

Anais Remili

(she/her)

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Education

- 2019 – 2023 (expected) PhD in Renewable Resources, Department of Natural Resource Sciences
Faculty of Agriculture and Environmental Sciences, McGill University (Canada)
- 2016 - 2018 MSc in Marine Environment and Resources (MER) Erasmus Mundus Joint Program
University of Bordeaux (France), University of the Basque Country (Spain), University of Liege (Belgium), University of Southampton (UK)
Suma cum Laude, class valedictorian
- 2012 - 2016 BSc in Biology of the Organisms & Populations
University Claude Bernard, Lyon I (France)

Research experience & training

- January 2019-September 2023 (expected) **PhD candidate** at McGill University (Canada) under the supervision of Dr. Melissa McKinney and co-supervision of Dr. Robert J. Letcher. (Comprehensive exam passed on September 16th, 2020)
- My research aims to determine how the dietary preferences of North Atlantic orcas influence their contaminant concentration and the potential associated health effects.
Skills include review of scientific literature, research design, coordination with many international colleagues for CITES permits and sample shipping, contaminant and fatty acid extraction and quantification, gas chromatography (GC/MS & GC/FID), compound specific stable isotope analyses (and IRMS training), data analysis including quantitative fatty acid models, generalized linear mixed models, PCAs, cluster analyses, etc.
- July 2022 and August 2023 **Field assistant** with the Icelandic Orca Project (Vestmannaeyjar, Iceland), under the supervision of Dr. Filipa I.P. Samarra
- I participated in killer whale biopsy collection using Aerial Rocket Tag System pneumatic darting system. I also delivered an invited lecture to the IOP staff and IOP Earth Watch volunteers about my research on North Atlantic killer whales.
- May-July 2019 **Research internship** at Environment and Climate Change Canada at the Natural Wildlife Research Center, at Carleton University in Ottawa (Canada), under the supervision of Dr. Robert J. Letcher.

I performed an extraction and analysis of persistent organic pollutants, including emerging flame retardants in 64 biopsy samples of killer whales (*Orcinus orca*) sampled in Iceland. Skills include review of scientific literature, research design, data analysis on R (PCA, generalized linear models, cluster analyses), laboratory skills: Gas chromatography with mass spectrometry, contaminant extraction and purification, biohazard certification, hazardous waste certification, Workplace Hazardous Materials Information System (WHMIS) certification

March 2018 **Research internship** at the Toxicology Center of the University of Antwerp (Belgium) under the supervision of Dr. Adrian Covaci.

I conducted the analysis of persistent organic pollutants on 150 biopsy samples of humpback whales, seals and killer whales. Skills include Contaminant extractions and quantification on GC/MS, data analysis on R (PCA, generalized linear models, cluster analyses), biohazard training

February – September 2018 **Master thesis** at the University of Liège, Belgium under the supervision of Dr. Krishna Das

I conducted the analysis of stable isotopes in biopsies from two populations of whales from the southern hemisphere. Skills include review of scientific literature, research design, data analysis on R (PCA, generalized linear models, cluster analyses), stable isotope extraction and EA/IRMS operation.

November – December 2017 **Necropsy training** at the University of Liège, Belgium under the supervision of Dr. Thierry Jauniaux

I got trained and assisted with four necropsies of stranded marine mammals including two porpoises, on common dolphin and a grey seal. The training allowed me to perform my own porpoise necropsy, and identify the cause of death. Skills include autopsy, marine mammal anatomy

June 2017 – August 2017 **Research assistant** at the Wise Laboratory of Environmental & Genetic Toxicology, at the University of Louisville, KY (USA) under the supervision of Dr. John P. Wise Sr.

I developed and cultivated humpback and alligator skin and lung cell lines to treat them with hexavalent chromium and assess the effects of chromium on fibroblast mitosis. The internship also included a week-long field campaign in the Gulf of Maine to sample humpback whale biopsies. Skills include: work in a sterile environment, harmful chemical manipulation, biopsy collection with a crossbow, photo-ID, cell lines maintenance, etc.

