July 29, 2020

Hello and welcome to my promotion and tenure dossier!

I hope this document is useful to whatever processes you're going through for promotion, tenure, application, or advancement. I wanted to outline a few unique contexts that shaped this document:

1. Faculty have a strong union at Memorial University, so the structure of the document and constant quoting of the collective agreement are both based on that. The most important advice I got was to follow the collective agreement to the letter, because that is how a case is made or broken, especially if something goes sideways in the process.
2. I have a bizarre career trajectory. I changed disciplines multiple times; I changed departments while at the university; and I went up for promotion and tenure while I was a full-time administrator. There is a lot of work narrating that into something legible as success and innovation.
3. Our union has ensured that we do not need to include student evaluation forms in our teaching dossier. Mine had their fair share of sexism and racism, so I opted not to use them. I had to talk to the union about the rules for that to make sure I was protected in that choice. You can see what I used instead.

I've taken out the appendices to the document, which made it very long. I think it the future I would include more excerpts instead of full documents—the committee is obliged to read the whole thing and for some sections they could have just read a snippet of a longer document.

I also didn't include my list of external references for privacy reasons. But I spoke to all of them before hand to see if they would be willing to be a reference. I did most of this at a conference when I would see them face to face. They included editors of major journals I published in, one of the reviewers of my book, people who had excellent reputations in the field for giving good and thoughtful reviews, and people who I knew used my work in their courses or research.

Just as I finished, I found an ideal tool for finding new impact indicators! A tad late for me, but not for you: https://metrics-toolkit.org

The coolest thing about writing this document was that I learned a lot about my own work—the graphs and trends in particular have been useful for me in terms of understanding how I work and how I might shift my work in the future.

Good luck and best wishes!

Max Liboiron
Associate Professor ;)

Dr. Max Liboiron

Assistant Professor
Department of Geography

Tenure and Promotion file
September 2019

I respectfully acknowledge the territory in which we work as the ancestral homelands of the Beothuk, and the island of Newfoundland as the ancestral homelands of the Mi'kmaq and Beothuk. We would also like to recognize the Inuit of Nunatsiavut and NunatuKavut and the Innu of Nitassinan, and their ancestors, as the original people of Labrador. We strive for respectful relationships with all the peoples of this province as we search for collective healing and true reconciliation and honour this beautiful land together.

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Department of
Geography

Promotion & Tenure Committee
Department of Geography
Memorial University
St. John's, NL, Canada A1C 5S7

September 16, 2019

To the Committee:

I am pleased to submit my assessment file to the Department of Geography promotion & tenure committee at the start of my sixth year of service, having completed five years of service at the rank of Assistant Professor (Collective Agreement 12.16a). While I was seconded to my current position of Associate Vice-President (Indigenous) Research in September 2018, I did not stop the tenure clock. This submission represents the first time someone in an executive administrative position has applied for tenure and promotion as an Assistant professor to the knowledge of those I have consulted, an exciting precedent to be part of to say the least. This file contains documentation of research, teaching and service relevant to the evaluation process for promotion and tenure as per the collective agreement (9.01), starting from my initial appointment on July 1, 2014 and for the tenure-track period as a whole (11.29).

I am cross-appointed to the departments of Sociology in the Faculty of Humanities and Social Sciences and to the Fisheries School at the Marine Institute. These relationships to the promotion and tenure process are covered in the collective agreement clause 24.10 ii: "the procedures and criteria to be used in assessing the ASM for renewal of tenure-track appointment, tenure and promotion shall be those of the unit of primary responsibility as specified in Clause 24.11" and "In the case of a cross appointment, the Administrative Head and the appropriate Faculty Members of the other unit[s] shall be consulted. The consultation shall not involve examination of the assessment file but shall be limited to written comments concerning the contribution the individual has made to the cross appointed unit." The letter of appointment for my cross appointment to Sociology is in the appendix just before my CV.

**Situating work:** When I first arrived at Memorial in 2014, I studied the social and cultural aspects of marine plastic pollution science. I came ready to critique scientific practices. But after fifteen years away from Canada I returned to a country that had lost many of its environmental programs and where science was, in the popular phrase of the time, "under attack." Realizing that critiquing science was a luxury that assumed there was science to critique in the first place, I used my background in natural science to begin conducting my own investigations of local plastic pollution at the same time I co-organized a national campaign to make science an election issue. I worked with Dr. Natasha Myers at York University to create the Write2Know Campaign, an inquiry-based protest of the muzzling of Canadian federal science and scientists where citizens, students, and researchers wrote questions to federal scientists and ministers about environment issues impacting their communities. We achieved nearly 5,000 letters and received responses from six members of parliament.

Simultaneously, I began plastic pollution research that would come to characterize my research program. Without a lab or equipment, I created BabyLegs, a do-it-yourself surface trawl made of soda pop bottles and baby tights to find microplastics in sewage outfalls. BabyLegs has since been used by citizen scientists in the arctic, Antarctica, Mexico, France, the United States, and across Canada. The instrument has been the subject of an academic paper on feminist material agency and IP (Liboiron 2017), covered in *The Economist* (2017) and *CBC News* (2016, 2018), used as a model in my Feminist GeoTechnologices undergraduate course (GEOG/SOCI 4107) for creating feminist technologies, was the topic of a keynote for the Global Open Science Hardware movement (GOSH) in Argentina, is

included in New York City's Cooper Hewitt Design Triennial as an example cutting-edge international design, and is the source of a recent successful MEOPAR Fathom Fund crowdfunding campaign where community members and donors "decide which projects get off the ground" (MEOPAR 2019). Not bad for a pair of baby tights!

I tell these two stories from my earliest days at Memorial to highlight the place-based, community-oriented, responsive nature of my research, teaching, and service as well as to situate the needed role of "diverse forms of communicating knowledge" (11.29) that such work entails. Moreover, while the majority of this file is segregated into research, teaching, and service as three separate endeavors, the collective agreement recognizes "that these criteria are interrelated" (11.29) and I hope the committee reads this file understanding how the three are coordinated towards the shared goal of doing work that is responsive and accountable to diverse communities and enacting good relations.

**Career trajectory**: Working in a way that is place-based, community-oriented, and responsive has resulted in an unusual career trajectory since my arrival at Memorial University in 2014, which I narrate here in accordance with the collective agreement's call to "acknowledge diverse career paths" (11.29). Hired into the Sociology department for a social science position, I began to require material resources for scientific research such as lab space and dedicated technicians, as well the ability to teach and mentor science students with an interdisciplinary orientation. Moving my core affiliation and P&T home to Geography in 2016 two years after I was hired while maintaining a teaching load and ability to mentor students in Sociology was way to nurture this shift in research and mentorship focus. This was further strengthened through affiliation with the Environmental Sciences graduate program and the Fisheries science program at the Marine Institute, allowing me to mentor diverse students and create a truly interdisciplinary lab learning space. The shift between departments also enabled two new cross-listed courses in the societal aspects of science and technology (SOCI/GEOG 3051: Society, Science, and Technology and SOCI/GEOG 4017: Feminist GeoTechnologies), resulting in a full suite of undergraduate science and technology studies (STS) courses (including the already established SOCI 2120: Technology and Society). The departmental shift coincided with being granted laboratory space for CLEAR in the science building to expand my research program (which addresses point 11.29 in the collective agreement on access to research facilities). Prior to this, I had been using space generously loaned to me by Dr. Yolanda Wiersma in Biology, which I had quickly outgrown. You can see from my CV that while I had been mentoring science students and publishing scientific work prior to September 2016, this work began to accelerate and deepen alongside my social scientific endeavors after taking possession of the lab and receiving technical and mentorship supports in Geography. I am grateful to the ways my colleagues supported this transition to allow my interdisciplinary career to progress and flourish along its unique path.

A second career transition occurred in September 2018 exactly two years later. The Vice President (Research), Dr. Neil Bose, identified the need for a full-time executive administrative position focusing on university-Indigenous research relationships. After consulting with numerous university and community representatives, he offered me the position of Associate Vice President (Indigenous) Research (AVPIR) *pro tempore* in August 2018. After consulting with my department head, dean, colleagues, and Elders, I accepted on the basis that I one day a week was dedicated entirely to research and mentorship to maintain my research obligations to students and communities. As a full-time executive administrator, I have been able to be more responsive to community needs both within and outside of the university, and my efforts to foster good relations through research that characterize my research program and mentorship have been able to scale up beyond the lab and classroom to the university, the province, and even to Canada through federal programs I am involved in such as the Tri-Agency's Dimensions Program. Originally a one-year term, the AVPIR position has been extended to

August 2020 with support of Memorial's President and the Vice President Council based on successes achieved so far, including ongoing work to establish one of Canada's most robust ethics requirements on Indigenous consent in research involving Indigenous peoples, cultures, and Lands. My efforts as AVPIR are detailed more in the section on service.

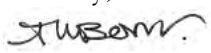
Both my disciplinary transition and the move to executive administration have significantly enhanced my ability to conduct impactful research, teaching, and service. My research program has flourished, producing 18 peer reviewed publications and over a million dollars in grant monies held as a PI. CLEAR has hosted and trained 54 members from 17 disciplines since its creation. Moreover, I believe my file shows not only "demonstrate[d] professional growth since the date of appointment" (11.29), but also "promise of future development" (11.29) as the work I have accomplished and relationships I have built provide a strong foundation for future endeavors, including new book contracts with both MIT Press and Duke University Press, plans to begin a mentorship program in anticolonial science for Indigenous researchers, and an invitation to spend my proposed sabbatical as a Distinguished Visiting Indigenous Faculty Fellow at Jackman Humanities Institute, University of Toronto.

**Community support**: Before turning to the sections on research, teaching, and service in this file, I would like to highlight the crucial role of colleagues in my successes at Memorial. I simply could not excel without their support. Dr. Yolanda Wiersma enabled me to conduct laboratory science without a lab of my own; both of my department heads, Dr. Norm Catto and Dr. Alisa Craig, have been both instrumental and invaluable in helping me navigate and succeed in my unique career path, Dr. Joel Finnis has taken time and effort to introduce me to statistical software to strengthen my research and teaching (GEOG 3222) and also took over my service position as chair Geography's curriculum and planning committee with grace and skill; Liz Pijogge and others in the Nunatsiavut Government have been strong partners and teachers as we build community-based monitoring programs; Dr. Nicole Power and Dr. Charles Mather are long-time and much-valued members of CLEAR, enriching the lab with their ideas, collegiality, and mentoring support; Pam Murphy, Ruby Bishop, Valarie James, and Dominique Lavers are instrumental to the health and well-being of CLEAR and my students past and present; colleagues in Geography and the office of the Vice President (Research) welcomed me into their spaces; and France Liboiron (no relation), Natasha Healey, and Kaitlin Hawkins, all of whom where undergraduates when they took on the role of CLEAR lab manager, have been central to CLEAR's academic and social successes. This is a sorely incomplete list of the many colleagues who have made the work you are about to read about, possible.

Please find enclosed my complete CV and research, teaching, and service dossiers, which I believe demonstrate not only my successes but also my commitments over the past five years at Memorial University, as well as a list of five potential external references as per 11.09 of the Collective Agreement. As the collective agreement states that "the areas of assessment for tenure shall [place] the greatest weight placed on "documented effectiveness and scholarly competence as a teacher" and "a demonstrated record, since the date of appointment, of research, scholarship, and critical, creative, professional or developmental work appropriate to the rank," (11.29 a & b), I have placed research and teaching dossiers first.

Thank you for your service time reviewing this file.

Sincerely,



Dr. Max Liboiron

# Research Dossier
## (11.29b & 12.13b)

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## Research Statement

My research is interdisciplinary, drawing on and contributing to both the natural and social sciences. Part of this work has included being a key figure in developing new interdisciplinary fields or subfields, such as discard studies, Indigenous Science and Technology Studies (I-STS), and Making and Doing in science and technology studies (STS), as well as working within established interdisciplinary domains of environmental science, STS, and increasingly, Indigenous studies.

There are two veins to my research. The first is content: I study plastic pollution, particularly marine plastics in sustenance food webs and northern environments. Here, I have established the first baseline measures in the province for plastic pollution in cod (1.68%) as well as the first baseline studies ever recorded for capelin (0%), silver hake (0%), and salmon (0%). Though this work, I discovered that 43% of global fish species do not ingest marine plastics, which resulted in news coverage as well as invitations to work on expert groups related to marine plastic pollution (see service section for those details). I also build on existing work for eider ducks, northern fulmar, Canadian and snow geese, and dovekies and are working on baselines for seal and arctic char as well as

surface waters around the province and benthic environments in urban St. John's. Much of this work is done in collaboration with fishing communities as well as Inuit governing bodies such as the Nunatsiavut Government and NunatuKavut Community Council. Last year, DFO funded me to create a state of knowledge report that synthesizes all plastic pollution research ever conducted in the province, which is being revised after review by multiple government and NGO end users. It is the first comprehensive, multimedia, provincial-scale study of all forms of marine plastic pollution ever undertaken.

The second vein of my work is methodological: My lab, Civic Laboratory for Environmental Action Research (CLEAR) is a methods incubator to develop intersectional feminist and anticolonial science methods that draw from feminist science and technology studies (STS) and Indigenous studies for guidance. We work at the crossroads of intersectionality and interdisciplinarity as a research methods and ethics incubator. We have developed new methods such as community peer review, equity in author order for scientific papers (Liboiron et al 2017, also covered in *Science Magazine*), and respectful disposal of animal parts used in science (as seen in Hutton and Hess, 2019). With CLEAR, I've developed two open source inventions (under CERN 2.0 open hardware licenses) for surface water trawling: BabyLegs and the Low-Tech Aquatic Debris Instrument (LADI). Both are used internationally for monitoring marine plastics in surface water by citizen and accredited scientists and NGOs. To support these open tools, I have worked with Public Lab for Open Technology, supported by the MEOPAR Fathom Fund, to build up online international communities of practice so users can access me as an expert as well as collaboratively troubleshoot and interpret results together. To date, over a thousand people participate in these user communities. CLEAR's methodological innovations are the topic of the last chapter of my forthcoming book, *Pollution is Colonialism* on contract with Duke University Press, and will be the subject of a second book that I plan to work on during my proposed sabbatical beginning in September 2020. CLEAR's unique methods have earned us attention from an array of sectors, including: Couple 3 Films, which created a short documentary on CLEAR and became full lab members in the process; Science for the People, which have granted me an inaugural Circle Holder Fellowship; from *Science Magazine* and *The Economist*, among other media outlets; and we are a topic of research for new scholarship, as our most recent member, [name withheld], is completing her MA in anthropology from Heidelberg University and is using CLEAR as a field site to understand feminist knowledge production, and [name withheld], a postdoc at Perdue University, is using CLEAR to understand "feminist experimental infrastructures" which she highlighted at a presentation at the Social Studies of Science (4S) conference in 2019.

*Community oriented*

This work is simultaneously community-oriented, where communities include scientific communities of practice (the beneficiaries of CLEAR's method publications and technical inventions), Indigenous communities (such as my monitoring and research capacity-sharing work with the Nunatsiavut Government), provincial communities (particularly CLEAR's ongoing work establishing plastic pollution baselines in the province), student communities (including the development of social protocols in CLEAR and research on pedagogy), and academic communities in science and technology studies (STS) and discard studies. I will focus on these last two for a moment given the collective agreement's call to recognize a "candidate's depth and breadth of knowledge and general contributions to the research life and creative milieu of the University and to society as a whole" (11.29b).

*Feminist STS*

CLEAR's interdisciplinary methodological and value-based focus has put us in a position to host students and mentees from across the university--undergraduates, graduate students, staff, and faculty in geography, earth sciences, sociology, computer science, English, social work, and the Marine Institute programs, among others. These participants have helped me develop three strands within science and technology studies. One is feminist

STS, which seeks to include issues of power and social change in the ways we understand, use and conduct science. Our author equity protocol was published in *Catalyst: Feminism, Theory, Technoscience* in a special issue on "Science Out of Feminist Theory: Remaking Science(s)" and I was an invited speaker to the University of Colorado's symposium, "What is a Feminist Lab?." I've given one keynote and several international and local talks on how CLEAR is working to put values of equity and humility at the forefront of scientific practice (see presentation section of CV).

*Making and Doing*

A second area within STS I am part of expanding is Making and Doing, where "on-the-ground practices and innovations in scholarly knowledge work in a range of formats extending beyond academic papers or books" (4S, 2019) which dovetails well with the collective agreement's capacity to "recognize non-traditional forms of scholarship" (12.13b) in promotion and tenure. My work as a public intellectual and CLEAR's work to change how science is done in practice have been recognized as a model for Making and Doing. I was an inaugural recipient of the Society for the Social Studies of Science (4S) Making and Doing Award in 2015 and sat on the adjudication committee the following year. At the 2019 4S conference, I am one of four invited speakers for a plenary roundtable on the state of Making and Doing in STS, and an invited author in the MIT edited volume *Making and Doing* were I submitted a piece called "Doing Ethics with Cod," which should come out in late 2019 or early 2020. Grateful for the platform, I am using the attention to push for an extended concept of scholarly ethics for Making and Doing, as interventionist research has great capacity for both harm and good.

