

Curriculum vitae

David Beauchesne

January 20, 2020

David Beauchesne, biol. M.Sc.

Ph.D. candidate

Institut des sciences de la mer de Rimouski (ISMER)

Université du Québec à Rimouski

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Diplomas

Ph.D. Oceanography, Université du Québec à Rimouski, Qc, Canada, 2014-Present

M.Sc. Geography, Planning & Environment, Concordia University, Qc, Canada, 2009-2012

B.Sc. Biologie, Université du Québec à Rimouski, Qc, Canada, 2006-2009

Research Interests

Behavioural ecology, biodiversity, biotic interactions, community ecology, conservation, cumulative impacts, ecology, environmental stressors, functional traits, human impacts, protected areas

Technical skills

R, LaTeX, Markdown, HTML5, CSS, SAS, Sigma Plot, Inkscape, ArcGIS, QGIS, Office, Marxan, MaxEnt

Grants

[3] 2019-2020 – *BIOS²* Fellow (10 000\$)

[2] 2015-2018 – Postgraduate Scholarships-Doctoral Program (PSG D) – Natural Sciences and Engineering Research Council of Canada (CRSNG; 21 000\$/year for 3 years)

[1] 2014-2017 – Doctoral research scholarship - Fonds de recherche du Québec - Nature et Technologies (FRQNT; 20 000\$/year for 3 years)

Prizes

- [4] 2017 - Public prize for best poster - Next Generation Planning - Structuring and Sharing Stressors Data for the St. Lawrence - Québec Ocean's Annual Scientific Meeting 2017, May 13-15th 2017, Rivière-du-Loup, Québec, Canada
 - [3] 2016 - Public prize - The link between machine learning, networking, pokemon and ecology - Québec Océans's 15th Annual General Assembly, 8-9th November 2016, Rimouski, Canada
 - [2] 2016 - Best oral presentation - The link between machine learning, networking, pokemon and ecology - Québec Océans's 15th Annual General Assembly, 8-9th November 2016, Rimouski, Canada
 - [1] 2015 - Frances Wilson grant for the progress of scientific knowledge (2 500\$)
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Published articles

- [7] Dreujou E, Carrier-Belleau C, Goldsmit J, Fiorentino D, Ben-Hamadou R, Said H, Muelbert J H, Godbold J A, Daigle R M, Beauchesne D (*accepted*) Holistic Environmental Assessments and Aichi Biodiversity Targets: accomplishments and perspectives. Peer J.
 - [6] Albouy C, Archambault P, Appeltans W, Araújo M, Beauchesne D, Cazelles K, Cirtwill A, Fortin M-J, Galiana N, Leroux S, Pellissier L, Poisot T, Stouffer D, Wood S, Gravel D (2019) The marine fish food web is globally connected. Nature Ecology and Evolution. 3:1153-1161. <https://doi.org/10.1038/s41559-019-0950-y>.
 - [5] Beauchesne D, Desjardins-Proulx P, Archambault P, Gravel D (2016) Thinking outside the box - predicting interactions in data-poor environments. Life & Environment. 66(3-4):333-342
 - [4] Beauchesne D, Grant C, Gravel D, Archambault P (2016) L'évaluation des impacts cumulés dans l'estuaire et le golfe du Saint-Laurent : vers une planification stratégique de l'utilisation et de l'exploitation des ressources. Le Naturaliste Canadien. 140(2):45-55
 - [3] Beauchesne D, Jaeger JAG, St-Laurent M-H (2014) Thresholds in the capacity of female caribou to cope with cumulative disturbances. Biol Cons 172:190-199.
 - [2] Beauchesne D, Jaeger JAG, St-Laurent M-H (2013) Disentangling female woodland caribou movements in response to clearcuts and roads across temporal scales. PLoS ONE e77514
 - [1] St-Laurent M-H, Renaud L-A, Leblond M, Beauchesne D (2012) Synthèse des connaissances relatives aux impacts des routes sur l'écologie du caribou. Le Naturaliste Canadien 136:42-47
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Articles submitted or in preparation