Published peer-reviewed scientific publications

- Remili, A., Dietz, R., Sonne, C., Samarra, F. I.P., Rikardsen, A. H., Kettner, L. E., ... & McKinney, M. A.. (2023). Quantitative fatty acid signature analysis reveals a high level of dietary specialization in killer whales across the North Atlantic. *Journal of Animal Ecology*, 1365-2656.13920

- Remili, A., Dietz, R., Sonne, C., Iverson, S. J., Roy, D., Rosing-Asvid, A., ... & McKinney, M. A. (2022). Validation of quantitative fatty acid signature analysis for estimating the diet composition of free-ranging killer whales. *Scientific reports*, 12(1), 1-12.
- Remili, A., Letcher, R. J., Samarra, F. I.P., Dietz, R., Sonne, C., Desforges, J. P., ... & McKinney, M. A. (2021). Individual Prey Specialization Drives PCBs in Icelandic Killer Whales. *Environmental Science & Technology*, 55(8), 4923-4931.
- Remili, A., Gallego, P., Pinzone, M., Castro, C., Jauniaux, T., Garigliany, M.M., Malarvannan, G., Covaci, A. and Das, K., 2020. Humpback whales (*Megaptera novaeangliae*) breeding off Mozambique and Ecuador show geographic variation of persistent organic pollutants and isotopic niches. *Environmental Pollution*, 267, p.115575.

Presentations in conferences (* presenter)

- May 2023 **SETAC Europe 2023**, Dublin, Ireland
 First detailed assessment of organic contaminants in killer whales across the North Atlantic Ocean and the influence of diet composition. **A. Remili***, R. Dietz, C. Sonne , F. I.P. Samarra, R. J. Letcher , A. H. Rikardsen , L. E. Kettmer, S. H. Ferguson, C. A. Watt, C. J.D. Matthews, J. J. Kiszka, A. Rosing-Asvid, M. A. McKinney
- December 2022 **NOAA Northwest Fisheries Science Center Weekly Seminar Series**, Online (*Invited speaker*) Newly validated quantitative fatty acid signature analysis reveals killer whale diet compositions across the North Atlantic. **A. Remili***
- November 2022 **The Wildlife Society's Annual Conference 2022**, Spokane (WA), USA. (*Invited speaker*) Let's talk about fat: using fatty acid signatures to assess diet composition and application to marine mammal research. **A. Remili***, M.A. McKinney
- August 2022 **Society for Marine Mammalogy 2022**, West Palm Beach, FL, USA
 Quantitative fatty acid signature analysis (QFASA) validated for killer whales and applied to estimate the diets of free-ranging killer whales across the North Atlantic. **A. Remili***, R. Dietz, C. Sonne, F.I.P. Samarra, A.H. Rikardsen, L.E. Kettmer, S.H. Ferguson, C.A. Watt, C.J.D. Matthews, J.J. Kiszka, E. Jourdain, K. Borgå, H. Land-Miller, A. F. Pedersen, M.A. McKinney
- April 2022 **European Cetacean Society Conference 2022**, Online
 Validation of quantitative fatty acid signature analysis for estimating the diet composition of free-ranging killer whales. **A. Remili***, R. Dietz, C. Sonne, S.J. Iverson, D. Roy, A. Rosing-Asvid, H. Land-Miller, A.F. Pedersen and M.A. McKinney
- November 2021 **NRS graduate seminars**, McGill University, Montréal, Canada
 Using dietary tracers to understand the feeding ecology and contaminant exposures of North Atlantic killer whales, **A. Remili***
- June 2021 **Cetacean Sessions** by Bay Cetology, Online. (*Invited speaker*)
 You are what you eat, PCBs in North Atlantic killer whales, **A. Remili*** and C. Andvik
- May 2021 **24 Heures de Sciences**, Online, Quebec
 Voyage avec les baleines, A. Remili and M. Bourque
- May 2021 **SETAC Europe 2021**, Online