*Indigenous STS*

Finally, it is an aspiration and honour to be an ongoing key contributor to an emerging area called Indigenous STS (I-STS), which critiques many aspects of STS practice and theory from an Indigenous perspective, designed to "produce research and public intellectual outputs with the goal to inform national, global, and Indigenous thought and policymaking related to science and technology. Indigenous STS is committed to building and supporting techno-scientific projects and ways of thinking that promote Indigenous self-determination" (I-STS Network, 2019). For me, this has been the hallmark of developing anticolonial scientific methods through CLEAR, including how we work with Indigenous partners, recruit Indigenous lab members, and how we conduct our science in ways that are in good relation with Land. I am grateful for how the collective agreement recognizes "traditional ways of knowing" (11.29b), which often remain invisible in our work, but infuse the development of our methods, the research partners we work with and how we work with them, and which projects we choose to work on. I have been honoured to be a keynote at the inaugural Indigenous STS Network meeting led by Dr. Kim Tallbear in 2018, to bring together Indigenous partner organizations from Canada and US in a submitted NSERC PromoScience grant to build an Indigenous Apprentices in Anticolonial Sciences (IAAS) training program based in CLEAR methods, and to be recruited as an author by Duke University Press for my manuscript, *Pollution is Colonialism,* described more below.

*Discard Studies*

I also am a key figure in the development and maintenance of an interdisciplinary field called discard studies, the social study of waste and wasting broadly defined. While I discuss the central role of *Discard Studies*, the publication platform that I have managed and written for since 2010, I want to emphasise that the labour of ensuring this field is accessible to waste practitioners, high school students, artists, and a general interest audience as well as being nuanced and precise enough for expert academic audiences has been the focus of most of my public writing, described below in the publishing section. Every week for 9 years, I have worked on the project of making discard studies articulate, accessible, and politically accountable. Most of this work benefits to the nearly 988,000 viewers of *Discard Studies* (stabilizing at about 100k/year) but it is also being recognized as the

field begins to take up the terms and arguments articulated on *Discard Studies*, through keynote invitations, and with a book contract with MIT Press with co-author Josh Lepawsky on a book entitled *Discard Studies*.

Throughout my career, I have tended towards building up communities of practice and expertise, whether at the scale of laboratories or scholarly fields. Communities are central to this endeavour, and I hope their traces remain evident in a file designed more for individual narration.

## Markers of scholarly achievement

The Memorial University of Newfoundland Faculty Association (MUNFA) Collective Agreement outlines several criteria for promotion and tenure in clause 12.13a and categories in this summary reflect the categories and wording therein.

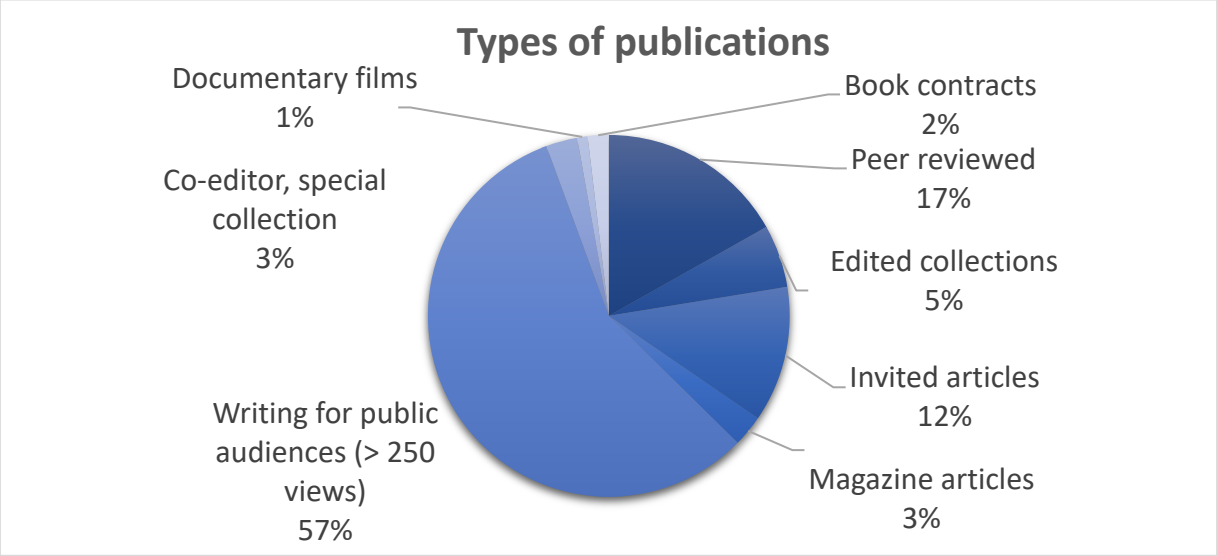
*The publication of books, monographs, and contributions to edited books; papers in both refereed and non-refereed journals (12.13b)*

Since arriving at Memorial, I have published **18 peer reviewed articles**, 10 as first or solo author. Of these, exactly **50% are in the social sciences and 50% are in the natural sciences**. Of my 73 co-authors, 59% were women, trans, non-binary and two-spirit and 49% were students (while the 51% that where not students include non-academics). Both women and student coauthors increase significantly when I or one of my students are the lead author (**67% women, trans, non-binary, and two-spirit, 69% student coauthors**), reflecting the values of CLEAR to recognize "diverse traditions and values" (11.29) of knowledge production, including by students, as well as my efforts to actively recruit members of groups that are underrepresented in science. I have **six chapters in edited volumes**, all in the social sciences, and **13 invited, editor-reviewed publications**, mainly in the social sciences and humanities. One peer reviewed publication and one invited publication are on "**the scholarship of teaching**" (11.29b), including a peer-reviewed piece in *Social Studies of Science* with an undergraduate student from rural Newfoundland as first author (Kenny et al. 2019).

Trends in publishing: The balance between my natural science and social science peer reviewed publications have begun to equalize in recent years so there is now a 50-50 split, reflecting a recent higher rate of publication of scientific findings as CLEAR has matured. I have also begun diversifying the venues for scientific results: I began exclusively with *Marine Pollution Bulletin*, where most plastic pollution research is published, but have now included *Environmental Research, Environmental Pollution,* and *Frontiers in Marine Science*. While I had begun to favour peer reviewed publications over chapters in edited volumes, I have two pieces in edited volumes that are experimental in form and content. I have begun to be more sophisticated in what type of work belongs in different publication venues. Finally, in recent years, I have fewer peer reviewed publications per year, but these publications are more complex and are highly collaborative with higher impact findings (such as the 2019 piece that sets out the baseline ingestion rates for three species of fish, the toxicological study on PCBs in plastics in fulmars, the paper under review for proposed reporting requirements for plastic research methods, and two book contracts. .

*Publishing "contributions as a public intellectual" (12.13b)*

The majority of my writing is for public audiences and does not usually appear on my CV. Since July 1, 2014, I have published **61 blog posts and magazine articles totaling over 156,240 unique views** as well as a commissioned piece for ***Teen Vogue* on plastic and colonialism** for which I do not have count data. In 2019 I also worked with two professional filmmakers from New York, Noah Hutton and Taylor Hess, to produce a **short documentary** called *Guts* on CLEAR's research ethics and methods. The film is featured in *The Atlantic* and has been **viewed over 32,600 times** as of September 1, 2019.

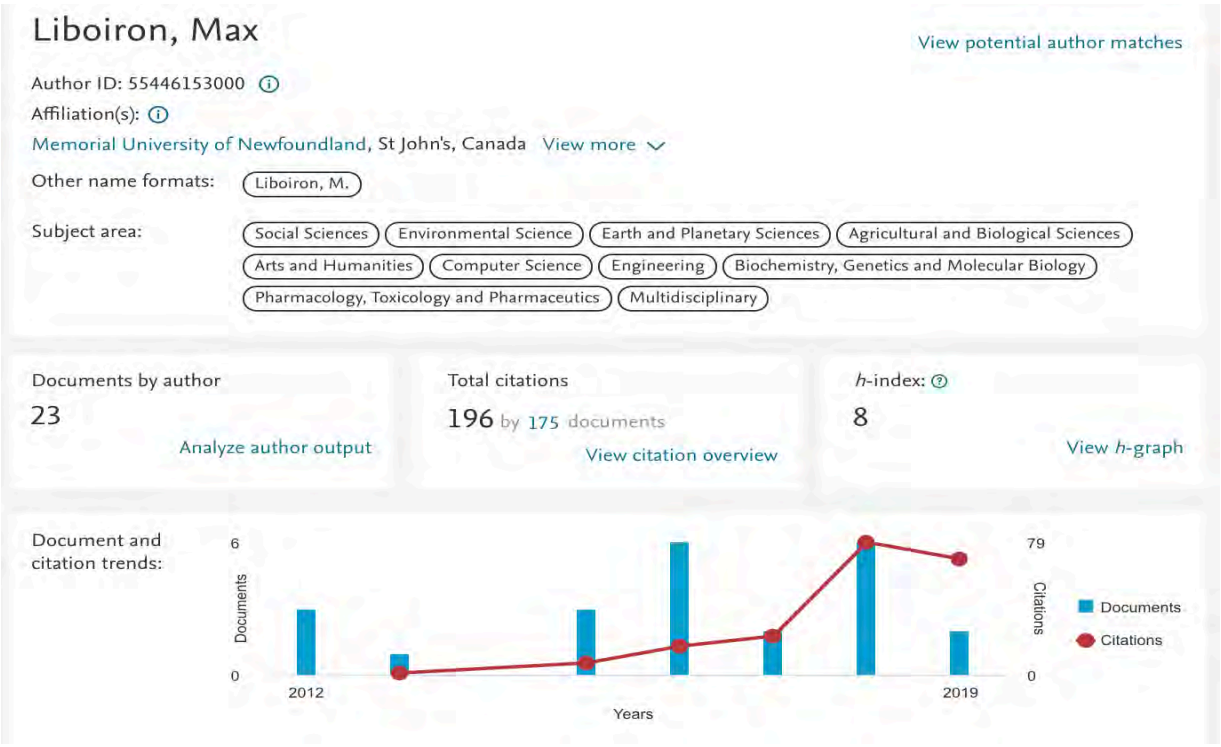



My most-viewed blog posts have been related to current events or topics of public concern. In 2015, I wrote a piece called, "LA's Shade Balls: The ecological costs of plastics in water" on *Discard Studies* in response to Los Angeles' use of black, plastic, floating balls in its reservoir to slow evaporation. I discussed the known health effects of plastics in water based on my research and the state of the field. The piece was quoted in *Treehugger, Tech Times,* and *Grist* among others, and the blog post received nearly 18,500 views since its publication. Another top-ranking public article was solicited by *The Conversation*, a news-research site that offers expert commentary on topics of public concern. When I found that 43% of fish species studied did not ingestion plastics, the initial reaction from social media included accusations that I worked for industry. In a piece entitled "Not all marine fish eat plastics," I used *The Conversation* as a platform to argue that that "Instead of focusing on harm — the effects of plastics — we can look at violence — the cause of these potential harms by polluters." This piece has had over 18,000 readers since its publication in July 2018. Finally, one of my top-ranked pieces is only a month old. After one of my Twitter essays on decolonizing syllabus went viral on August 10, 2019, I turned it into a blog post on CLEAR's website. The tweet has over 2,000 likes and 896 retweets, and the blog post has had nearly 10,000 views in less than a month. These are only a few of the 61 public-facing texts with over 250 views that I have created since arriving at Memorial. A chart of the different texts, their publication dates and venues, and the number of unique views is in the appendix.

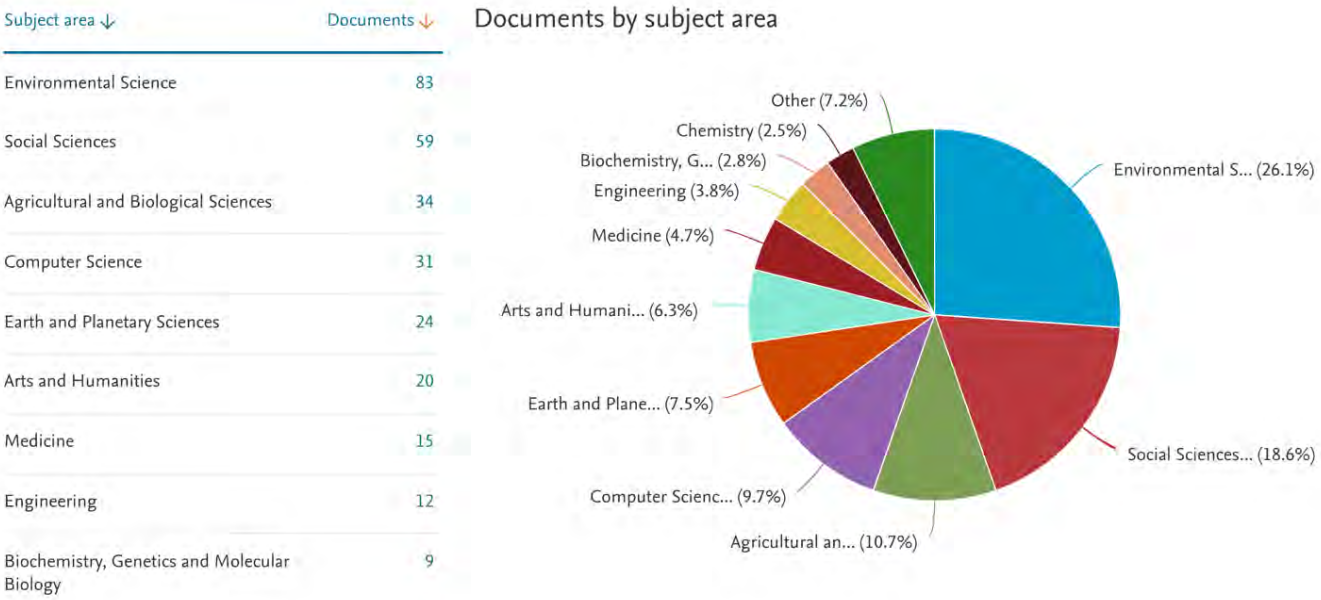
There are three ways that public writing is crucial to my research program: 1) it vastly **increases the diversity and quantity of readers** and therefore the discussions and contexts the research is part of, including debates, controversies, and the goal of making feminist and anticolonial methods normal; 2) it allows me to "think together" through discussions with diverse audiences within and outside of academia, enabling nascent ideas, concepts, and arguments to be tried out in public forums **related to communities** impacted by them, and 3) it is part of **accountability to the various communities** and conversations my work is part of and impacts.

*Circulation and Dissemination of research*

While this category is not in the collective agreement, because my work is for diverse and interdisciplinary audiences, I wish to highlight how and to what degree my work circulates. First, my citations as they are recorded by SciVal and Scopus, which include peer reviewed articles and two book chapters, show an average of 8.5 citations per article (based on SciVal) is identical to the average citation rate for all Memorial University authors (not weighted by discipline).