- [2] Beauchesne D, Daigle R, Vissault S, Gravel D, Bastien A, Bélanger S, Bernatchez P, Blais M, Bourdages H, Chion C, Galbraith PS, Halpern BS, Lavoie C, McKindsey CW, Mucci A, Pineault S, Starr M, Ste-Marie A-S, Archambault P (In revision) Next Generation Planning - Structuring and Sharing Environmental Drivers Data for the St. Lawrence. Frontiers in Marine Science.
 - [1] Fajardo P, Beauchesne D, Carbajal-López A, Daigle R M, Fierro Arcos L D, Goldsmit J, Zajderman S, Christofolletti R A (in revision) Integrating traditional knowledge into conservation and sustainable use of marine and coastal biodiversity. Peer J.
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Book chapters

- [1] Schloss IR, Archambault P, Beauchesne D, Bourgault D, Cusson M, Dumont D, Ferreyra G, Levasseur M, Pelletier É, St-Louis R, Tremblay R (2018) Impacts potentiels cumulés des facteurs de stress liés aux activités humaines sur l'écosystème marin du Saint-Laurent. Notre Golfe network.
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Science popularization

- [1] Carrier-Belleau C, Beauchesne D, Dreujou E, Isabel L (2019) Le Saint-Laurent : comment évaluer l'empreinte humaine dans un système complexe ? L'interdisciplinaire, Institut Hydro-Québec en environnement, développement et société (Institut EDS), Université Laval, Numéro 17, Automne 2019
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Technical reports

- [7] Lachance S-C, Beauchesne D, pour le MDDELCC (Ministère du Développement Durable et de la Lutte contre les Changements Climatiques) (2017) Étude de planification systématique de la conservation à l'aide de l'outil Marxan : Rapport final d'analyse d'une étude de cas sur le territoire continental du Plan Nord (Québec). 101 p.
- [6] Grant C, Monpert C, Rondeau M-H, Beauchesne D, Stoeffer C (2015) Cartographie de bancs de laminaires à l'aide de méthodes acoustiques. 46p.+v
- [5] Beauchesne D, Cadotte M, Dussault C, St-Laurent M-H (2014) Revue de littérature critique sur le contrôle des prédateurs dans un contexte de conservation du caribou forestier au Québec. Scientific report presented to the MFFP. Rimouski. 44p.+vii
- [4] St-Laurent M-H, Beauchesne D, Dussault C, Lesmerises F (2014) Évaluation des impacts des chemins forestiers sur l'écologie du caribou forestier au Québec. Scientific report presented to the MFFP. Rimouski. 41p.+ii
- [3] Beauchesne D, Faille G, Brêthes J-C (2014) Étude concernant une aire marine protégée aux îles de la Madeleine. Volume 1. Rapport d'étude et analyse écologique. Report prepared for the MDDEFP and Parks Canada. 81p.+Annexes
- [2] Grant C, Faille G, Beauchesne D (2014) Étude concernant une aire marine protégée aux îles de la Madeleine. Volume 3. Atlas cartographique des îles de la Madeleine. Report prepared for the MDDEFP and Parks Canada. xv+143p.
- [1] Renaud L-A, Leblond M, Beauchesne D, St-Laurent M-H (2010) Synthèse des connaissances relatives aux impacts du réseau routier sur l'écologie du caribou forestier. Literature review presented to the provincial forest-dwelling caribou recovery team. 21pp.
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Oral presentations