- Individual Prey Specialization Drives PCBs in Icelandic Killer Whales, **A. Remili***, R. J. Letcher, F.I.P. Samarra, R. Dietz, C. Sonne, J.P. Desforges, G. Vikingsson, D. Blair, M.A. McKinney
- April 2021 **NAMMCO Student Symposium 2021**, Tromsø (Online), Norway
Individual Prey Specialization Drives PCBs in Icelandic Killer Whales, **A. Remili***, R. J. Letcher, F.I.P. Samarra, R. Dietz, C. Sonne, J.P. Desforges, G. Vikingsson, D. Blair, M.A. McKinney
- January 2020 **McGill North Day 2020**, Montréal, Canada
Variation in blubber concentrations of persistent organic pollutants in Icelandic killer whales, 2014-2016, **A. Remili***, R. J. Letcher, F.I.P. Samarra, R. Dietz, C. Sonne, J.P. Desforges, G. Vikingsson, D. Blair, M.A. McKinney
- December 2019 **World Marine Mammal Conference**, Barcelona, Spain
A review of the current evidence on the classification of North Atlantic killer whale (*Orcinus orca*) as distinct ecotypes, **A. Remili***, R. Dietz, C. Sonne, R. J. Letcher, S. H. Ferguson, I. Eulaers, M.A. McKinney (Poster presentation)
- November 2019 **SETAC North America 2019**, Toronto, Canada
Blubber persistent organic pollutants levels in Icelandic killer whales (*Orcinus orca*), 2014-2016, **A. Remili***, R. J. Letcher, F.I.P. Samarra, R. Dietz, C. Sonne, J.P. Desforges, G. Vikingsson, D. Blair, M.A. McKinney
- October 2019 **Arctic Circle Assembly**, Reykjavik, Iceland
Dual Approach to Understanding Killer Whale Feeding Ecology in the North Atlantic Ocean
A. Remili* *Won first prize of the international "My Nordic Project" competition*
- August 2019 **Dioxin 2019 & Dioxin Student Session 2019**, Kyoto, Japan
Persistent organic pollutants in humpback whales from the Southern Hemisphere: influence of gender stock and trophic ecology, **A. Remili***, P. Gallego, T. Jauniaux, G. Malarvannan, A. Covaci., K. Das
- May 2019 **Mon Projet Nordique 2019**, Québec, Canada
Dual Approach to Understanding Killer Whale Feeding Ecology in the North Atlantic Ocean
A. Remili* *Won first prize*
- February 2019 **SETAC YES 2019**, Ghent, Belgium
Persistent organic pollutants in humpback whales from the Southern Hemisphere: influence of stock and trophic ecology, **A. Remili***, G. Malarvannan, A. Covaci., K. Das (Poster presentation)
- September 2018 **VIVAs MER program 2018**, Plentzia Marine Station, Spain
Persistent organic pollutants in humpback whales from the Southern Hemisphere: influence of stock and trophic ecology, **A. Remili***, G. Malarvannan, A. Covaci., K. Das *Won first prize: Prof. MB Colins Best Master Thesis Presentation*

Scholarships and grants

SeaDoc Society grant for Diet composition of Southern Resident Killer Whales revealed by newly validated quantitative fatty acid signature analysis approach 2023-2024. PI: M.A. McKinney, Co-PIs: [A. Remili](#), D. Noren, I. Schultz, P. Chittaro, B. Hanson (50 000 USD)

Carbon isotope analysis. Contract to M.A. McKinney and [A. Remili](#) from Fisheries and Oceans Canada (C. Matthews), 9 000 CAD

Contaminant analysis of St Pierre and Miquelon cetaceans. Contract to M.A. McKinney and [A. Remili](#) from Fisheries and Oceans Canada (S. Ferguson), 9 100 CAD

FRQNT doctoral scholarship, Québec 2022-2023 (35 000 CAD)

Bourse DIALOGUE, FRQNT, Québec 2021 (5 000 CAD)

ECOTOQ excellence award (stipend top-up) for 2019-2020 (2000 CAD)

CREATE Environmental Innovation graduate program 2019-2020 (19 250CAD)

MER consortium excellence grant 2016-2018 (2 600 EUR)