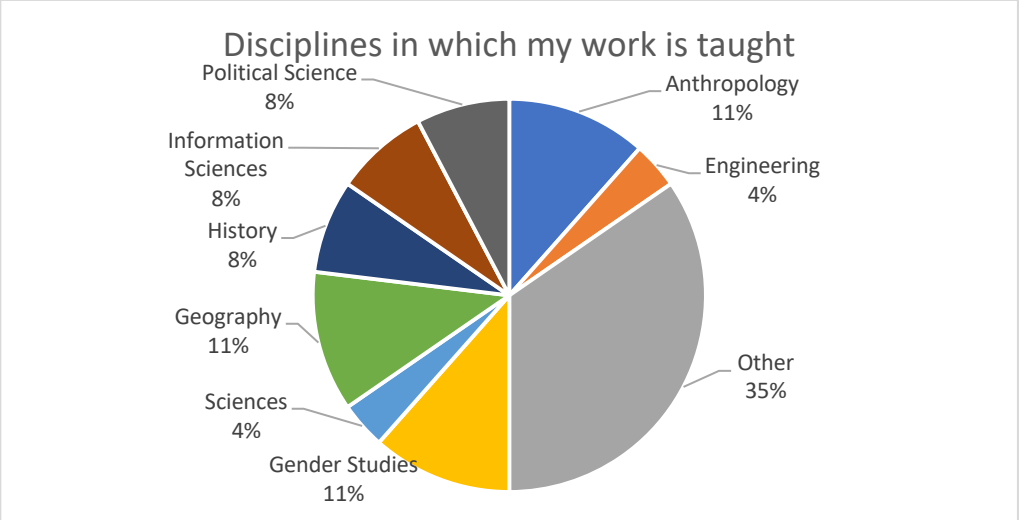

What is more interesting to me and telling of the way I work is the range of disciplines my work is categorized




in (see "subject area" in the above figure), and the disciplines that cite my work:

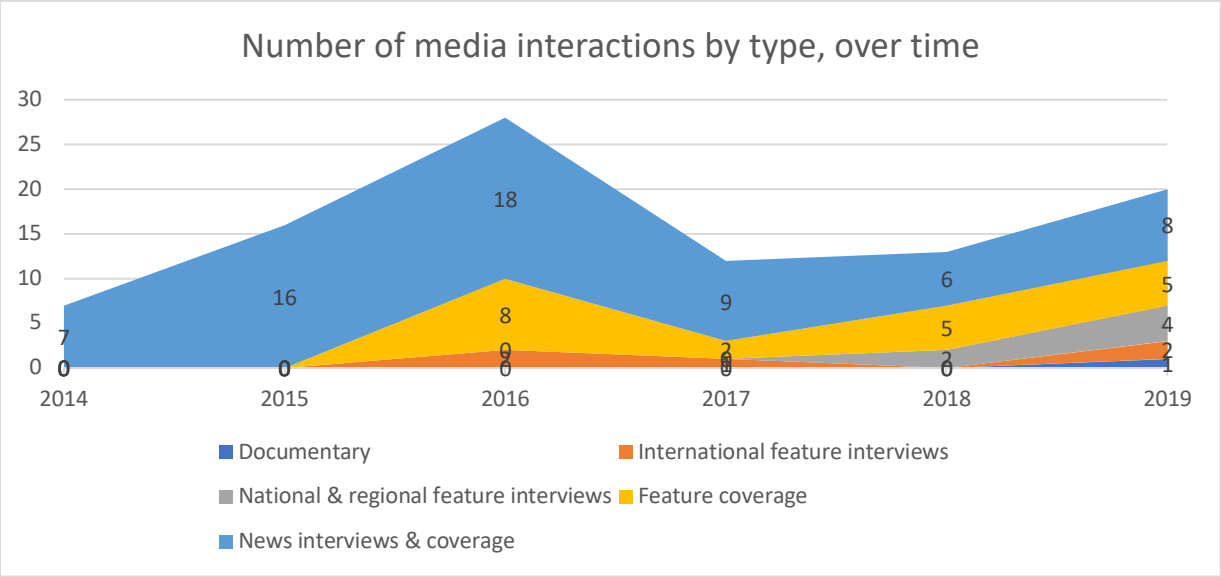
Another area of research dissemination that I think is significant in terms of impact but is not captured in indexing is where and how often my work is used in teaching. I solicited 26 syllabi that used my work via Twitter—this is meant to be illustrative rather than a complete inventory. These showed that **while my citations are**

**mainly in the sciences, my work is mainly being taught in the social sciences and humanities**. Both cases point to the interdisciplinarity of my work not just in origin, but also how it is contributing to diverse disciplines in its use. All but one course taught my work at the undergraduate level (Y1: 12%; Y2 26%; Y3 30%, Y4 15%), indicating that the work is useful for foundational concepts and is written accessibly. Indeed, I keep undergraduate audiences in mind when I write to ensure the texts are as accessible as possible. The **United States is the origin of both where most of my citations originate and where my work is taught**, with Canada in second place. The recent Environmental Data Justice syllabus (a crowdsourced syllabus designed to address current issues, following the Standing Rock Syllabus, the Decolonial Science Reading List, and the Trump Syllabus) released in early September 2019 by the activist and policy group EDGI cited several of my works, pointing to their use in activist and political arenas as well. A full chart of syllabi collected for this analysis is in the appendix.




Finally, I wish to highlight media appearances about my research. My CV outlines the **96 media appearances** I've had in detail. The largest number of these (64) are news interviews and coverage, often on Canada Broadcasting Corporation (CBC) radio and print. It also includes 20 items of feature coverage, including in *The Economist*'s piece on "Punk Science," six national and regional interviews, five international feature interviews, and one documentary. Over time and particularly in the last two years, I have opted for fewer overall interviews (though I had 20 in 2019 already, the second highest number since I arrived at Memorial) with higher impact and more in-depth conversations in more international venues. This has meant that I have begun talking about CLEAR's methodological innovations more, in addition to discussing scientific research findings and commenting on current events (such as bag bans).

| Type of media interaction | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Totals |
|---|---|---|---|---|---|---|---|
| Documentary | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| International feature interviews | 0 | 0 | 2 | 1 | 0 | 2 | 5 |
| National & regional feature interviews | 0 | 0 | 0 | 0 | 2 | 4 | 6 |
| Feature coverage | 0 | 0 | 8 | 2 | 5 | 5 | 20 |
| News interviews & coverage | 7 | 16 | 18 | 9 | 6 | 8 | 64 |
| Totals | 7 | 16 | 28 | 12 | 13 | 20 | 96 |




The most significant media interaction for my research has been the short documentary, *Guts*, directed by Noah Hutton and Taylor Hess of Couple 3 Films, based in New York City, which has been viewed over 32,600 times as of September 1. The film is hosted by *The Atlantic*, and they authored a short context for the film after interviewing the filmmakers:

> "The documentary filmmaker Noah Hutton was at a scientific symposium when he first encountered Max Liboiron. "I kept hearing some of the sharpest, smartest critiques of [scientific] status-quo assumptions I've ever heard," Hutton told me. "She engaged with other's viewpoints totally empathetically, but would then forcefully challenge their assumptions in a way that wasn't personal. It was completely intoxicating and invigorating, like a voice from the future." What was most compelling to Hutton, however, was that Liboiron wasn't just pondering changes to the scientific method on a theoretical level—she was living them."

Hutton and Hess became full lab members during their filming, and as a collective we wrote a memorandum of understanding about how work would be done in a respectful, collaborative, and equitable way, mirroring CLEAR's values in a film about CLEAR. We are very pleased with the result. I've included the 13 minute film on a flash drive with this file.

*Unpublished research including current work in progress (12.13b)*

Three pieces of what I believe will be some of my most impactful publications are in progress but have trajectories of many years. In 2016 I began **a manuscript, *Pollution is Colonialism***, which argues that environmental pollution and pollution science are based in land relations characteristics of colonialism--the assumed access to Land for settler and colonial goals. The text draws heavily from feminist STS and Indigenous studies for its arguments that link pollution science and property law, thresholds of harm with Land relations. The text uses humour, storytelling, lab protocols, and Indigenous citation styles to push the boundaries of academic writing. From the introduction:

> I make three main arguments in this book. First, pollution is not only a manifestation or side effect of colonialism but is an enactment of ongoing colonial relations to Land. These colonial relations are reproduced through environmental science and activism. Secondly, there are ways to do pollution action, particularly environmental science, through different Land relations and they're already happening

> without waiting for the decolonial horizon to appear. Thirdly, through these arguments, I show how methodology—whether scientific, writerly, readerly, or otherwise—is a way of doing Land relations and thus is a key scale in which to enact good relations (also sometimes called ethics). I use the case of plastics, increasingly understood as an environmental scrounge and something to be annihilated, to refute and refuse the colonial in a good way.

In 2018, I submitted the full draft manuscript to **Duke University Press**, received and contract, and am about to resubmit a revision based on peer review. The book should be out in the 2020-2021 spring catalogue. A draft of the manuscript is in the appendix.

Josh Lepawsky and I have another **book contract with MIT Press for *Discard Studies***, a text based on the discard studies blog that I have been managing and writing for since 2010. The text outlines the epistemological stakes of the social study of waste and wasting before detailing theories of power, theories of different, and theories of change as they related to discard. From the introduction:

> Because what we know from the scale of our personal experiences with waste is usually an extremely partial perspective, the field of discard studies is central to thinking through and countering the intuitive and familiar aspects of waste. As more attention in popular, policy, activist, engineering, and research areas is being focused on waste and wasting, it becomes crucial to contextualize the problems, materialities, and systems that are not readily apparent to the invested but casual observer. Our task as discard studies researchers is to trouble the assumptions, premises, and popular mythologies of waste so discussions can address these wider systems, rather than fall to technological or moral fixes (Recycle more! Don't use plastic straws!) that deal with symptoms rather than origins of problems (Liboiron 2014b). This book is built around four key myths of waste and wasting:
>
> 1. Waste is municipal solid waste
> 2. Humans are naturally wasteful and are trashing the planet
> 3. Waste and pollution are externalities of economic systems
> 4. Purity can be achieved through clean up
>
> We show that each of these truisms are based on assumptions that do not hold up to critical (questioning premises) and empirical (data and case-study based) research.

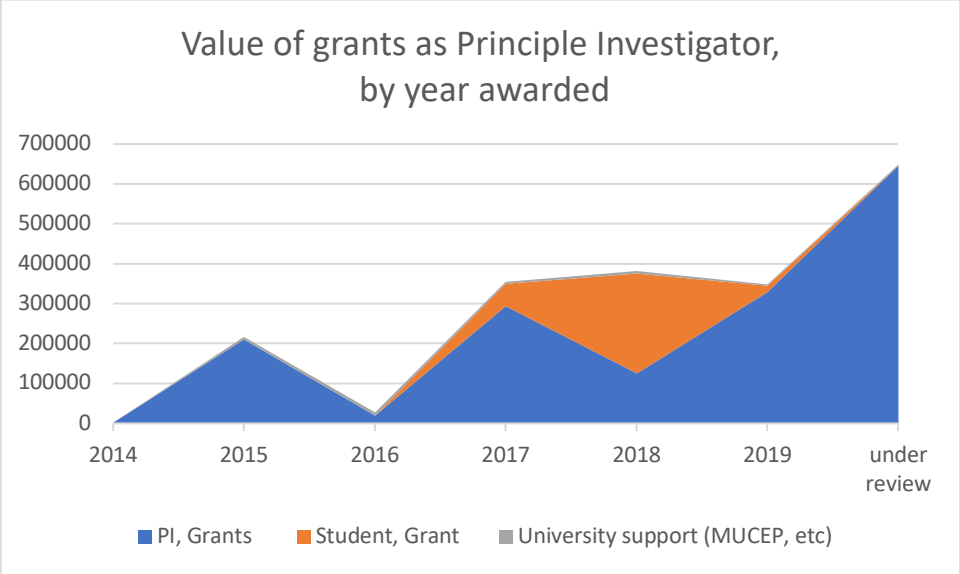
Lepawsky and I are currently writing a draft of the text, which is due in December 1 2020.

Finally, as mentioned above, I am conducting the **world's first provincial-scale report on plastic pollution that accounts for all sources and environmental media.** While other national-scale studies exist, they examine only one media (such as fulmar ingestion) or list all studies rather than analysing them as a body of work. There are acute methodological challenges to comparing and summarizing incommensurate data in such an endeavour, and I am working with DFO and Dr. Alex Bond (UK) as well as students in CLEAR to craft the report, which will be used to inform policy. The report was the basis of my 2019 expert witness testimony on marine plastic pollution in Canada for the House of Commons. We anticipate the report will be used by government as well as result in two academic papers, one detailing findings and another outlining novel methods.

*Success in grant competitions and obtaining external funding (12.13b)*

Since arriving at Memorial in 2014, **I have been awarded just over one million dollars as a PI ($1,008,000). Of this, 94% is external.** 59% is from natural science funders (such as MEOPAR, Northern Contaminants Program), 40% from social science sources (SSHRC), and 9% is for public engagement projects (Memorial Engagement Accelerator). This does not include start up or AVPIR research funds, which includes another $40,000. My **students and mentees have secured an additional $86,700** for their research projects and Memorial has provided another $33,000 in student employment funds. This places **the total value of CLEAR at $1,167,700, most of which has been awarded between 2017 and 2019**. The jump in funds

after 2016 can be attributed to acquiring lab space and the capacity the host a greater number of students and RAs. I have requested another $735,000 in recently submitted grant applications to POLAR Canada, the Ocean Frontier Institute, and NSERC's PromoScience program.




While I am a collaborator or co-investigator on another five of grants worth $3,646,500, I believe I play a significant role with decision-making capacity in only two of them, worth $213,500. These figures are not included above. One of my most meaningful roles as collaborator is as a scientific advisor and pro bono lab to Bluenose Coastal Action Foundation, funded by Environment Canada's Atlantic Canada Ecosystems Initiative (AEI). This partnership is characterized by real, ongoing, and evolving relationships with a number of environmental NGOs in Atlantic Canada led by Bluenose to **create a coordinated plastic monitoring program across the island of Newfoundland, New Brunswick, and Nova Scotia**. In the past three years, I have chosen to stop being a collaborator on grants in name only, including removing myself from a successful $1.65 million NSERC Collaborative Research and Training Experience (CREATE) grant in 2018. Moreover, I have turned down monies awarded to me by National Geographic because their terms required infringement of the privacy of project collaborators and participants. Finally, I choose to stop inventing scientific instruments when one of my grants would have been able to award intellectual property to industry over community partners. Overall, I am working to ensure **high integrity in and through my grants**, and these lessons are now part of my expanded work as AVPIR (see service section for more details).

*Developing and maintaining research collaboration and partnerships (12.13b)*

My commitment to **establishing and coordinating longitudinal marine plastic pollution monitoring programs within Newfoundland and Labrador** has required many partners. I have conducted trainings on monitoring methods with four groups: Scouts Canada (Holyrood chapter), World Wildlife Fund, Fishing for Success, and Bluenose Coastal Action Network. I have also worked with **seven partners to establish full monitoring projects and programs** in the province and Atlantic region broadly, including DFO and the Placenta Bay Ocean Debris Survey (PODS) (which includes two alumni of CLEAR), The Atlantic Coastal Action Program (ACAP) chapters in St. Johns, NB, Luxenbourg, NS, and Cornerbook, NL along with Bluenose Coastal Action, the Nunatsiavut Government, NunatuKavut Community Council, and The Multi-Materials Stewardship Board (MMSB), a Crown agency of the Government of Newfoundland and Labrador that manages waste. I've also partnered with **two education-based**

**partners**, Coastal Action and Let's Talk Science to bring marine plastic monitoring in K-12 classrooms. Details are in the "community engagement" and "partners" sections of my CV.

I have **two international partners**. I began a relationship with 5 Gyres, an education, science, and advocacy NGO based in California early in my career as a PhD student. I am on their board of expert advisors and have worked with them to design studies, analyze results of studies, and validate new research technologies (Erikson et al 2017). Our relationship has waned somewhat as they have pursued more commercial directions for their advocacy. I have strengthened relationships with Public Lab, publishing with its director Shannon Dosemagen (Dosemagen et al 2017) as well as **hosting an international user community** on Public Lab's platforms for CLEAR's open source research instruments that allows over **1000 users** to work together to troubleshoot and build on one another's work (also described in my cover letter).

I am now at the stage of my career where I am able to coordinate large, multi-partner projects and I have recently **submitted two grant proposals for two different partner networks** as PI. A new NSERC PromoScience grant for training at CLEAR for Indigenous researchers includes partners from the American Indian Community House in New York City, the STEP program at New York University, the Indigenous STS network based at University of Alberta, the Nunavut Arctic College, and the Labrador Institute at Memorial. A recently submitted Ocean Frontiers Institute grant on Indigenous data sovereignty and infrastructure for ocean management in the face of climate and ocean change includes confirmed partnership with the Assembly of First Nations, the Atlantic Policy Congress (APC) of First Nations Chiefs Secretariat, the Mi'kmaq Confederacy of PEI (MCPEI) (representing Lennox Island and Abegweit First Nations), Unama'ki Institute of Natural Resources (UINR) (representing Mi'kimq commnuities of Unama'ki–Eskasoni, Membertou, Potlotek, Wagmatcook, and We'koqma'q) and The Confederacy of Mainland Mi'kmaq, representing Acadia First Nation, Annapolis Valley, Bear River, Glooscap, Indian Brook (Sipekne'katik Band), Millbrook, Paqtnkek, and Pictou Landing.

*Scholarly presentations delivered at professional and community meetings (13.12b, 11.29b)*
Since joining Memorial, I have participated in **80 "scholarly presentations delivered at professional and community meetings"** (11.29b) including **five keynotes**, 20 juried presentations, 26 invited presentations, 11 public presentations, 18 prepared workshops, and **one expert testimony**. Three stand out. In the winter of 2016, CLEAR gave its first **community meeting** and tested our process for community peer review in Petty Harbour, relating our findings that cod from Petty Harbour ingested comparatively low rates of plastics compared to other places. It was a full house in the community center, which had recently been arranged for a dart tournament. We described how we conducted our research, how it compared to other findings worldwide, and talked to local attendees about the risks of this kind of research. The goal of this presentation was to get the community's consent to publish the results. Not only was there wide consensus, attendees asked is questions and voiced concerns that have shaped CLEAR's research program ever since, stating that plastics ingested by animals caught for food was more important than surface water and shoreline studies, outlining species of priority, and highlighting the need for comparative understandings of ingestion rates. They asked us to go on the radio and talk about Newfoundland's low rates, which we did (see media section of CV). These community meetings, which we now conduct before we publish any ingestion data, **are not just ways to disseminate knowledge, but are ways to be accountable to communities that our research impacts** the most and to direct our efforts in ways that matter. One colleague recently asked how we fill up the room at our community meetings. The answer is: we work for the communities, and they're waiting for us.