- [20] Beauchesne D (2019) Évaluation de l'exposition cumulée au sein du Saint-Laurent: défis, solutions et perspectives. Invited speaker. Institut Maurice Lamontagne, Department of Fisheries and Oceans Canada, Mont-Joli, Québec, Canada. May 2nd.
- [19] Beauchesne D, Daigle R, Goldsmit J, Metaxas A, Snelgrove P, Archambault P (2018) An overview of activities and outputs of the mentoring program for the 4th World Conference on Marine Biodiversity. CHONe II 2018 annual meeting, Ottawa, Ontario, Canada, November 29th - December 1st.
- [18] Isabel L, Beauchesne D, Daigle R, Archambault P (2018) CHONe project presentation. CHONe II 2018 annual meeting, Ottawa, Ontario, Canada, November 29th - December 1st.
- [17] Beauchesne D, Daigle R, Vissault S, Lavoie C, Gravel D, Archambault P (2018) Meta-networks Using network theory to structure and evaluate cumulative impacts. 4th World Conference on Marine Biodiversity. Montréal, Québec, Canada. May 13-15th.
- [16] Beauchesne D, Gravel D, Archambault P (2018) Next Generation Planning - Evaluating cumulative impacts on the communities of the Estuary and Gulf of St. Lawrence. Invited speaker at Guelph University. Guelph, Ontario, Canada. February 20th
- [15] Beauchesne D, Daigle R, Gravel D, Mckindsey C, Therriault T, Archambault P (2017) Indicators of benthic condition at the gulf-scale: megabenthic community structure. CHONe II 2017 annual meeting, Gatineau, Québec, Canada, May 3rd.
- [14] Beauchesne D, Desjardins-Proulx P, Archambault P, Gravel D (2017) Using machine learning to predict biotic interactions. Guest lecturer, Midi numérique, Biology Department, Université de Sherbrooke, Sherbrooke, Québec, Canada. February 27th 2017.
- [13] Beauchesne D (2017) An “homage” to 50 years of cumulative effects assessment or Why are we still not managing resources systematically? Guest lecturer, Advanced Seminar in Environmental Science, Department of Geography, Planning and Environment, Concordia University, Montréal, Québec. February 1st 2017.
- [12] Beauchesne D, Desjardins-Proulx P, Archambault P, Gravel D (2016) Thinking outside the box – predicting biotic interactions in data-poor environments. Annual meeting of the Québec Center for Biodiversity Science (QCBS), Montreal, Québec, Canada, December 15th-16th.
- [11] Beauchesne D, Desjardins-Proulx P, Archambault P, Gravel D (2016) The link between machine learning, networking, pokemon and ecology. Québec Océans's 15th Annual General Assembly, Rimouski, Canada, 8-9th November 2016
- [10] Beauchesne D, Gravel D, Archambault P (2015) Évaluation des impacts cumulés sur les communautés de l'estuaire et du golfe du Saint-Laurent. Annual meeting of the Québec Center for Biodiversity Science (QCBS), Montreal, Québec, Canada, October 29th-30th.
- [9] Beauchesne D, Faille G, Grant C, Archambault P, Brêthes J-C (2015) Biodiversité et exploitation des ressources naturelles : vers une structuration du milieu marin. 83rd Acfas conference, Rimouski, Qubec, Canada, May 25th-29th
- [8] Monpert C, Grant C, Rondeau M-H, Grelon D, Stoeffler C, Beauchesne D (2015) Méthodes de cartographie des herbiers marins à l'aide de l'acoustique sous-marine. 83rd Acfas conference, Rimouski, Qubec, Canada, May 25th-29th
- [7] Beauchesne D, Faille G, Grant C, Archambault P, Brêthes J-C (2015) Building the bridge between the preservation of biodiversity and human activities. 44th annual Benthic Ecology Meeting, Québec, Québec, Canada. March 4th-7th
- [6] Beauchesne D, Jaeger JAG, St-Laurent M-H (2011) Evidence of a non-linear response to anthropogenic disturbances : a case-study with woodland caribou in a highly managed landscape. 13th International Arctic Ungulate Conference, Yellowknife, Territoires du Nord-Ouest, Canada

- [5] Beauchesne D, Jaeger JAG, St-Laurent M-H (2011) Seuils dans la capacité du caribou à faire face aux perturbations anthropiques. 36th annual SQÉBC conference, Sherbrooke, Québec, Canada.
 - [4] Beauchesne D, Jaeger JAG, St-Laurent M-H (2011) Behavioural responses of forest-dwelling caribou to different anthropogenic barrier types in the boreal forest. Invited speaker, Biology department, Concordia university, Montreal, Québec, Canada
 - [3] Beauchesne D, Jaeger JAG, St-Laurent M-H (2011) Situation et conservation du caribou forestier en forêt boréale. Invited speaker, School of veterinary medicine, Université de Montréal, St-Hyacinthe, Québec, Canada
 - [2] Beauchesne D (2010) Influence of different barrier types on the movement behavior of forest-dwelling caribou in the boreal forest. Invited speaker, Department of geography, urban studies and environment, Concordia university, Montreal, Québec, Canada
 - [1] Beauchesne D, Jaeger JAG, St-Laurent M-H (2010) Réactions du caribou forestier à différents types de barrières anthropiques au Saguenay-Lac-Saint-Jean. 2nd conference “Le caribou forestier : un enjeu de biodiversité et de développement durable”, Saguenay, Québec, Canada
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Posters