Academic awards and prizes

- EcotoQ award to present my research in Dublin, Ireland (1500 CAD)
- QCBS excellence award to travel to Spokane, WA, in November 2022 (1379 CAD)
- Graduate Research Enhancement and Travel Awards for SMM 2022 in Florida (400 CAD)
- QCBS excellence award for Icelandic field work in August 2022 (1440 CAD)
- First prize for the “présente ta recherche en écotox” competition by ECOTOQ, June 2022 (400 CAD)
- ECOTOQ travel grant to attend SETAC Europe 2021 (364 CAD)
- Travel award to attend the World Marine Mammal Conference in Barcelona, Spain, December 2019 (250 USD)
- Graduate Research Enhancement and Travel Awards for SETAC 2019 in Toronto (200 CAD)
- First prize for the International “My Nordic Project” competition in Reykjavik, Iceland, October 2019
- First prize for the “My Nordic Project” competition in Quebec City, May 2019 (Institut Nordique du Québec)
- QCBS Excellence Award to attend the DIOXIN conference in Kyoto, Japan 2019-2002 (1 213 CAD)
- SETAC Student Training Exchange Opportunity Award, May 2019 (1 000 USD)
- SETAC YES travel grant to attend the SETAC YES meeting in Belgium, February 2019 (400 USD)
- Graduate Excellence Award by the Natural Resources Department of McGill University 2019-2022 (15 750 CAD)
- Prof. MB Collins Best Presentation Award for Master Thesis Defense, September 2018
- Bourse à la mobilité du Ministère (France) 2016-2018 (5 000 EUR)

Scientific outreach activities

- May 2020-
Now Founder, main author (50+ pieces to date), infographic designer, and editor-in-chief of whalescientists.com; an online magazine by early-career researchers for the public. We explain and debunk marine mammal science and help aspiring whale scientists find opportunities in their early career. We also feature the career paths of various early-career marine mammal scientists to inspire future scientists and encourage the celebration of early-career researchers. Whale Scientists has 20+ writers and 15-30K monthly visitors. <https://whalescientists.com/author/anaisremili/>
- May 2023 Organized and delivered a workshop about science communication for early-career researchers for the [Beluga Symposium](#) organized by the University of Quebec in Montreal (bilingual workshop)
- April – June
2023 Organized and hosted the third season of Bay Cetology’s [Cetacean Sessions](#), a free biweekly seminar series about cetacean research aimed to the public. The season I organized only focused on new research outputs from early-career researchers.
- August 2022 Invited expert at the Science communication & Media panel at the Society of Marine Mammalogy 24th Biennial conference in Palm Beach, Florida
- April 2022 Workshop: Communicate your findings to the public for early-career scientists
I created, developed, and delivered this workshop to ~25 early-career researchers at the European Cetacean Society conference (online)
- December
2021 Interview by “Let’s talk science” to create the whale researcher career profile (Bilingual article), <https://letstalkscience.ca/careers/anais-remili>
- May 2021 Invited expert for « 24 Heures de Science du Québec » (government-sponsored science outreach event) with Sciences à la Carte on Twitch
- April 2020 Zoom seminars with young aspiring scientists through Ocean Research & Conservation Ireland (O.R.C.Ireland)
Interacted with Irish students about marine biology and whale research
- April 2020 Zoom seminar with French middle school class
Taught a class about Marine Mammal Biology

Science communication publications

- Remili A. Analyzing the fat of killer whales reveals what they eat. The Conversation. April 2023 (Bilingual article)
- Remili A. Why are baby belugas born brownish-grey before changing color? Baleines en Direct. June 2022, available online via: <https://baleinesendirect.org/en/pourquoi-les-bebes-belugas-naissent-ils-cafe-au-lait-avant-de-changer-de-couleur/> (Bilingual article)
- Remili A. Qu’est-ce que ça mange, les épaulards?. Baleines en Direct. May 2022, available online via: <https://baleinesendirect.org/quest-ce-que-ca-mange-les-epaulards/> (Bilingual article)

- Remili A. La vie après la mort des baleines. Quebec Science. June 2020, available online via: <https://www.quebecscience.qc.ca/sciences/vie-apres-mort-baleines/> (in French)

Curated from Whale Scientists (out of 50+ publications):

- Remili A. You can stop calling North Atlantic killer whales type 1 and type 2. Whale Scientists. August 2022, available online via: <https://whalescientists.com/north-atlantic-killer-whales/>
- Remili A. Why Should Early-career Scientists Engage in Science Communication?. Whale Scientists. May 2022, available online via: <https://whalescientists.com/science-communication/>
- Remili A. Preying on marine mammals might be threatening the survival of Icelandic orcas. Whale Scientists. March 2021, available online via: <https://whalescientists.com/icelandic-orcas/>
- Remili A. Russian ship played classical music to rescue entrapped belugas. Whale Scientists. October 2020, available online via: <https://whalescientists.com/russian-ship-entrapped-belugas/>