Another noteworthy presentation is the **invited keynote for the inaugural Indigenous STS conference** in 2018 at the University of Alberta, ""Obligation, Compromise, and Protocols: Research is Tricky." First, I cannot overstate how honoured and humbled I was to be invited as one of two keynotes (beside Marisa Duarte, author of *Network Sovereignty*) for the inaugural meeting, especially given that the decision was made in consultation with many Indigenous scholars, including Kim Tallbear. I aspire to be a key figure in Indigenous STS and this was an opportunity to realize that aspiration. Secondly, my presentation included a comedy sketch. After the audience (including Elders!) realized they were allowed to laugh, their laugher and good cheer continued long and loud throughout the presentation, turning it into more of a conversation and highlighting the role of humour in Indigenous epistemologies. It gave me licence and inspiration to make humour a central part of my forthcoming book, *Pollution is Colonialism*.

Finally and most recently, I was summoned to **Canada's House of Commons as an expert witness** to the Standing Committee on Environment and Sustainable Development (ENVI) in April 2019. The committee was hearing testimony in preparation for their Report 21: Turning the Tide on Plastic Pollution in Canada (released June 18, 2019). Both my oral and written testimony figures heavily in the report, particularly in sections on "Regional Variation in Plastic Pollution" where I am the sole expert cited as well as in sections on "Human Health and Ecological Concerns of Plastic Pollution," "Investing in Knowledge and Innovation," and "Coordinated Action." The report ends in 21 recommendations to the federal government (including alterations to the *Canadian Environmental Protection Act, 1999*), Environment and Climate Change Canada, the Canadian Council of Ministers of the Environment, and the Department of Finance Canada (the full report is in the appendix). Since then, I have had several correspondences with several members of the committee on issues of plastic pollution, including a request that I present at the National Zero Waste Council in October, 2019.

I highlight these three instances both because they highlight the audiences my work reaches as well as the reciprocal relations such presentations entail. Sometimes "dissemination" of research or "outreach" are understood as unidirectional endeavours, but in my own work I would consider this insufficient to my **goals of reciprocal, accountable, and ongoing relationships in the circulation of research findings.**

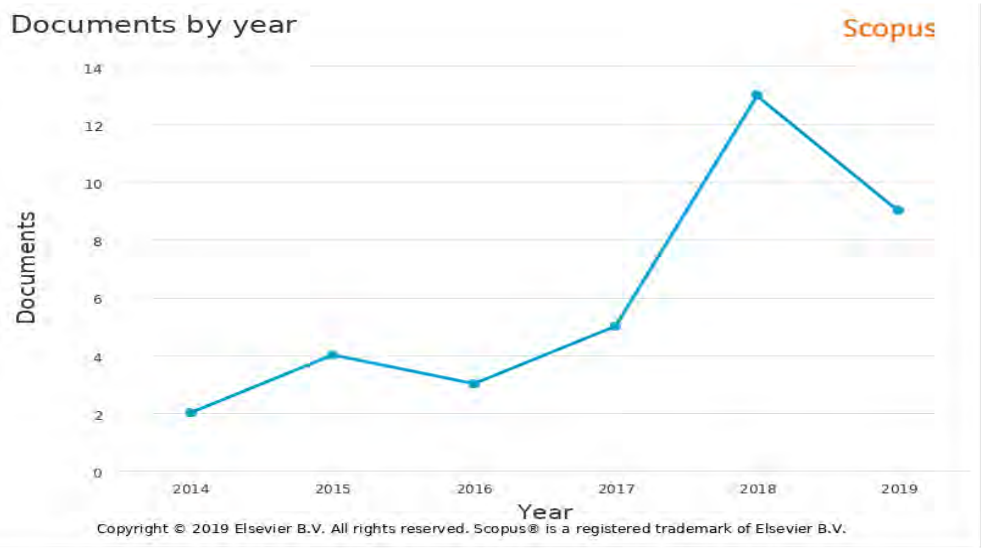
*Creative works and performances (11.29b)*

I have been fortunate to continue creating art and museum pieces since arriving at Memorial University. I have a BFA and MFA in studio art and the relationships and skills I developed during that time continue to bear fruit, culminating in **11 art and museum exhibits since 2014**. One of these exhibits is at the Canadian Museum of Nature/ Musée Canadien de la Nature. As recipient of the prestigious **Nature Inspiration Award** from the Museum in 2018, I have a permanent featured place in their exhibit, "Plastic Soup" highlighting my research and community methods. In spring 2019, **Cooper Hewitt, Smithsonian Design Museum** and Cube design museum in Kerkrade, Netherlands, co-organized the exhibition "Nature—Cooper Hewitt Design Triennial," which opened simultaneously at both museums. The exhibit features "**ground-breaking works across various design disciplines**" that bring "a global view of design to the United States" (Cooper Hewitt 2018). The international team of curators chose to exhibit BabyLegs and associated images and samples as part of this cutting-edge display of design. My place in the Triennial also afforded an opportunity to do a workshop on BabyLegs with over 100 New York City teachers as part of their professional development day. Images from some of these exhibits are in the appendix.

*Editorial and refereeing duties (11.29b)*

My main editorial contribution has been as the **managing editor and a regular contributor to *Discard Studies* since 2010**. *Discard Studies* an open source, online publication platform for the social studies of waste and wasting, broadly defined. It was founded in 2008 by Dr. Robin Nagle (New York University), and I began

as editor in 2010 as a PhD student have remained at the helm ever since, recently developing an editorial team including founder Dr. Robin Nagle, Dr. Josh Lepwasky (Geography, Memorial), and graduate student Alex Zahara (Geography, Memorial). *Discard Studies* receives between 300 and 500 unique views a day and publishes one or two articles a month, plus a monthly edition of "The Dirt," a compilation of new articles, calls for papers, job postings and other opportunities in the field. ***Discard Studies* has been credited with the naming and flourishing of the interdisciplinary field of discard studies**. The graph below uses Scopus to chronical the use of the term "discard studies" in social science and humanities texts' titles, keywords, and abstracts: you can see the professional rise of the field by tracking the use of its title in these published works.




I have reviewed pools of letters of intent for **NSERC (n = 40)** as well as serving as an outside reader on grants for Social Science and Humanities Research Council (SSHRC) in Canada, the National Science Foundation (NSF) in the United States, and the Natural Environment Research Council (NERC) in the United Kingdom. I have also conducted **peer review for 28 articles, six book manuscripts, and 11 conference submissions**. I have provided **expert review for three international governmental and intergovernmental bodies**' reports, including the World Health Organization (WHO), Protection of the Arctic Marine Environment (PAME), and The Arctic Council. Other refereeing duties are outlined in my CV.

*Technology disclosures and licenses (11.29b)*

Part of my "scholarship of application" (11.29b) is the invention, testing, and validation of scientific instruments. I have **disclosed six invented instruments** to the Technology Transfer and Commercialization Office at Memorial University under the former Intellectual Property policy where the university was to be informed of any inventions with commercial interest. Four of these inventions were created by students in my Feminist Technologies classes and did not result in further development. I invented two of them, both surface water trawls for monitoring microplastics which have gone on to be tested, validated and used by a variety of users.

BabyLegs (CERN Open Hardware License 1.2) is a simple, reliable neuston sampling device made of everyday materials, specifically designed to be accessible to a wide variety of citizen science users. The device costs approximately $15 to build, compared to the $3500 manta trawl that is the scientific standard. BabyLegs has not yet been validated and is currently designed to monitor types and differential concentrations but not densities of microplastics. A MEOPAR Fathom Fund grant has allowed ship time so validation can take place in the fall of 2019.

Low-Tech Aquatic Debris Instrument (LADI) (CERN Open Hardware License 1.2) costs about $500 to build and is larger, stronger, and most stable than BabyLegs. LADI is designed for scientists and NGOs who wish to create data identical to the manta trawl and LADI has been validated to this end. LADI allows people to do science who may not be able to afford the manta trawl or who like to be able to augment and repair their trawl. While I designed and oversaw the construction of LADI, an undergraduate visiting student, Coco Coyle, sourced and built LADI in 2016.

Both trawls are open source, meaning their designs and building and use instructions are freely available online. Since **both instruments are specifically designed to increase accessibility to scientific instruments to allow a wide variety of people to carry out science**, maintaining this openness is crucial to their intended operation.

Ensuring this unique "value" (11.29) was recognized took considerable effort and collaboration with Memorial University administration under the old intellectual property (IP) policy that allowed the university to privatize inventions (these efforts serve as a case study in a paper on intellectual property, Liboiron 2017). The invention and disclosure of BabyLegs led to university service on intellectual property to ensure privatization was not the only perceived positive outcome of such work (see service section for more). Even so, after the invention of LADI, I stopped inventing scientific instruments because of a grant term under my MEOPAR grant with Irving Shipbuilding that had the capacity to privatize any commercializeable IP. That grant and its terms concluded in the spring of 2019 and I will now return to inventing-- indeed, we need an accessible instrument for monitoring microplastics in ice and snow.

Because the trawls are truly open source, I do not have the ability to fully document and track their use. However, a collaboration with Public Lab has allowed an **online community of practice around BabyLegs that has over 1,000 users, and nearly 3,000 people have viewed the instructions to build BabyLegs on CLEAR's website**. Users across Canada, the United States, France, the Netherlands, Mexico, and the arctic and Antarctica have emailed me stories and photos. LADI is used by PODS, a DFO- and OFI funded monitoring project focusing on Placentia Bay on the island of Newfoundland, as well as by the four ACAP groups under the Bluenose Coastal Action Atlantic Canada monitoring program, funded by Environment and Climate Change Canada.

A recent crowdfunding effort with Public Lab and MEOPAR to create pre-packaged kits to make sourcing materials even easier was supported by 83 backers and raised over $4000, surpassing our goal. Public lab now includes BabyLegs in its store for a variety of DIY science instruments for conducting community science, which both allows more access to groups who prefer kits to sourcing their own materials as well as supporting the operating costs of Public Lab.

As you can see, "dissemination" is not quite the model of circulation here-- instead, these inventions are designed to build up other communities of users and practices that sometimes overlap but often exceed the ones I am part of. The **goal of these technologies is to enable and enrich ways of doing science differently by the widest groups of people possible** (this position is articulated in several articles, including Liboiron 2016, Liboiron 2017, Liboiron and Molloy 2017, and Dosemagen et al. 2017).


BabyLegs at the Cooper Hewitt Design Triennial, *Nature.* 2019.

# Appendix

**A. Peer reviewed publications** published since my third-year review in September, 2016. Student and postdoc co-authors are underlined.

1. **Liboiron, M.**, Melvin, J., Richárd, N., Saturno, J., Ammendolia, J., Charron, L., & Mather, C. (2019). Low incidence of plastic ingestion among three fish species significant for human consumption on the island of Newfoundland, Canada. *Marine Pollution Bulletin,* 141: 224-248.
This article outlines a baseline plastic ingestion rate for Atlantic cod, salmon, and capelin on the island of Newfoundland. It includes thesis work from Jessica Melvin and Natalie Richard. My role was to provide methods for the study, coordinate studies, and conduct the analysis that allowed the different studies to be comparable to one another.

2. Kenny, C., **Liboiron, M.**, Wylie, S. (2019). Seeing Power with a Flashlight: Making and Doing Politics in Classroom Pedagogy with DIY Open Science Hardware. *Social Studies of Science*, 49(1): 3-28.
This article is on the scholarship of teaching, investigating how hands-on technology creation and use impacts student learning about technological systems and power dynamics. The first author is an undergraduate student who took my class. Dr. Wylie and I taught the same assignment and both of our students' learning is chronicled here. My role was to coordinate the paper and write up the introductory theory and some student case studies.

3. Provencher, J.F., Avery-Gomm, S., **Liboiron, M**., Braune, B.M., Macaulay, J.B., Mallory, M.L., Letcher, R.J. (2018). Are ingested plastics a vector of PCB contamination in northern fulmars from coastal Newfoundland and Labrador? *Environmental Research*, 167: 184-190.
This complex study sought to find if PCBs on plastics were moving into key tissues within northern fulmar, a species of bird that ingest high rates of plastics. There are hundreds of PCB cogeners that occur during metablozation, which presented a methodological challenge for identification. The overall finding was that PBCs do not transfer at a rate impacted by the number of plastics ingested. My role was to fund the study and outline the problem the study was meant to address.

4. **Liboiron, M.**, Tironi, M., Calvillo, N. (2018). Toxic Politics: Acting in a Permanently Polluted World. *Social Studies of Science*, 48(3): 331-349.
This piece leads a special issue on toxic politics and proposes to understand toxicity as a way to describe how some scales are compromised (such as cellular scales or the scale of fence line communities) to enable others to flourish (such as industrial growth and profit). This piece is often used in teaching. My role was to coordinate ideation and write the article.

5. McWilliams, M., **Liboiron, M.**, Wiersma, Y. (2018). Rocky shoreline protocols miss microplastics in marine debris surveys (Fogo Island, Newfoundland and Labrador), *Marine Pollution Bulletin*, 129(2): 480-486.
This text addresses the issue of universalization and standardization of methods when they are designed in the south and imported to places like Newfoundland and Labrador. NOAA and UNEP approved standardized methods for shoreline studies assume sand, and when we use the method on the rocky shores of Fogo Island, we find that they fail to account for plastics under 5mm in size (microplastics). My role was to provide methods, understand results, and place the study in the wider field of marine plastic pollution.

6. **Liboiron, M**., Ammendolia, J., Winsor, K., Zahara, A., Bradshaw, H., Melvin, J., Mather, C., Dawe, N. Wells, E., Liboiron, F., Fürst, B., Coyle, C., Saturno, J., Novachefski, M., Westcott, S., and Liboiron, G. (2017). Equity in Author Order: A Feminist Laboratory's Approach. *Catalyst: Feminism, Theory, Technoscience*, *3*(2): 1-17.
This is one of our most used (but still under-cited) papers that outlines CLEAR's method for determining author order in an equitable way that recognizes undervalued forms of labour and an author's social location. This is a method I created, and I coordinated the ideation of its write up and did most of the writing.

7. **Liboiron, M.** (2017). Compromised Action: The Case of BabyLegs, *Engaging Science, Technology, Society*, 3: 499-527.
   Using the case study of obtaining an open license for BabyLegs under Memorial University's intellectual property policy, this article outlines the way sexist social norms and signs can be leveraged intentionally to defer capitalist aims. It forwards the concept of "compromised agency."

8. Wylie, S., Shapiro, N., **Liboiron, M.** (2017). Making and Doing Politics Through Grassroots Scientific Research on the Energy and Petrochemical Industries, *Engaging Science, Technology, Society*, 3: 393-425.
   This piece is the lead article on a special issue. It discusses the state of citizen and civic science in the fracking industry and the political stakes of research that takes up these issues. I contributed to ideation and writing.

9. Avery-Gomm, S., Provencher, J. F., **Liboiron, M.**, Poon, F. E., & Smith, P. A. (2017). Plastic pollution in the Labrador Sea: An assessment using the seabird northern fulmar Fulmarus glacialis as a biological monitoring species. *Marine Pollution Bulletin*, 127: 817-822.
   This is a baseline paper that reports a plastic ingestion rate for fulmars in the Labrador Sea (79%). My role in the study was to analyze roughly half the samples and provide context for the Labrador Sea.

10. Sardelis, S., Oester, S., & **Liboiron, M.** (2017). Ten strategies to reduce gender inequality at scientific conferences. *Frontiers in Marine Science*, *4*: 231.
    Using the International Marine Conservation Congress (IMCC) in St. John's in 2016, this article reports the findings of a focus group at that conference for understanding barriers to gender inequity and recommendations to mitigate them. I was invited into this paper after a first draft, and provided the social theories and citations needed to place the work in a broader research context.

11. Dosemagen, S., **Liboiron, M.**, & Molloy, J., (2017). Gathering for Open Science Hardware 2016. *Journal of Open Hardware*. 1(1): 4-6.
    Authored by three co-organizers of the Gathering for Open Science Hardware, this article outlines the main efforts and lessons learned on the gathering and the broader global movement for open science hardware. Authors did equal amounts of work writing the piece.

12. Eriksen, M., **Liboiron, M**., Kiessling, T., Charron, L., Alling, A., Lebreton, L., Richards, H., Roth, B., Ory, N., Hidalgo-Ruz, V., Meerhoff, E., Box., C., Cummins, A., Theil, M. (2017). Microplastic sampling with the AVANI trawl compared to two neuston trawls in the Bay of Bengal and South Pacific, *Environmental Pollution*, 232: 430-439.
    This article validates a new neuston plastic trawl invented by Marcus Erisken (the AVANI trawl) against the scientific standard. I was brought onto the project early on as an expert in research trawl validation based on my work with BabyLegs and LADI. I outlined the research design, coordinated analysis, and was part of analyzing results and writing.

**Chapters in books** since my third year review.
I have not included chapters in edited volumes since my third-year review, as they are both pieces based on work in fine art and disaster research that began many years ago and the books took a very long time to be published. While they are still important works, they no longer reflect the direction of my research.