- [14] Beauchesne D, Cazelles K, Archambault P, Gravel D (2019) La sensibilité des réseaux trophiques à de multiples perturbations. Forum québécois en sciences de la mer, Rimouski, Québec, Canada, November 11-13th.
- [13] Huot M, Dalglish F, Vuorenkoski A, Rehm E, Beauchesne D, Archambault P, Piché M (2019) Multi-spectral laser serial imaging techniques for spectral discrimination of macroalgae and coral. Forum québécois sur les sciences de la mer, Rimouki, Québec, Canada, November 11-13th.
- [12] Beauchesne D, Daigle R, Vissault S, Gravel D, Bastien A, Bélanger S, Bernatchez P, Chion C, Galbraith PS, Halpern BS, Lavoie C, McKindsey CW, Mucci A, Starr M, Ste-Marie A-S, Archambault P (2018) Next Generation Planning - Structuring and Sharing Environmental Drivers Data for the St. Lawrence. CHONe II 2018 annual meeting, Ottawa, Ontario, Canada, November 29th - December 1st.
- [11] Beauchesne D, Daigle R, Vissault S, Gravel D, Bélanger S, Bernatchez P, Chion C, Galbraith PS, Halpern BS, McKindsey CW, Mucci A, Starr M, Archambault P (2018) Regional assessment of cumulative impacts in the St. Lawrence system. CHONe II 2018 annual meeting, Ottawa, Ontario, Canada, November 29th - December 1st.
- [10] Beauchesne D, Daigle R, Vissault S, Gravel D, Bélanger S, Bernatchez P, Chion C, Galbraith PS, Halpern BS, McKindsey CW, Mucci A, Starr M, Archambault P (2018) Évaluation régionale des impacts cumulés sur le système du Saint-Laurent. Québec Ocean’s Annual Scientific Meeting 2018, Rivière-du-Loup, Québec, Canada. November 5-6th.
- [9] Beauchesne D, Daigle R, Gravel D, Bélanger S, Bernatchez P, Chion C, Galbraith PS, Halpern B, Lavoie C, McKindsey C, Starr M, Tremblay C, Vissault S, Archambault P (2017) Next Generation Planning - Structuring and Sharing Stressors Data for the St. Lawrence. Québec Ocean’s Annual Scientific Meeting 2017, Rivière-du-Loup, Québec, Canada. November 7-9th.
- [8] Beauchesne D, Cazelles K, Blanchet F G, Gravel D, Archambault P (2017) Predicting the spatial distribution of ecological networks. Canadian Society for Ecology & Evolution Meeting 2017, Victoria, British-Columbia, Canada. May 7-11th.
- [7] Beauchesne D, Gravel D, Archambault P (2017) Cumulative impacts on the communities of the estuary and the gulf of St. Lawrence. CHONe II 2017 annual meeting, Gatineau, Québec, Canada, May 1-5th.

- [6] Beauchesne D, Gravel D, Archambault P (2015) Évaluation des impacts cumulés sur les communautés benthiques et pélagiques de l'estuaire et du golfe du Saint-Laurent. Québec-Océan's 14th Annual General Assembly, Québec, Québec, Canada, November 10th-11th. DOI : 10.13140/RG.2.1.2209.8961
- [5] Beauchesne D, Gravel D, Archambault P (2015) Évaluation des impacts cumulés sur les communautés de l'estuaire et du golfe du Saint-Laurent. Annual meeting of the Québec Center for Biodiversity Science (QCBS), Montreal, Québec, Canada, October 29th-30th.
- [4] Beauchesne D, Faille G, Grant C, Archambault P, Brêthes J-C (2014). Identification de milieux d'intérêt pour la conservation dans un contexte de protection du milieu marin et côtier. 13th Québec-Océan Annual General Assembly, Rivière-du-Loup, Québec, Canada, November 17th-19th
- [3] St-Laurent M-H, Ouellet J-P, Dussault C, Lesmerises R, Renaud L-A, Beauchesne D (2011) Impacts directs et indirects de l'aménagement des forêts sur l'écologie du caribou forestier. Carrefour Forêt Innovation, Québec, Québec, Canada
- [2] Beauchesne D, Hamel Pepin R, Morissette L (2008). Prédation bénéfique : comment les mammifères marins peuvent avantager leurs proies. 33rd annual SQÉBC conference, Rimouski, Québec, Canada.
- [1] Beauchesne D (2007) Conservation de la tortue mouchetée en Nouvelle-Écosse. Public poster presentation, Université du Québec à Rimouski, Rimouski, Québec, Canada