In the media

April 2023	Various media appearances to promote our research on North Atlantic killer whales' diets.
June 2022	Podcast Interview by Breaching Extinction on Orca Diet Estimates and Scientific Accessibility https://anchor.fm/breachingextinction/episodes/103--Orca-Diet-Estimates-and-Scientific-Accessibility-e1kd4si
May 2022	Remili recognized as Pricipal's Prize runner-up, McGill University News and Events, https://www.mcgill.ca/animal/channels/news/remili-recognized-pricipals-prize-runner-339537
May 2022	Press release by McGill University: Unlocking the secrets of killer whale diets and their role in climate change, https://phys.org/news/2022-05-secrets-killer-whale-diets-role.html (Bilingual article)
May 2022	Radio interview with Radio Canada about the decline of whale populations around Canada (in French) https://ici.radio-canada.ca/ohdio/premiere/emissions/bonjour-la-cote/segments/entrevue/401775/baleines-declin-pays-anais-remili-universite-mcgill
August 2021	A whale of a website: Grad student examines effects of pollutants on marine mammals, shares insights with public, on the McGill frontpage, https://www.mcgill.ca/channels/article/whale-website (Bilingual article)
May 2021	Press release by McGill University: PCB contamination in Icelandic orcas: a matter of diet, https://www.mcgill.ca/newsroom/channels/news/pcb-contamination-icelandic-orcas-matter-diet-330886 (Bilingual article)
March 2021	Podcast Interview by Super Spécialiste in Quebec for the killer whale episode (in French) https://podcasts.apple.com/ca/podcast/les-orques-%C3%A9paulards-avec-ana%C3%AFs-remili/id1548552261?i=1000514969194
March 2020	Video Interview for Cabine de Recherche – Savoir Média (in French), https://savoir.media/cabine-de-recherche/clip/anais-remili

Committees and associations

- October 2020 – October 2021 Communications chair for ComSciCon QC, a scientific communication organisation and workshop initiated by Harvard to help early-career researchers engage in science communication.
- October 2014 – October 2015 Secretary of the French National Council of Scientific Students (FNEB)
Communication with fellow scientists; Leadership, management. Representation of students in politics.
- October 2013 – October 2014 President of the Biology students Organization in UCBL
Leadership, management. Event planning, advertising. Representation of students in university politics.

Memberships

- 2022 – present The Wildlife Society (TWS)
2019 – present Society for Marine Mammalogy (SMM)
2018 – present Society of Environmental Toxicology and Chemistry (SETAC)
2017 – present European Cetacean Society (ECS)

Teaching

- January 2020 – April 2023 Teaching assistant for the winter ENV-301 Environmental Research Design in Quantitative Research at McGill University for Professor Jeffrey Cardille and Mr. Geoffrey Garver: *I was in charge of designing and delivering the quantitative analyses part of the curriculum.*
- September 2020 – December 2023 Teaching assistant for the fall ENV-301 Environmental Research Design in Quantitative Research at McGill University for Professor Raja Sengupta and Professor Christopher Barrington-Leigh. *I was in charge of designing and delivering the quantitative analyses part of the curriculum. I also gave an invited lecture on my own research.*
- April 2020 Zoom seminar with French middle school class. Taught a class about Marine Mammal Ecotoxicology
- February 2020 Teaching seminar, NRS Department, McGill University. Taught a class about Marine Mammal Ecotoxicology
- September 2012 – July 2015 English Tutor employed by University Claude Bernard, Lyon I. Taught conversational English to French and International students. (*100+ hours*)

Academic mentoring

- May 2022 – September 2023 Ambar Maldonado Rodriguez, BSc
I am Ambar's co-supervisor for her honours project on the ecology of cetaceans off Eastern Canada inferred from Fatty Acid signatures.
- September 2020 – April 2021 Rose Lacombe, BSc
I was Rose's co-supervisor on her project involving fatty acids to age captive and wild killer whales.

Journal Reviews

I reviewed over ten publications for various journals: Polar Biology, Environmental Science & Technology, Scientific Reports, Science of the Total Environment, Environmental Toxicology and Chemistry, Frontiers in Marine Science, Chemosphere, etc.