**B. Selected invited publications** (editor-reviewed) since my third-year review.

13. **Liboiron, M.** (2019). Discard Studies: Doing Science Differently. *Journal für Entwicklungspolitik* 35(2-3): 197-216.
    This piece outlines the intersection of discard studies and CLEAR's work as a feminist and anticolonial lab. It is in the format of an interview for a special issue on waste and global inequities.
14. **Liboiron, M**. (2018). Hormone Disruption in Newfoundland, Correspondences, *Cultural Anthropology*. August 14.
    This invited piece is about the research conducted in the GEOG3222 Quantitative Research Designs class,

where we sought to do a population study on endocrine disrupting compounds.

15. Borelle, S., Rochman, C., **Liboiron, M**., Bond, A., Lusher, A., Bradshaw, H., Provencher, J. (2017). Opinion: Why we need an international agreement on marine plastic pollution, *PNAS* 114(38): 9994-9997.
This group of experts in marine plastic pollution (including my Master's student Hillary Bradshaw) provides a framework for what an international agreement on plastic pollution would have to take into account ahead of the G7 summit on plastics.

16. Lepawsky, J., **Liboiron, M**., Keeling, A., Mather, C. (2017). Repair-scapes, *Continent* 6(1): 56-61.
This publication was for a special issue on repair. This collaboration of the scholars in the WaSTE group articulated repair as a spatial, rather than merely temporal phenomenon of returning things to a previous state.

**C. Selected writing for public audiences**.

17. Chart of publications for public audiences, including unique views as of September 1, 2019.
18. **Liboiron, M.** (2019). Decolonizing your syllabus? You might have missed some steps. *CLEAR*, August 12. 11,600+ views.
19. **Liboiron, M.** (2018). How Plastic is a Function of Colonialism. *Teen Vogue*. December 21.
20. **Liboiron, M.** (2018). Not all fish eat plastics, *The Conversation*. July 11. 18,500+ views. Republished in the *National Post, The Telegram*, *Southern Friend Science,* and *Sport Fishing BC*.
21. **Liboiron, M.** (2015). LA's Shade Balls: The ecological costs of plastics in water. *Discard Studies*. 18,400+ views.

**D. Films**

22. *GUTS*. (2019). Dir. Noah Hutton, Taylor Hess. Couple One Films. 16 minutes.

**E. Book manuscripts** in progress. Both have contracts.

23. Liboiron, M. (2020-2021). *Pollution is Colonialism*. Duke University Press. (revised first chapter)
24. Liboiron, M., Lepawsky, J. (2021+). *Discard Studies*. MIT Press. (first chapter)

**F. Selected media coverage of research** (print only)

25. "Recycling is like a band-aid on gangrene," (2019). Coverage by Emily Buder, *The Atlantic* (print). June 13.
26. "So much plastic is being made that 'recycling has no impact,'" (2019). Katherine Martinko, *Treehugger* (print). June 14.
27. "Punk Science: Do-it-yourself Science is taking off," (2017). Coverage in *The Economist* (print), December 19.
28. "The Riddle of the Roaming Plastics," (2018). Matthew Halliday, *Hakai Magazine* (print). December 4.

**G. Syllabi that feature my research in classroom dissemination**

29. Chart of syllabi gathered that teach my work, detailing disciplines and geographic locations.
30. Example of syllabus with my work: EDGI's Data Justice syllabus

**H. Policy impacts of research**

31. Liboiron, M. (2019). Brief to the House of Commons Standing Committee on Environment and Sustainable Development Study: Plastic Pollution. Wednesday, April 3, 2019.
This is the written brief of my testimony delivered to the House of Commons Standing Committee. It is not a transcription of what I said (which is also available online), but the required written report for the committee before my testimony.
32. Aldag, John. (2019). The last straw: Turning the tide on plastic pollution in Canada. Report of the Standing Committee on Environment and Sustainable Development. House of Commons / Chabre des Communes, Canada.
This report by the standing committee includes recommendations to the federal government on a marine plastics plan. It references my testimony often, as described above.

**I. Announcement of Award**

33. A full-page ad in *The Globe and Mail* for the Nature Inspiration Award, Canadian Museum of Nature

**J. Art exhibits and creative works**

34. Installation images of select exhibits

**K. Selected technological inventions**

35. Invention Disclosure: BabyLegs 2015.
36. AutoCAD drawing of LADI, 2015.

# Teaching Dossier
## (11.29a & 12.13a)

MUNFA's collective agreement states that both promotion and tenure shall place the greatest weight on both research and on "**documented effectiveness and scholarly competence as a teacher**" (11.29a & 12.13a). In alignment with the collective agreement, I have added "particular components suggested in the CAUT Teaching Dossier for inclusion in [my] file." Following the advice of MUNFA, I have not included Memorial's Course Evaluation Questionnaires (CEQs) because of the inherent bias that has been demonstrated in multiple studies[1] and the recent arbitration award between the Ryerson Faculty Association and Ryerson University.[2] However, I do create other opportunities for student and colleague evaluation and those are covered below.

While I do not have any undergraduate or graduate classroom teaching responsibilities during my appointment as Associate Vice-President (Indigenous) Research (September 2018-August 2020), I continue to mentor my own graduate students well as undergraduate, high school, and graduate students in CLEAR, and as AVPIR I conduct a unique type of collegial teaching about Indigenous cultures, relations, and issues as part of my mandate to "increase Memorial's capacity to build major institutional research activities and applications with Indigenous communities." These forms of teaching are broken down by type.

## Table of Contents



[1] P. B. Stark and R. Freishtat. ScienceOpen Research 2014 (DOI: 10.14293/S2199-1006.1.SOR-EDU.AOFRQA.v1) Boring et al. ScienceOpen Research 2016 (DOI: 10.14293/S2199-1006.1.SOR-EDU.AETBZC.v1)

[2] Ryerson University v Ryerson Faculty Association, 2018 CanLII 58446 (ON LA), http://canlii.ca/t/hsqkz, retrieved on 2018-08-20

## Teaching Philosophy

My goal as a teacher is to foster learner's critical thinking skills and ability to question their own standpoints and premises so they can become engaged and ethical citizens. I teach how problems in science & technology (including practices of statistics) and research generally (including research with Indigenous peoples) are simultaneously social, political, and economic problems, and that these problems are systemic, meaning that solutions should also be systemic and attend to social, political, and economic issues if they are going to effectively target the problems they are designed to address. This is as true for classroom teaching as it is in the conversational brown bag lunches I run as AVPIR. Since each type of teaching has its own practices and responsibilities, I outline the variety of teaching contexts below, and address each in turn.

## Teaching responsibilities and practices: undergraduate courses (3.2.1.1 CAUT)

**Undergraduate courses taught at Memorial University 2014-2018**

| Year/semester | Course title/number | Credits | Enrolment |
|---|---|---|---|
| SP2018 | GEOG4999: Hons Dissertation* | 3 | 1 |
| WI2018 | GEOG3222: Introduction to Quantitative Research Design* | 3 | 37 (maximum enrollment) |
| WI2018 | SOCI/GEOG4107: Feminist GeoTechnologies* | 3 | 16 |
| FA2017 | SOCI/GEOG3015: Science, Technology, Society* | 3 | 27 |
| FA2014*, WI2015, FA2015, WI2016, WI2017 | SOCI2120: Society & Technology (required course for Engineering students) | 3 | 36-71 |
| FA2014*, WI2015, FA2016 | SOCI4107: Feminist Technologies | 3 | 13-17 |
| WI2016 | SOCI3150: Classical Social Theory* | 3 | 35 |
| FA2015, WI2016 | MSTM410A/B (Marine Institute) | 3 | 1 |

* Indicates a new course prep.

**I have taught eight different courses at the second, third, and fourth year level**. Most of my undergraduate teaching load has been dedicated to offering a **suite of science and technology studies (STS) courses**: SOCI2120, GEOG/SOCI3015, and GEOG/SOCI4107. While SOCI2120 had been offered regularly and used a textbook before my arrival, I reinvented the class to focus on hands-on learning activities and current debates in science and technology. Upon my arrival to Memorial, I resuscitated SOCI4107 (formerly titled, "Women and Technology"), which hadn't been taught in over a decade, and renamed it Feminist Technologies. I worked with Dr. [name withheld] to develop technical assignments for that course (CAUT 3.2.3.18). When I joined the Geography department and my contract necessitated cross-listed courses with Sociology, I worked with other STS researchers in geography ([name withheld] ) to identify learning objectives and readings for the new cross-listed course, GEOG/SOCI3105: Science, Technology, and Society. I also changed SOCI4107 from Feminist Technologies to Feminist GeoTechnologies to support Geography graduate learning objectives in the class. This suite of courses allows undergraduate students to become proficient in a range of STS theories and applications. Syllabi for each of the three STS undergraduate courses are in the appendix in accordance with CAUT 3.2.1.2.

I became instructor of GEOG3222: Introduction to Quantitative Research Design in the winter 2018 semester at the request of the chair of Geography. My teaching of SOCI3150: Classical Social Theory was by request of the Sociology department when several professors were on sabbatical. My year-long teaching with the Marine Institute in their Material Systems and Technology Management classes is an internship-style course where individual students work with professors on professional projects. Undergraduate geography student [name withheld] took the honours thesis course with me (though did not enroll for a full honours degree), building on coursework she did with me in GEOG3222 (CAUT 3.3.3.11).

## Teaching responsibilities and practices: graduate courses (3.2.1.1 CAUT)

**Graduate courses taught at Memorial University, 2014-2018**

| Year/semester | Course title/number | Credits | Enrolment |
|---|---|---|---|
| WI2017 | SOCI6630: Science and Technology | 3 | 5 |
| W2016 | SOCI6370: Feminist Theory and Methods (Action-Based Research Special Topics) | 3 | 9 |
| FA2014 | SOCI6380: Women, Nature, Science and Technology (reading course) | 3 | 1 |

**I have taught three graduate courses**. To date, all of my graduate teaching has been in the Sociology department, where graduate teaching is more common and in lower demand than in geography. All of these courses are student-driven. I have included a uniquely-created collaborative syllabus from one of those courses, SOCI6630, where we used the "blank syllabus" technique after I had studied it (Walsh 2013). In this technique, students and teacher collaboratively build out the learning objectives and populate the schedule with the types of texts and trainings they need to achieve them. This exercise addresses the CAUT's recommendation to include evidence of "reading journals on improving teaching and attempting implement acquired ideas" as a form of improving ones' teaching (3.2.3.17).

## Classroom teaching statement

*Classroom community and accountability*

I take the idea of the classroom as a learning community seriously. Rather than teaching a collection of individuals, **I use facilitation, skill-building, and grading techniques to engage students with one another in a collective dialogue**. One of the most effective methods for this has been using a "round robin" approach to ordering student discussions. Instead of asking the class a question and calling on a student that raises their hand, which privileges extroverts, white male students, senior students, students with high grades, and students whose first language is English, I ask a question of the class and we proceed down each row of seating so each student in turn addresses the question. In this process, any student can 'pass' and not answer the question, but they can also see when their turn is coming and prepare. This simple facilitation technique means that nearly every student speaks every class, even in classes of 80 students. I can get through large classes of 80+ students at least once a class, and do several rounds in smaller classes. Students have reported that they feel more involved in the class material and more invested in an overall conversation than traditional methods for calling on students:

> "*The round robin helped to form a feeling of closer ties that came about. Instead of focusing only on the professor, everyone was made to speak. The majority of the class passed on talking, but simply shifting the focus from the professor to everyone else was enough to change the class dynamic. We felt like we were no longer a class (teacher and students) but a group, getting together to discuss sociological issues. Everyone was given a chance to have their say even if they didn't want to. It felt a lot more group and consensus oriented than a regular class session.*" - Excerpt from Technology Journal for SOCI2120: Society & Technology, WI2016

One student in SOCI2120 who had "passed" during every round robin of the semester approached me on the last day of class to thank me for the round robin method. He said he had never spoken in class so much: just saying "pass" every class was a significant development for him.

Another method for creating a collective class experience is that every class, **students have an active role in pedagogy**. For example, each class a different student is responsible for timekeeping. I put the scheduled agenda for the class on the board, and the student helps me keep time. This method also helps students who appreciate being able to anticipate what is coming next. Two students are also designated class note takers every class, and post their notes for all others in a shared area. This means that students can work from multiple sets of notes, learn how others take notes, and if they have a disability, they receive their notetaking accommodation without having to disclose their status to me or to the class. Students receive "colleague grades" for this work, and for any other activities that add value to the classroom collective, such as staying after class to catch up absent students or welcoming new students that join the course after the first session. As another technique, group work projects, both in the form of small, short break out groups, as well as larger and longer group projects are a mainstay of all my classes, but first I teach students how to work in groups using facilitation techniques and consensus-based decision making. Students make a contract in these groups to articulate their expectations and work styles. One of these contracts and the peer to peer evaluation that accompany them are in the appendix. Finally, I learn my student's names, even in large classrooms. Together, these techniques create a collaborative, seminar-style atmosphere, no matter the size or type of class.

Part of ensuring a robust classroom community is for the instructor to be accountable to students. Every semester I conduct a midterm course evaluation so students can provide comments on what is and is not working so I can adjust assignments and other teaching practices. Sometimes that is not enough, though. When I first taught GEOG3222, a quantitative research course, I designed the class to be accessible and "not

scary," as per its reputation. But in the first few weeks I found that many students were failing quizzes at rates far above what I expected. I halted the schedule and dedicated a period to facilitating a class discussion about what was and wasn't working for student learning. I used students' feedback to restructure the course's flow, timeline, and assignment structures, though its content remained the same. Not a single student failed that class, and the final project reports ranged from fair to exceptional. One student used the class project as the basis of her honour's thesis research paper (GEOG4999). In their letters to future students, where at the end of the semester students write notes to incoming students the next year, the students in 3222 characterised this class as difficult but not scary and even enjoyable (see the note in the appendix from "a guy who hates math and actually kinda had fun") and said the professor was "approachable," "accommodating," "understanding," and "all about helping the class." In addition to changing the course structure to better serve student needs, part of this evaluation was likely due to my attendance at all lab classes, which historically professors leave to their teaching assistants. A summary of what students requested as well as student course evaluations I conducted by asking students to write a note to incoming students for the next year are in the appendix in alignment with CAUT's recommendation to demonstrate forms of evaluating and improving one's teaching (3.2.3) and using information from students to do so (3.2.5).

*Hands-on & Experiential Learning of Content and Skills*

Whenever I ask students to do something such as group work or brainstorming, I also **teach them how to do it** so they have a sense of what skills are involved, what they are responsible for, and how to excel. Because 20-80% of SOCI2120 students are engineers taking their first and only class in HSS, for example, I take a cull class period to teach the class how to read social science and current event texts. To create a safer space for learning about gender and race, my SOCI4107 students and I create a safer space classroom contract based in anti-oppressive facilitation skills (example attached in appendix). Teaching students the skills I expect them to use is a basic and concrete form of respect that I show them.

A second hallmark of teaching content and skills is through hands-on and experiential learning, which enhances overall learning and allows different kinds of learning styles to flourish (CAUT 3.2.1.5). For example, I ask students leave their cell phones at the front of class on the first day of SOCI2120. On the second day, they keep their phones on their desks and get a 30 second break to check their phones every 15 minutes. On the third day, they babysit someone else's phone. We then discuss their experiences, feelings, and insights that result from each treatment of cell phone sociality, delving into discussions of privacy, attention, availability and obligations to family, and social norms. Students keep journals on these regular "social experiments" to supplement and extend critical reflection and, in doing so, connect their lived experiences with class content. This knowledge is used in their final papers (see attached for a final paper on cell phones and attention). In GEOG/SOCI4107, students build technologies to continually engage in the nuances of theory through personal and material knowledge. In GEOG3222, we work on a real-world project and produce our own datasets rather than do "busy work" assignments ("busy work" is a term students have used).

> *"The [class social] experiments were unique, insightful, and necessary. It allowed me to explore and start thinking from the first day of the course how technology is used in society."* - Excerpt from Technology Journal for SOCI2120: Society & Technology, WI2016

> "The best thing about this course is that the research project is an actual project that you work on from start to finish. It is a group effort so you can use fellow students as a resource. This research project was the way I learned the most about stats." - Letter to a future student GEOG3222

*Research for Public Audiences*

Students produce final projects that use the skills and concepts they've developed in class to **conduct classroom research designed for public audiences**, so evaluation is closely keyed to instructional objectives of developing skills for becoming informed and critical citizens (3.2.1.6 CAUT). SOCI2120 students write classroom technology white papers based on their experiences and an in-class survey, and GEOG/SOCI4107 students write technology reports based on a technology they create (examples in appendix). SOCI3150 students learning theories of sociality volunteered at non-profits and were asked to analyze these organizations' theories of how people related to one another, to criminality, to health, and to the state. Papers with a B+ or higher are distributed to appropriate audiences such as CITL, TopHat, and NGOs. GEOG3222 students produced and analyzed datasets about environmental health in Newfoundland, working to answer a real research question about exposures to industrial chemicals in the province (this project is the topic of a published article for *Cultural Anthropology*, in the research appendix. An example of a student paper in the appendix). In each case, student's projects have real stakes, and most students produce professional-quality work. I understand these results both as a result of in-class skills training as well as students' response to respecting them as knowledge producers.

