadian Delegate to 1999 Congress of the International Union for Quaternary Research
- Canada's Councilor on the International Federation of Palynological Societies (1998-2000)
- Past Member of PAGSE (Partnership Group for Science and Engineering).
- Member, Canadian National Committee for International Quaternary Association, 1994-99
- Canadian Quaternary Association: President (97-99), Vice-president (95-97); Council Member (93-95)
- Newsletter editor, Canadian Quaternary Association, 1991-93.
- Member of McGill Centre for Climate and Global Change Research, then Global Environment and Climate Change Centre, 1991-.
- Nominating Committee, Canadian Association of Palynologists, 1996
- Co-convenor of Symposium, "Palynofacies, Ancient Examples and Modern Analogues", 8th International Palynological Congress, Aix-en-Provence, France, September, 1992.

Field trip leader:

- Dipper Harbour and Saints Rest Marsh for joint spring meeting of Northeast Estuarine Research Society and the Atlantic Canada Coastal Estuarine Science Society, May 16, 2010.
- Intertidal Environments at Dipper Harbour, Bay of Fundy for the Canadian Paleontology Conference, 2004
- Quebec 2000: 6th International Wetlands Conference of the International Association of Ecology, 2000, Coastal peatlands and salt marshes of New Brunswick, with J. Thibeault and others
- ERF 15th biennial International Conference, 1999. Coring Workshop with EG Turner and J Latimer.
- IPC International Congress, 1996. Wetland Environments of the Southern U.S.: Okefenokee Swamp, Mobile and Mississippi Deltas; **7 days**; with F. Rich and R. Gastaldo.
- GSA National Meeting, 1995. Hydrogeology and Depositional Setting of Coastal Louisiana Floating Marshes; with C. Swarzenski.

PROFESSIONAL SOCIETIES I have been affiliated with

Geological Society of America	Society of Wetland Scientists
Coastal & Estuarine Research Federation	American Quaternary Association
Canadian Quaternary Association	The Palynological Society
American Geophysical Union	Canadian Association of Palynologists
American Society of Limnology and Oceanography	
Atlantic Canada Coastal and Estuarine Science Society	
New England Estuarine Research Society	

ADMINISTRATIVE EXPERIENCE

EXTERNAL TO GEOGRAPHY DEPT

- McGill Schulich Library Committee (Sept 2016-2017)
- McGill Safety Committee (Sept 2015-2021)
- Director, Global Environmental and Climate Change Centre (2009-2012)
- Steering Committee, Global Environment and Climate Change Centre (2006-2011)
- Faculty of Science Academic Committee (2005-2009)
- Search Committee, Department of Earth and Planetary Sciences (2008)
- Executive Board, Centre for Climate and Global Change Research (1998-2001)
- Curriculum Committee, McGill Institute for the Study of Canada
- Newsletter Editor, Centre for Climate and Global Change Research (1998-2001)
- Faculty of Science Committee on Student Standing, (1997-2001)
- McGill NSERC Fellowship Selection Committee (1997-2000)
- University Senate Subcommittee on Women, representing Faculty of Science, (1997-2000)

GEOGRAPHY DEPT

- Chair, Safety Committee (2006-2009, 2014-2018)
- Chair, Undergraduate Affairs Committee (2017-)
- Chair (elected by committee), Search Committee for Urban Ecology/Sustainability faculty appointment (2009)
- Chair, Search Committee for Urban Geography faculty appointment (2007)
- Chair of Equity committee, produced Dept.'s first report to vice-principal, (1993-1999).
- Chair, Space and Equipment Committee (1990-1995)
- Chair, Search Committee for Health Geography faculty appointment
- Tenure and Promotion Committee (2006-2008, 2021)
- Chair Selection committee (1991, chair 1997, 2002)
- Originator and coordinator of, "Geography from the Air", an outdoor public speaker series, summer 2002
- Advisory Committee (1993-1996, 2005-2009, 2016-)
- Undergraduate Affairs Committee Member (1998-2001, 2005-2009, 2016-2017)
- Search Committee for GIS faculty appointment (2001, 2002)
- Graduate Affairs Committee (1992-1995, 2021-)
- Recruiting committee (1990-1992)