Implications

- [9] SNC-SCOR Canada - student representative (2016-Present)
- [8] Canadian Healthy Oceans Network (CHONe) - Data Management Committee (2015-Present)
- [7] Canadian Healthy Oceans Network (CHONe) – Co-president of CHONe Student Network (2015-Present)
- [6] Québec Océan Student Committee – Co-president (2015-2018)
- [5] Student association (NÉMO) of the Institut des sciences de la mer (ISMER) – Ph.D. students representative (2014-2015); Vice-president (2015-2016)
- [4] Québec Océan Administrative Committee – Québec universities student representative (2014-2018)
- [3] Committee for the joint Ph.D. program between Université du Québec à Rimouski and Université Laval – Ph.D. students representative (2014-2016)
- [2] Oceanography program committee of the Institut des sciences de la mer (ISMER) – Ph.D. students representative (2014-2015)
- [1] Comité d'Action de l'UQAR sur les Changements Climatiques (CADUCC) – Assistant coordinator (2006-2007); Coordinator (2007-2008)

Peer-review

- [1] Diversity and distributions

Workshops

- [10] Review of Approaches for Marine Conservation Network Monitoring - National Peer Review. Department of Fisheries and Oceans Canada. Montréal, QC, Canada. September 10-12 2019.
 - [9] Cumulative effects assessment of marine shipping activities: a technical workshop. Transport Canada. Ottawa, ON, Canada. February 20-21 2019
 - [8] Cumulative effects of marine vessel activities in the St. Lawrence: engagement session. Transport Canada and Ministère des Transports du Québec. Wendake, QC, Canada. February 7th 2019
 - [7] Marine Protected Areas for 2020 and beyond: A DFO and CHONe joint workshop on MPA network monitoring in Canada's three oceans. Montreal, QC, Canada. November 14-16th 2018
 - [6] Bayesian statistics for ecologists summer school, Université de Sherbrooke, August 14-18th 2017
 - [5] DFO-CHONe Workshop: Considerations for a Framework for Identifying EBSAS in Need of Management. Ottawa, Ontario, Canada. March 6th-8th 2017.
 - [4] Workshop on network inference, Université de Sherbrooke, Québec Center for Biodiversity Science (QCBS), November 20th to December 2nd 2016
 - [3] DEVOTES indicator workshop, Canadian Healthy Oceans Network (CHONe), September 20th-21st 2016
 - [2] Visualization workshop, Québec Center for Biodiversity Science (QCBS), May 20th-22nd 2016
 - [1] Computational ecology summer school, Université de Montréal, May 2nd-8th 2016
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Workshop organizer

- [3] Cartography in R workshop (2018) Québec Océans's 2018 student retreat. Île d'Orléans, Québec, Canada, April 13-15th. Instructors: Dreujou E, Beauchesne D, Brice M-H, Casajus N, Cazelles K, Vissault S
 - [2] CHONe data management workshop (2017) CHONe II 2017 annual meeting, Gatineau, Québec, Canada, May 1-2nd. Instructors : Beauchesne D, Daigle R, Grant A.
 - [1] Activité d'échange de connaissances avec des représentants locaux dans le cadre de l'étude concernant une aire marine protégée aux Îles de la Madeleine (2013). Îles de la Madeleine, QC, Canada. March 7-8 2013
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Misc

- [1] Invited panelist for closing plenary discussion of WCMB 2018

Conference organisation

- [4] 4th World Conference on Marine Biodiversity. Conference organizing committee, student committee and mentoring program organizing committee Montréal, Québec, Canada. May 13-15th, 2018
- [3] Québec-Ocean's Annual Scientific Meeting 2017, Rivière-du-Loup, Québec, Canada. November 7-9th, 2017

- [2] Québec Océans's 15th Annual General Assembly, Rimouski, Canada, November 8-9th, 2016
- [1] Québec-Océan's 14th Annual General Assembly, Québec, Québec, Canada, November 10th-11th, 2015
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Teaching