*Future classroom teaching plans*

Future teaching responsibilities must be sensitive to the changing departmental and curriculum needs, first and foremost. This is particularly important given recent and ongoing changes to Geography's curriculum. I anticipate continuing to teach GEOG3222, and look forward to ensuring continuity of instruction between years for that course. I also hope to continue to teach and where necessary, develop and adapt cross listed courses between geography and sociology to the benefit of both departments. This could expand to the graduate level.

## Mentorship

A snapshot of my mentorship and advisement activities shows that I have advised three PhD students, served as committee member on an additional four PhD committees, advised seven master's students and sat on one additional master's committee, and overseen one honours thesis. This totals **ten graduate students under my direct supervision and an additional five where I serve as a committee member**. Most of these students are still in program, though **three of my master's students have graduated**, as has the honour's thesis student. Yet the majority of my mentorship occurs via CLEAR, includes most of my own graduate students as well as other graduate students, undergraduates, staff, community members, and others.

*Graduate student supervision (CAUT 3.2.2.10)*

**Graduate students supervised, 2014-2019**

| Name | Degree/Year in program | Role |
|---|---|---|
| **[name withheld]** | PhD Geography/3<br>[name withheld] | Supervisor |
| **[name withheld]** | PhD Environmental Science/3<br>[name withheld] | Committee Member |
| **[name withheld]** | PhD Geography/5<br>[name withheld] | ASU Fellowship, 1 term |

| | | |
|---|---|---|
| **[name withheld]** | PhD Geography/4<br>[name withheld] | Committee Member |
| **[name withheld]** | PhD Sociology/6<br>[name withheld] | Committee Member |
| **[name withheld]** | PhD Sociology/ failed comps | Co-supervisor, with **[name withheld]** |
| **[name withheld]** | M.Sc. Geography /1<br>[name withheld] | Supervisor |
| **[name withheld]** | M.Sc. Envt/3<br>[name withheld] | Supervisor |
| **[name withheld]** | M.Sc. Marine Institute/2<br>[name withheld] | Co-supervisor, with **[name withheld]** |
| **[name withheld]** | MA Sociology/Graduated 2017<br>[name withheld] | Co-supervisor, with **[name withheld]** |
| **[name withheld]** | M.Sc. Geography/Grad 2018<br>[name withheld] | Co-supervisor, with **[name withheld]** |
| **[name withheld]** | MA Geography/Graduated 2019<br>[name withheld] | Co-supervisor, with **[name withheld]** |
| **[name withheld]** | MNR Environment & Natural Resources/ Graduated 2017<br>University Center of the Westfjords<br>[name withheld] | Thesis Supervisor |
| **[name withheld]** | [name withheld] | Committee member |
| **[name withheld]** | M.Sc. Environmental Sciences/ withdrawn | So-supervisor, with **[name withheld]** |

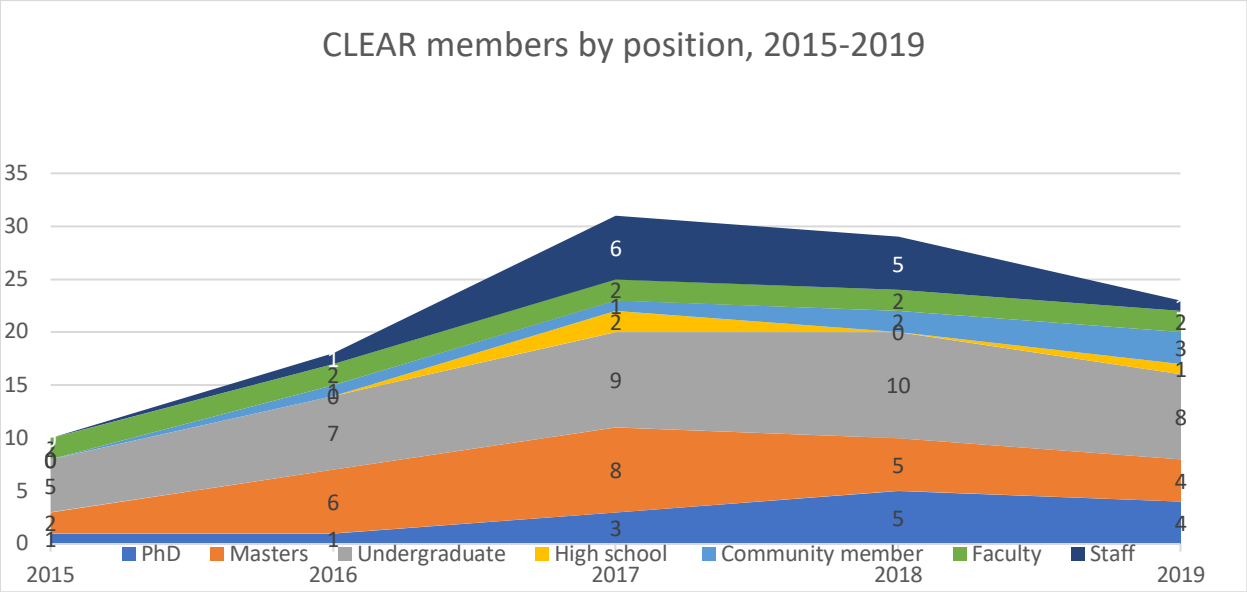
* Indicates a member of CLEAR

Through cross-appointments with the Marine Institute's Fisheries School and Sociology Department, and through an affiliation with the Environmental Sciences program, I am able to mentor graduate students in four degree programs. All of these students work together in CLEAR, building **interdisciplinary capacity**.

Both [name withheld] thesis work has been published in a joint article (Liboiron et al, 2019). [name withheld] and [name withheld] were Memorial undergraduates who worked with me as undergraduates in CLEAR that I recruited to be master's students. CAUT notes that students to elect to continue with an instructor is an indication of good teaching (3.3.3.11). After [name withheld] graduated in 2017, she stayed on as a Research Associate with CLEAR before being hired as a project manager in a joint DFO-OFI project monitoring plastics in Placentia Bay. She is now producing unique and inspiring research on seasonal and environment-specific monitoring techniques, as well as conducting one of the most robust longitudinal studies in the field. After [name withheld] graduation in 2018, she went to Florida, where she teaches biology and works with NGOs monitoring marine plastics. Upon his graduation, [name withheld] returned to [name withheld] , from which he had taken an educational leave. [name withheld] continued on to a PhD program to expand on her master's thesis work after graduation.

*Mentorship in CLEAR (CAUT 3.2.2.12)*

The largest portion of my work day is spent mentoring CLEAR members. CLEAR's membership includes high school students, undergraduates, graduate students, staff, faculty, and community members. Students and faculty from the university have represented disciplines as diverse as applied mathematics and social work, though most come from geography, sociology, and biology. The **numbers of CLEAR members during a semester have ranged from four when we first began to 24, and in total I have advised 59 students and CLEAR members,** 50 of which have been in CLEAR. Most, though not all, of my graduate students are in CLEAR, and most of the members of CLEAR are not "my" students. The chart below includes only positions that were paid and/or included duties outside of graduate stipend and course commitments. This means that a few of my own graduate students are included, but most are members of CLEAR without being reflected in the chart below.

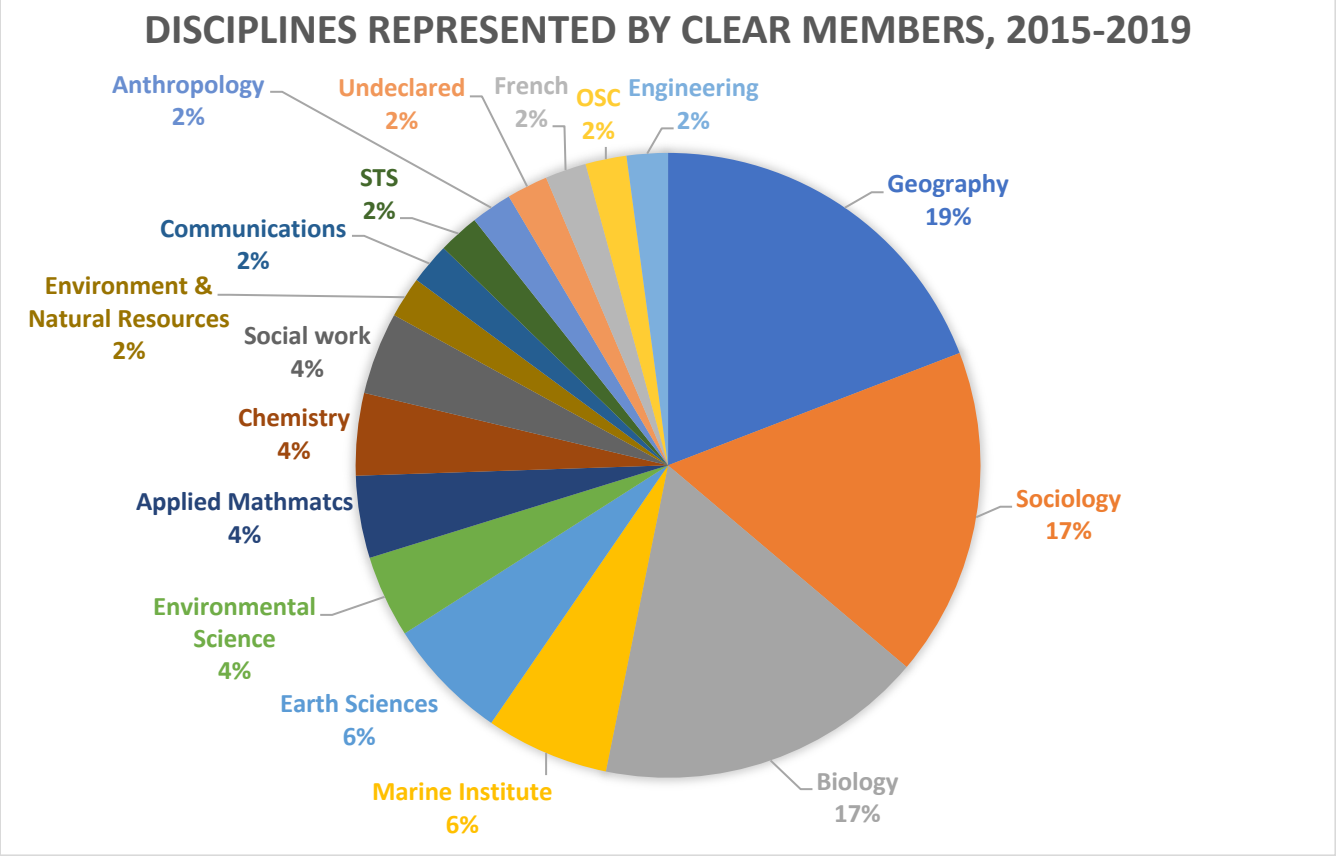



**Individuals mentored as part of CLEAR and other non-degree graduate supervision, 2014-2019**

[chart deleted for privacy]

* Indicates advisement outside of CLEAR.

The way CLEAR is organized allows me to mentor an above average number of people. All CLEAR members, regardless of level or discipline, receive training in peer-to-peer learning, feminist methodologies (reflexivity, consensus-based decision making) and field & laboratory methods (dissection, visual inspection for plastics, quantification of plastics), as well as professional training in co-writing articles and responding to reviewers, community meeting facilitation, and media training. These trainings happen once a week at lab meetings, where we also review each other's papers, do readings on feminist and anticolonial science, and discuss methodologies. Lab meetings themselves are also conducted in feminist and anticolonial ways, serving as training in humility, and inclusivity, as well as practice skills to achieve that such as how to facilitate (rather than lead!) conversations (see "How to Run a Feminist Lab Meeting" in the appendix). Because CLEAR members come from different disciplines, we also engage is significant translation work, aim to bring different disciplinary knowledge to our projects and methods, and aim to write for diverse audiences, all of which require facilitation and training.




The most important aspect mentorship in clear is how I work with students to **co-develop our core values** in the lab, and then collaboratively work to implement those values in our science as well as in how the lab is run and how we relate to one another. I have attached the values section of our lab book in the appendix. We developed these values through facilitated discussions and group work; I want to note that the value on inclusive openness in the lab book was created without any input from me and remains crucial to many student's orientation in the lab. Most students stay with CLEAR after their first semester, citing the collegial environment and how they have autonomy over projects within a supportive, collaborative environment. Following CAUT 3.2.5.27 ("evidence of student satisfaction including written comments received during the term of after a course has been completed") I share this note given to the lab from a master's student upon her graduation:

> One of the memories which stays with me about the lab was a day during my master's coursework. I had arrived at the lab meeting immediately following a class in which a professor was having students present their work to the class. The environment in the classroom had been uncomfortable and tense, nobody seemed to feel comfortable to address the power dynamic in the room in which a professor was laughing at student's work and making backhanded comments about their interpretation/understanding of their own work. Needless to say, it was not a pleasant experience.[3]

[3] This student was not in Geography.

> I arrived at that week's lab meeting feeling weary and discouraged. At that particular meeting, we were attempting to map out what we saw as the values of the lab, by writing key words on paper and discussing the meaning of the value. We were asked to share stories of our experiences in the lab which embodied the values we were suggesting. The whole process felt inviting and open, we listened to one another's contributions, and learned along the way. It was a teaching through process moment, one of many that I've had in the lab. The contrast between the class I'd attended and the lab meeting was not only stark, it also felt revealing of how the environments we create, the attitudes and values that we have, and how we learn and teach can help nurture and support us and others around us.
>
> For every moment in the lab that an idea or task has been explicitly taught, there have been just as many moments where teaching has been implicit. I'm grateful to have been a member a CLEAR and thank you to each of you for your contributions.

I often ask CLEAR members to write notes to one another about the valuable skills and characteristics their peers bring to the lab as a sort of collegial peer review of skills. Recently I've also asked that they write notes to future CLEAR members to put at the start of the lab book so incoming members know what to expect. We are also increasingly using autoethnography to document "stories" of learning and collegiality, and they are already a valuable co-mentorship and lab management tool. This is a note to a future CLEAR member from the summer of 2019:

> No matter who you are, your position experience or education, <u>don't worry!</u> Once you are part of this lab your contribution is just as important as anyone else's. Here, you won't only learn about science and research but also about respect and inclusion in ways you may have never thought of. It is a seriously amazing experience that will stick with you and influence your life well past the lab!

*Diversity in mentorship*

Neither the collective agreement nor CAUT mention **diversity, equity, or inclusion** as dimensions of good mentorship, but they are central to how to teach and mentor. Many of the strategies and frameworks described above, such as round robins and equity in author order protocols, are efforts at inclusion (creating spaces where diverse people can flourish on their own terms) and equity (which recognizes that some groups of people are systematically oppressed and others are privileged and seeks to address those disparities). Diversity is usually a way to describe difference, and particularly the inclusion of groups that are systematically disadvantaged and underrepresented in academia and STEM fields. Since one of my goals is to do science differently, not only is the inclusion of diverse ways of knowing important in its own terms, it is also crucial to CLEAR's success. There are five diversity categories recognized by Canada's Dimensions program: gender, disability, what they call "visible minorities" and what I will call race and ethnicity to recognize that many people "pass" for white who are not, Indigenous peoples, and LGBTQ2+.

From 2016-2018, I mentored every Indigenous graduate student who approached me who was looking for guidance on doing their graduate work in ways that aligned with Indigenous epistemologies and ethics when their committees did not contain any Indigenous faculty (which is common at Memorial given there are currently only six self-identified Indigenous professors in the entire university, and no two are in the same faculty). To coordinate this group, we created monthly reading sessions to learn about Indigenous authors and researchers that were not covered in their course work and discussed navigating the academy as Indigenous scholars. This group ended when I became a full-time administrator.

CLEAR is committed to diversity in hiring. Since 2015, **76% of CLEAR members have been women, trans, non-binary, and/or two-spirit**. We have always had at least one Indigenous member in the lab, particularly as samples from Indigenous Land such as Nunatsiavut and NunatuKavut are always processed by people from those Lands. In an interview with The Gazette, Inuit CLEAR member from NunatuKavut [name withheld] stated that, "For me, not living in Labrador anymore, processing these samples is a very unique way to connect with the land my family is from" (Green, 2019). **CLEAR's eight Indigenous members (16%) include Inuit, Metis, and First Nations** from the province and beyond. We have had **eight racialized members, mostly international students. This is 16%** of the total membership, and because Memorial does not collect student data on race or ethnicity, I cannot compare this figure to Memorial's student population. However, it seems low given that over 30% of our graduate population are international students and most of those are from African and South Asian countries. For disability and LGBTQ2+ groups, I can only report what has been disclosed to me, which likely underestimates these groups. **Two members have disabilities**, including a learning disability, and the lab has included structures and guidelines to accommodate those needs. We have **significant LGBTQ2+ representation, sometimes nearing half of membership in some semesters**, and we had a **queer science reading group** for a year that created a queer science reading list available online, and whose membership was interviewed by Lady Science in 2018 (Lady Science 2018). We do not have a precise count of LGBTQ2+ membership, but it includes at least nine members (18%) and is likely much higher.

*Future mentorship plans*

I have recently submitted an NSERC PromoScience application to **begin an Indigenous Apprentices in Anticolonial Science (IAAS) program,** an Indigenous-led, one-week residential program distinguished by a dedication to Indigenous and anticolonial science, technology, engineering, and math (STEM) methodologies, informed by diverse Indigenous worldviews and values. IAAS will build a cohort of self-identified Indigenous researchers from a diversity of ages (youth to Elders), Indigenous groups, geographical areas, and career paths. Cohorts will be curated to support intergenerational, interdisciplinary, and multi-national networks. Indigenous methods such as two-eyed seeing, Indigenous data sovereignty, community peer review, and Indigenous statistics will be brought to bear on STEM activities such as research design, data collection and quantitative analysis, and instrument creation. IAAS is modeled on the Summer internship for Indigenous peoples in Genomics (SING), a successful one-week summer internship for Indigenous students that discusses the issues, misuses and limitations of genomics as a tool for Indigenous peoples' communities, led by [name withheld] . Partners on this project include: [name withheld] . These partners have committed 69% of the costs of the program ($120,000 of $164,800). AICH's letter of support notes that IAAS is a "truly unique, cutting edge opportunity for Indigenous research methods and a means of creating positive, intergenerational, and significant impact on our Indigenous communities across borders."

In collaboration with [name withheld] , CLEAR is also **hosting a cohort of undergraduate students from Drexel University**'s research internship in the summer of 2020. These students will learn about place-based methods through hands-on field and laboratory training. Training begins before they arrive to Memorial, and I am working with [name withheld] to turn CLEAR's onboarding process into a full curriculum.

CLEAR will continue to **host participants from the Women in Science and Engineering (WISE) summer employment program**, which places high school women in the lab for month and a half of full-time summer employment. We will also remain part of Memorial's Undergraduate Career Experience Program (MUCEP) and its international counterpart (ISWEP) to ensure undergraduate training in feminist

and anticolonial science; indeed, most of our lab membership is made up of undergraduates, and many cite their work in CLEAR as their inspiration for going on to graduate school:

> "Thank you, Max! I honestly don't think I would have thought of applying for the M.Eng program if it wasn't for my time in CLEAR lab. The LADI trawl was the most fun I ever had working on a project and it made me want to pursue similar projects. So thank you not just for the reference but also for inviting me to the lab, I hope things are going well." - note from Melissa Novachefski after submitting a letter of recommendation for her to graduate school, 2019 (MUCEP in 2016-2017)

## Collegial co-learning and instruction

*Chair in Teaching and Learning*

No one teaches in a vacuum, and many of us rely on our colleagues to discuss our teaching techniques and challenges. Indeed, CAUT notes that "evidence of help given to colleagues on teaching improvement" (3.3.3.14) is part of good teaching. To support this in a systematic way, I became **the inaugural Chair in Teaching and Learning (CTL) in the Faculty of Arts from 2015-2017 to specifically strengthen the faculty's capacity to teach and mentor Indigenous students**. While some of these initiative are covered under service, I gave a number of workshops to faculty on inclusion of Indigenous content and ways of learning in the curriculum, acted as an informal faculty mentor to students using the Aboriginal Resource Office, and worked with Junior University, where Inuit and Innu high school students from Labrador come to Memorial for a week. As Chair, I've also given faculty workshops on syllabi creation and talking to the media, and was a team leader in a project with the Harris Center to create a proposal for a Semester in Dialogue program, where students from across the university engage in an interdisciplinary 15 credit course to solve problems of civic importance with community partners. My final report to the Dean of HSS for the Chairship is in the appendix. The Chairs in Teaching and Learning were not renewed as a program by the provost after their first term (the reason cited was budget constraints).

*Workshops*

I have received **19 invitations to teach from outside institutions** (CAUT 3.2.7.39) since my arrival at Memorial, including: **instruction to over 100 New York City K-12 teachers** via Cooper Hewitt's Education programs and a workshop on "Reimagining the Research Lab" at Vanderbilt University in 2019, instruction at Cornell's Summer School on Designing Technology for Social Impact specifically for students from unrepresented groups in 2018, technical training in microplastic surface water trawling and biomonitoring in wild food for the Nunatsiavut Government, community of Nain, and Bluenose Coastal Action, workshops on teaching methods for syllabi creation and what is often called "cultural competency" in teaching, and finally, I have conducted various workshops around the world on implementing values in design.

*Teaching in the role of Associate Vice-President (Indigenous) Research*

My secondment to executive administration means I have not taught a classroom-based course since September 2018. However, I still **teach regularly in the AVPIR role**. One reason for the creation of the AVPIR position was a need to strengthen internal capacity for Memorial researchers to work with Indigenous groups. This requires support in the form of teaching about protocols for conduct, histories and cultures of Indigenous groups in the province, and norms, ethics, and methods on doing this kind of research in a good way, drawing on Indigenous writing and theory. In this way, I teach faculty and staff as a regular part of my administrative position. For example, within a week of my arrival, MarComm, the communication unit at Memorial, invited me to teach them about proper terms and best practices in reporting Indigenous stories in

their publications and news. To help this teaching become more apparent for this file, **I invited** [name withheld] **, Education Developer at the Center for Innovation in Teaching and Learning, to observe two sessions of the Indigenous Relations brown bag lunch series** that I run with [name withheld] (in accordance with CAUT's 3.2.2.22 & 3.2.6.29. Geary's full report is in the appendix). [name withheld] and I hold the monthly brown bags precisely because so many faculty and staff approach us with basic questions about Indigenous peoples and relations. We hold these sessions to address questions as a community and to **build up a community of knowledge and practice**. [name withheld] observation discusses how I establish a welcoming and non-threatening environment to encourage participants to ask questions, offer meaningful professional development sessions that evidence an increase in knowledge, skills and attitudes of participants (including evidence of learning how to introduce oneself in a way that acknowledges different positionalities in relation to colonialism), and finally how these methods demonstrate what I call **an Indigenous pedagogy**. To the last point, [name withheld] writes,

> "[Dr. Liboiron] is generous and willing to share her experiences, her knowledge about Indigenous Peoples, communities and priorities. At an institution, like Memorial, with such a small population Indigenous staff and faculty, there is a burden on this small population to engage in the work of Indigenization. While reconciliation and decolonial work can and should be done by settler-allies, these folks, no matter how well-meaning, cannot do "Indigenization". It is for that reason that educational leadership is likely to happen among Indigenous faculty and staff regardless of formal roles and responsibilities…. Not one to do all the work, however, Dr. Liboiron appears to expect learners to embrace topics and ideas that may cause discomfort and to find a way through these topics that makes the most sense for them. In addition, it is clear that she expects learners to think and reflect thoughtfully and meaningfully, which undoubtedly contributes to everyone's learning."

To help support myself in this type of teaching, I taken an online course, Reconciliation Through Indigenous Education, from the University of British Columbia to enable a broader view and wider reach of materials and strategies in this work (CAUT 3.2.3.21). I also regularly debrief with [name withheld] on the brown bags and similar teaching to ensure continuity of message and discuss challenges.

## In conclusion

Like most of my colleagues, I do not believe teaching starts and ends with a classroom. Much like my research practice is focused on methods and practices, so too is my teaching: I wish to work with students, peers, and colleagues on **the *how* of being in good relations** and of making change. I will conclude with a quote from an exit interview with professional filmmaker Taylor Hess, who joined CLEAR as she made a documentary of the lab and whose words exemplify the different spaces and ways that teaching matters to practice:

> "I went to school for journalism, and I've worked in film for some years, and there's so many practices I've been taught, many of which are great and I'm grateful to have learned, but many of which ought to be questioned, rethought, and changed. An example that most sticks out to me is from when we were in the lab discussing the media release we prepared. It was hard for me to travel to Newfoundland and shoot a documentary without knowing we'd be able to get a release signed in the first place, but to try to re-edit the entire release and transform it into a "collective agreement" that aligns with our "participatory filmmaking" approach? I thought we'd never agree! But, of course, we did. And this helped me re-learn that journalism isn't about getting access and then getting out with MY story. It's instead a bit muddier, but a whole lot richer when it recognizes that a story can

only happen between journalist and subject. And so, the story isn't owned/authored solely by the journalist. In many ways, or really, in all the ways, it is shared."

## References

Green, Jeff. (2019). "One-of-a-kind." *The Gazette*. Feb 14. https://gazette.mun.ca/research/one-of-a-kind/

Lady Science Editors. (2018). "'Categories aren't these things that are just there': An interview with the CLEAR Lab's Queer Science Reading Group," *Lady Science*. https://www.ladyscience.com/ideas/categories-arent-these-things-that-are-just-there

Walsh, Chris. (2013). "The Blank Syllabus." MLA Convention.

## Appendix

**A. Syllabi**

1. Syllabus & Schedule: SOCI2120: Society & Technology
2. Syllabus & Schedule GEOG/SOCI3150: Science, Technology, Society
3. Syllabus & Schedule: SOCI/GEOG4107: Feminist GeoTechnologies
4. Syllabus & Schedule SOCI 6630: Science and Technology.
   This syllabus shows the "blank" schedule before we decided our collective learning objectives and how to meet them, as well as the finished schedule built to meet those needs.

**B. Assignments**

5. Student Output: Group work contract and collaboration assignment and evaluation rubric (SOCI2120)
6. Student Output: Classroom contract developed collaboratively and by consensus the first day of class (SOCI4107)
7. Final project 2120: White paper on classroom technology
8. White paper on classroom technology, SOCI 20120: "Classroom Distractions: Understanding technological distractions as a means to reclaim the classroom."
9. 3222 final paper: "Endocrine Disrupting Compounds in Newfoundland: No evidence of feminization occurring in local populations born after 1965."

**C. Evaluations**

10. Power point used to coordinate class discussion of how to change GEOG322 to enable student success.
11. Student feedback on survey on how to change GEOG322 to enable student success.
12. Changed GEOG3222 schedule based on feedback with changes highlighted.
13. Notes to future students in GEOG3222.
14. Notes to future CLEAR members.
15. Formal observation of teaching in AVPIR role by Mr. Jason Geary, CITL.

**D. Mentorship infrastructure at CLEAR**

16. CLEAR Lab book excerpt: values statement and lab guidelines.
17. How to run a feminist lab meeting

**E. Chair in Teaching and Learning**

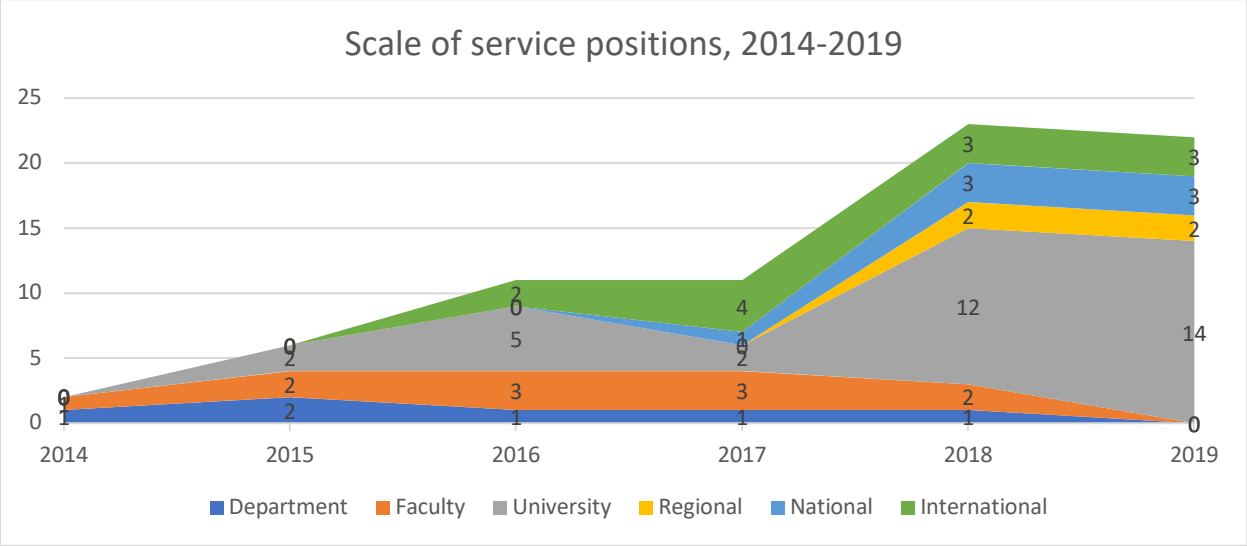
18. Final Report

# Service Dossier
# (11.29c & 12.13c)

## Table of Contents

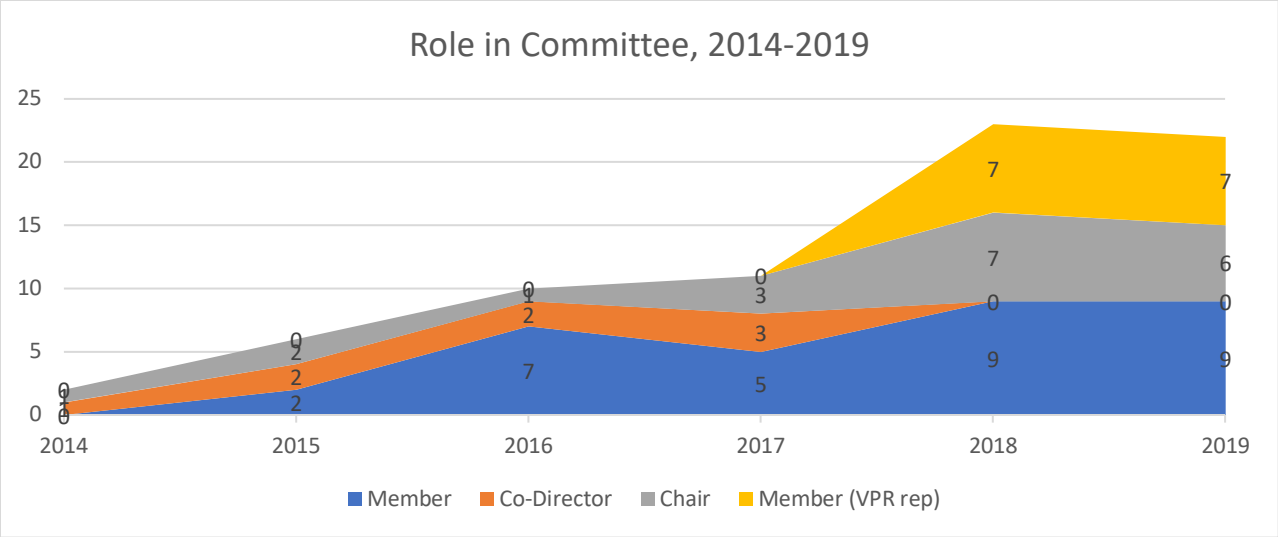
## Introduction

Memorial University's Faculty Association collective agreement recognizes "development work" (11.29) as both intellectual labour and service. While I conduct service work, which "includes internal and external activities related to the functioning of the University" (11.29c) at a rate higher than many than other assistant professors at the university, it is in no small part because of my full-time administrative position as Associate Vice-President (Indigenous) Research (see time-based graph below on number of service positions, which is one way to look at the quantity and reach of service work). But I have also co-organized events and groups at multiple scales and have contributed to the well-being of my departments, faculty, university, and scholarly community through service work that both exceeds my AVPIR duties and does not produce a count of positions. This dossier will be organized according to the categories listed, in order, in the collective agreement.




## Participation in University, Faculty, and Departmental Committees 11.29c

My participation in university committees scaled quickly from **two positions in 2014** as webmaster for Sociology and co-organizer of the Waste and Science, Technology, Environment Research Group (WaSTE) to **six positions in 2015, 11 in 2016 and 2017, then as I became AVPIR, 23 in 2018 and 22 in 2019.** The jump in number of committee positions in the last two years is mostly attributable to the position as Associate Vice-President (Indigenous Research), particularly as the terms of reference for committees such as the Conflict of Interest Committee and Awards Committee call for a representative from the VPR's office (these positions are noted in the graphs as "VPR Representative" below). Indeed, **in 2019 four of my 22 committee positions are not related to my AVPIR position**. Note that as AVPIR, I cannot serve on departmental or faculty-level committees and make decisions at those levels, as it represents a conflict of interest.




Yet I do not wish to give the impression that my service as AVPIR has dominated my service to the university. Indeed, 44% of my service load occurred before I was a full-time administrator. In my first two years at Memorial, all of my service work was conducted within the university at the departmental, faculty, or university level. In 2016, I began serving on international and national committees, starting with co-organizer of the Gathering for Open Science Hardware (GOSH), discussed below. Since 2014, **nearly 50% of my committee service has been at the university level**, a trend that began in 2016 two years before my appointment to the Vice President (Research) Office. I was often called to this service because of my interdisciplinarity. For example, I was on the selection committees for University Research Professor and the Vanier SSHRC graduate award because I could adjudicate across disciplines, and I co-coordinated the Science and Technology Studies (STS) Hub for three years by bringing together people from Humanities and Social Sciences and Engineering. While much of my service on committees has been as a regular member, **I have been chair or co-director of 37% of committees** I have served upon (starting in my first year at Memorial), and I have attempted to build community, opportunities, and equity in this service. I outline a few of these efforts below.