- [3] Scientific visualization - Winter 2019 (March 13th) *Université Laval*, for Sentinelle Nord - Visualising and presenting scientific data - Overview of graphical and plotting possibilities in R
- [2] Introduction to R workshops – Fall 2016. *Université Laval*, for Québec center for biodiversity science (QCBS) - Linear regressions in R - Programming in R
- [1] Teaching assistant – 2009 & 2012 *Concordia University*, Montreal, Québec - Plant ecology and landscape ecology courses - Meeting with students - Grade assignments, laboratory reports and exams - Administer final grades
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Work experiences

- [8] Freelance environmental scientist and Marxan expert - 2017 *Ministère du Développement Durable et de la Lutte contre les Changements Climatiques*

Identification of areas of interest for the conservation of the Continental area of Québec's Plan Nord using a systematic conservation planning approach. - Consultant on Marxan and systematic conservation planning - Develop R code for Marxan use - Spatial analyses using the Marxan decision support tool - Attend team meetings - Assist and guide ministry team - Assist in writing study report - Oral and written communication of final report to ministry representatives

- [7] Biologist - August 16th to September 2nd, 2016 *Department of Fisheries and Oceans Canada*

Annual plurispecific survey of the biodiversity of the Estuary and Gulf of St. Lawrence, NGCC Teleost - Benthic invertebrates and fish identification - Follow other scientific protocols

- [6] Research professional – 2012-2014 *Université du Québec à Rimouski*

Institut des sciences de la mer (ISMER) and Department of Biology, Chemistry and Geography

1. Feasibility study for a marine protected area at the Magdalen Islands, Québec, Canada
 - Assistant coordinator and research auxiliary in a multidisciplinary research group
 - Spatial analyses using the Marxan decision support tool
 - Cartography
 - Meeting organization and administrative tasks
 - Contacts and interviews with local stakeholders related to the fisheries and tourism industries
 - Organization of knowledge exchange activities with local stakeholders
 - Oral and written communication to multiple types of audiences (scientists, governmental officials and local stakeholders)
 - Write study report
2. Develop undergraduate course material on marine protected areas

- Develop course outline
 - Literature research
 - Participate to the preparation of course material
3. Literature review on predator control in the context of forest-dwelling caribou conservation in the boreal forest
- Literature research
 - Write study report
4. Analysis of the impacts of roads on the ecology of forest-dwelling caribou and gray wolf in the Charlevoix region
- Spatial and statistical analyses
 - Write study report
5. Cartography of kelp forests using acoustic methods
- Spatial interpolation of acoustic data
 - Statistical analyses
 - Write study report
- [5] Freelance spatial analyst and cartographer – 2013 *Parks Canada* - Digitization and vectorization of cartographic interviews with fishers from the Magdalen Islands
- [4] Geographic Information System room attendant – 2010-2012 *Concordia University*, Montreal, Québec
- In charge of a computer room dedicated to spatial analyses in the geography department
 - Student support and services
 - Technical support for spatial and statistical analyses
- [3] Biologist – Summer 2009 *Ministère des Ressources Naturelles et de la Faune*
- Integration of the SIFA system at MRNF Bas-Saint-Laurent
 - Historic fisheries data management and implementation to a new data management system in the office of the Ministère des Ressources Naturelles et de la Faune
 - Occasional field work in assistance to ministry technicians
- [2] Project leader – Summer 2008 *Université du Québec À Rimouski*, Rimouski, Québec
- Identification of fossil diversity in a Devonian archeological site in the Chic-Chocs in Gaspésie, Québec, Canada.
- Contact international researcher
 - Internship in Oregon
 - Literature research
 - Laboratory work
- [1] Research assistant – Summer 2007 *Acadia University*, Wolfville, Nova-Scotia *Kejimikujik National Park and National Historic Site of Canada Mersey Tobeatic Research Institute*
- Studying sub-populations of blanding's turtle (*Emydoidea blandingii*) and ribbonsnakes (*Thamnophis sauritus septentrionalis*) in South-Western Nova-Scotia.
- Trapping
 - Telemetry
 - Nest survey

- Manipulation of species at risk
 - Plant identification
 - Data entry
 - Work with local communities
 - Work in remote locations
 - Literature research
 - Work within a species recovery team
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