*Waste and Science, Technology, Environment Research Group (WaSTE) (Co-director, 2014-2017)*
WaSTE (Waste and Science, Technology & Environment) is an interdisciplinary research hub based in the Geography department, where we have one of the world's highest densities of scholars who study waste and pollution from a science and technology studies (STS) perspective. Core membership includes Drs. [names withheld], and our students and postdocs. While this group was formed before my arrival to Memorial as a reading group, it had waned and the addition of one more researcher with expertise in discard studies and STS allowed us to come together again, providing support through reading groups and reviewing each other's work. This group did produce one paper together (Lepawsky et al. 2017) and we recently advertised a PhD position together in 2018-2019. The group has not formally come together since 2017, though we continue to support one another's work informally. I would characterize this type of service as providing **infrastructure for research excellence**.

*Harris Center Applied Waste Research Grant Committee (Chair, 2015-2017)*
I **chaired this committee due to my interdisciplinary expertise** in waste. The fund is administered by the Harris Centre at Memorial and the main funder is The Multi-Materials Stewardship Board (MMSB),

the provincial Crown agency responsible for developing, implementing, and managing waste diversion programs in Newfoundland and Labrador. The committee is made up of government, industry, and academic representatives and translation across these groups is a key aspect of chairing the committee. Rather than merely chairing the committee, however, I worked with MMSB to stage meetings at the university for faculty and students so MMSB could articulate the challenges they faced in waste management, and researchers could articulate their research interests to find points of overlap to **increase the saliency of applications**. While this fund has completed its budget and is no longer offered, I continue to collaborate with MMSB by offering peer review of their research and policy papers, and I am currently working with them on a unique research project that investigates whether roadside litter is migrating into the ocean.

*Feasibility Study for Semester in Dialogue, Harris Centre (Member, 2016)*
In 2016, the Harris Centre undertook a feasibility study for **an undergraduate interdisciplinary program**, the Semester in Dialogue. With the support of the Teaching and Learning Fund, I was part of a team that included [name withheld]. The Semester in Dialogue was designed to be a full-time, collaborative, and dynamic learning program available to 20 students from a variety of faculties and schools that used methods of dialogue and experiential learning to address complex community-based and public policy issues. We created a plan for where the program's home will be, how it will be delivered, how students will be chosen and given credit, how topics relevant to the community will be chosen, and how instructors (including community instructors) will be awarded credit or payment for their work. The report now rests with the Provost.

*Curriculum & Planning Committee, Department of Geography (Chair, 2017-2018)*
In 2017, I became Chair of the Geography Department's Undergraduate Curriculum & Planning Committee. Together with an exceptional committee, **we gathered robust data to articulate several issues** facing the department, including an acute precarity in our ability to provide current courses given upcoming retirements, ongoing sabbaticals, other faculty leaves, and an unevenness in terms of where and when (and if!) core skills are taught to our undergraduate students. Using our data, we outlined potential approaches to dealing with these issues in a report, which we presented at an all-day faculty retreat in April 2018. The 25-page report of our work is in the appendix. I had to leave the committee when I became AVPIR and have not been able to oversee some of the changes Geography has been making towards our shared challenges.

*Labrador Institute at 40 Strategic Task Force (Member, 2018-present)*
For 40 years, the Labrador Institute of Memorial University situated in Goose Bay has provided a presence in, and connection to, Labrador for Memorial University. Initially designed to be an extension arm of the university, the Labrador Institute has continued to evolve, grow, and develop. A taskforce that includes the provost, several Vice-Presidents and local Indigenous rightsholders, among others, was created in 2018 to support the strategic growth, revisioning, and advancement of the Labrador Institute to enhance and expand educational, research, and outreach opportunities in Labrador and the North, by working across campuses and with Innu and Inuit leadership and co-governance to increase sovereignty over higher education in Labrador and the North. In 2019, after considerable consultation and planning, our **core recommendation was to grant the Labrador Institute the status of an academic unit and a campus**, and this recommendation was approved at Senate on September 10, 2019 (see report in appendix). The next step will be to craft a co-governance structure, business plan, and other supporting infrastructures for the new campus.

*Awards Committee (Chair, 2018-present)*
The Associate-Vice President (Research) is always Chair of the Awards Committee for the University, which gathers nominations from the different units and schools for faculty for research awards from high-ranking external sources such as the Royal Society and the Order of Canada (and hundreds of others) as well as a handful of pan university awards such as the University Research Professor, the John Lewis Paton Distinguished University Professorship, the President's Award for Outstanding Research and a few others. When I took over the position in 2018, I asked for data on the disciplines, genders, and other equity and diversity metrics of awardees in the past. Where data existed, we noted an inequity in gender and disciplines. My first step was to put out a special call on social media and to deans for women nominees for the University Research Professor Award. The immediate result was a notable spike in women nominees (I cannot release the final results of the award at this time). In 2019, I proposed diversity targets to the committee of 50% women and 33% people of colour and Indigenous peoples for applicant pools, and the committee unanimously agreed. It is too early to see the results of this effort. From preliminary research it seems **we are the only university with diversity targets in our awards process**. We will be putting these targets in the terms of reference for the committee, so they exceed my place in the AVPIR role in another attempt to **build infrastructure**.

## Service in professional organizations and associations, for example, through holding office on executive boards and committees 11.29b

Outside of the university, I have sat on several advisory boards since 2017, including 5 Gyres, an international plastic pollution research, education and advocacy group, and The Coasts and Oceans Risk Communication (CORC) Community of Practice (CoP) group funded by MEOPAR and directed by Dr. Joel Finnis at Memorial. I also sit on the management board of Karluk, a collaboration space shared between Memorial University and the National Research Council (NRC) designed to encourage collaboration and knowledge sharing. I also sit as a member on national organizations that aim to coordinate activities between universities, including the Oceans Research in Canada Alliance (ORCA) and the Alliance of Canadian Comprehensive Research Universities (ACCRU). I outline a few of these positions below.

*Making and Doing Committee, Society for the Social Studies of Science (4S) (Member, 2016-2018)*
As described in my research dossier, Making and Doing describes methodologies and modes of circulation that move beyond traditional papers and academic outputs, where methods and dissemination influence science and technology theory and vis visa. After receiving the inaugural Making and Doing Award from the Society for the Social Studies of Science (4S) in 2015, I sat on the Making and Doing committee from 2016-2018, helping organize the session and judge for the Making and Doing Award (the term of service is set by the committee and I filled my full term). I believe **this award is crucial for allowing researchers to demonstrate the value of their work when it does not take traditional forms**. Through this position and influence with colleagues who continue to serve on it, I have been working to **make ethics part of evaluation** of these kinds of projects within 4S.

*Expert Group on Marine Litter, Protection of the Arctic Marine Environment (PAME) (Member, 2017-present)*
PAME is an international consortium whose mandate is to address marine policy measures and other measures related to the conservation and sustainable use of the Arctic marine and coastal environment in response to environmental change. PAME is currently developing a Regional Action plan on Marine litter in the Arctic. It is co-led by 7 of the 8 Arctic States, and **I am one of two representatives for Canada**. I was part of creating the "Desktop Study on Marine Litter, including Microplastics in the Arctic" report as part of the first phase of a marine litter policy project for the Arctic. This work began in 2017 and is ongoing.

*The Arctic Council & AMAP Litter and Microplastics Expert Group (2019-present)*
The Arctic Monitoring and Assessment Programme is one of six Working Groups of the Arctic Council, a high-level intergovernmental forum that provides a means for promoting cooperation, coordination and interaction among the Arctic States. AMAP is mandated: to monitor and assess the status of the Arctic region with respect to pollution and climate change issues; to document levels and trends, pathways and processes, and effects on ecosystems and humans, and propose actions to reduce associated threats for consideration by governments, and; to produce sound science-based, policy-relevant assessments and public outreach products to inform policy and decision-making processes. My role in the expert group is to collaboratively **create reports and recommendations for monitoring plastics in arctic environments for both scientific and policy audiences**. I am the **head of two cross-cutting working groups** on monitoring: longitudinal monitoring networks and accountability-based monitoring methods, and I serve on the fish, mammal, and shoreline working groups as well. This work is ongoing.

## General administrative duties 11.29b

The positions and service outlined below **do not correspond to a committee structure** but include "activities related to the functioning of the University" and even its betterment (11.29 c & 12.13c).

*Technology Transfer and Commercialization Strategy (Consultant, 2015-2017)*
In 2015, before I joined it, the Vice President (Research) Office began consultations on a new Intellectual Property (IP) regime for the university. At the time, this office was heavily influenced by models of IP based in engineering, and the first draft of the IP policy understood innovation in terms that left out humanities and social sciences. I worked with a number of faculty across the university to draft a letter that outlined issues with an engineering-based point of view for the entire university, including one point about open licensing (since the policy conflated privatization with commercialization, and understood both as inherent goods for technology). The VPR office lacked an expert in open technology and hardware, so asked that **I draft a summary report and policy language around open source licenses**. After two years of working together, Memorial's collective agreement now has a unique creator-owned IP regime. Though through the negotiation of the policy into the collective agreement much of the original language I contributed has been removed,it remains in the Technology Transfer and Commercialization Strategy (appendix). I am now working with my team in the VPR office as AVPIR to continue the work I started in 2015 to ensure **equitable distribution of IP rights and goods** through policy for those not covered by the changes in the collective agreement. This work did not afford a specific position on a committee.

*Animals on Campus Policy (Consultant, 2017)*
In 2017, Memorial's Policy Office drafted a policy to eliminate all animals that were not registered service animals or subjects of research. I drafted a letter of protest, citing animal policies in other universities and workplaces that allowed pets under certain conditions and **coordinated 93 faculty, staff, and alumni to undersign the letter**. The Policy Office then asked that I **work with them to create policy language** that allowed respectful workplace conditions that could include animals. I also worked with them to strengthen the language around service animals. That policy proposal was approved on March 14, 2017 but is still in the development stage for the final policy. This work did not afford a specific position on a committee.

*Chair in Teaching and Learning (2015-2017)*

From 2015-2017 **I served as the inaugural (and only) Chair of Teaching and Learning for the Faculty of Humanities and Social Sciences**. Each faculty in the university had an appointed chair (appointed by the dean), mandated to enhance the student learning experience by promoting the development of innovative pedagogical approaches and teaching capacity. I completed several initiatives during my time as chair: 1) I worked with the Centre for Institutional Analysis and Planning (CIAP) and the register's office to create a system where **all Indigenous students can self-declare** during admissions intake so that Memorial can collect information for a long-term project to understand trends in admissions, retention, and disciplinary homes of Aboriginal students in order to serve them better. While some intake forms collected self-identification data, they were not standardized nor ubiquitous (for transfer students, international students, etc) and thus did not collect reliable data. Now they do. 2) To develop increased capacity on Indigenous education, I **invited outside experts** Richard Chavolla, who specializes in domestic diversity in higher education, as well as Emily Simmonds and Michelle Murphy, both Metis scholars and pedagogues, to hold workshops, have meetings with faculty and higher administrative staff, and give public talks on Inclusive Excellence and Indigenous mentorship at the University. 3) I ran several workshops with Edward Allen, Aboriginal Resource Office employee (and now my Geography PhD student) on **Indigenous education and transformation of syllabi, assignments, and other teaching materials** (these workshops were initially called "Decolonizing your syllabus," but now I know better. See research dossier). 4) To support instructors and students in identifying Indigenous scholarship to include in their teaching and classroom research/thesis work, I **funded and curated an Indigenous Author Library**. I am now looking to make the library accessible and sustainable. These efforts collectively aimed to **increase institutional capacity, change culture, and build infrastructure**. The Chair in Teaching and Learning program was not renewed after it ended in 2017.

*Associate Vice-President (Indigenous) Research (2018-present)*

**Just over half of my career service work to Memorial University has been in the executive administration role of Associate Vice-President (Indigenous) Research (AVPIR) in the last year**. When Dr. Neil Bose, Vice-President (Research), joined Memorial two years ago, he realized that the university would greatly benefit from a full-time position that **managed and strengthened activities around university-Indigenous relationships in research**. After consulting with colleagues and Indigenous groups about high-intensity researchers at Memorial who are also Indigenous, he offered me the position in August 2018. After consultation with my department head, dean, colleagues, and Elders, I accepted. The AVPIR allows many of my earlier efforts as Chair in Teaching and Learning and as a community researcher to scale up. As you will see below, my role as AVIPR has granted the opportunity to **impact Indigenous and non-Indigenous communities at university, provincial, national, and international level**s, truly a gift for doing work that aims to change the status quo.

The AVPIR position includes three core mandates:

> A) Strengthen relationships between Memorial and Indigenous groups, especially those in the province, including establishing methods to ensure appropriate consultation and engagement of indigenous communities and government leaders prior to and during the initial stages of research proposals as well as increasing Memorial capacity to build major institutional research activities and applications with Indigenous communities and Indigenous researchers;
>
> B) Identify and pursue emerging opportunities to establish new partnerships with a multidisciplinary focus on research with Indigenous communities and Indigenous researchers;

C) Connect with Indigenous communities and academic or research institutions from around the world to share ideas, network and provoke creative discussions on Indigenous matters and research opportunities/challenges.

These responsibilities are in addition to AVP tasks outside of an Indigenous focus that maintain the overall VPR portfolio (e.g. chairing VPR award committees, serving on the conflict of interest committee, working with IP issues, working with animal care, developing new policies on research, liaising with tri-agencies, etc.). A few of these tasks are outlined above in the committee section. These are some of the initiatives I am undertaking as AVPIR in addition to regular administrative, problem-solving and sustainability work related to the overall research portfolio.

*Consent for Indigenous research*

One of the thigs we've been hearing through the Office of Aboriginal Affair's Indigenizing consultations is that Memorial employs many good researchers who work in Indigenous topics and invest in relationship building, who understand reciprocity in research processes, and who make community and group research questions a priority. At the same time, we've also heard from all Indigenous groups in the province (and beyond) that Memorial researchers regularly come into groups or communities and extract knowledge, do not follow through with promises to return data, do not use proper consent, and do not recognize community or group priorities, ethics, sovereignty, and rights. Yet "parachute," extractive, and paternalistic research is not aligned with reconciliation, nor with Memorial's expressed investment in Indigenous research. Paired with calls from Indigenous groups such as Inuit Tapiriit Kanatami, the Assembly of First Nations, the United Nations Permanent Forum on Indigenous Rights, and many of the Indigenous groups in our province, **the Consent for Indigenous Research initiative is a suite of infrastructures including a proposed policy, data sovereignty agreements, Memorandums of Understanding (MOUs), published best practices, and cultures of practice that will require Memorial researchers to obtain collective consent from Indigenous governing bodies, nations, or groups at the earliest stages of research** design to ensure better relationships and recognition of Indigenous self-determination in research. After a year of consultations with 29 sessions with diverse stakeholders and rightsholders, a draft of the policy is now being written up with a working group of three university and community members. This work is being done with several supporting documents I have crafted or coordinated, including a horizon scan of similar policies at other universities and tribal colleges, best practices from the literature, and a 'what we heard' document from consultations, all of which will be made public in the fall of 2019 as a drafted policy begins a formal round of consultations. This suit of resources and the policy will be the **first of its kind in Canada that addresses all research at a university**, though of course there are precedents at various scales and regions. The Tri-Agency, the largest academic funding agency in the country, has expressed an interest in the outcomes of the policy.

*Building internal capacity for excellence in Indigenous research*

Building capacity and change culture requires work at a diversity of scales and creating supportive infrastructure. These are a few of my efforts towards that goal:

1. To ensure that familiarity and expertise on the ethics, politics, and best practices of Indigenous research is not siloed, I host **monthly brown bag lunches** on Indigenous relations with the Special Advisor to the President on Aboriginal Affairs, Catharyn Andersen, that are open to all members of the Memorial Community (mentioned above in teaching).
2. I am part of the **Labrador Institute Task Force** with the goal of building strong partnerships and infrastructures in Labrador for Labrador-driven research (mentioned above in committee work).
3. I am working with the awards committee to ensure terms of reference for internal awards are able to **recognize excellence in community-based and Indigenous-partnered research** and

understand **best practices of self-identification** for targeted awards, in addition to the work on diversity targets mentioned above.

4. I have been working with MarComm, Memorial's communication office, on **best practices of reporting stories and press releases about Indigenous topics** such as which terms are appropriate to use, but more importantly I am ensuring they have community quotes and consent in stories that talk about or impact Indigenous communities, and we are working on ensuring images and the selection of story topics align with Indigenous community standards and needs.
5. After complaints from faculty about issues with spending grant money in remote northern locations, including with Indigenous partners, I have been working with Financial and Administrative Services (FAS) to develop **new policies and guidelines for spending grant monies in remote locations** in ways that privilege ease and timeliness of payment to local peoples and organizations, anticipates unanticipated costs and travel delays, and that increases possibilities and ease of paying Elders, people without social security numbers, and other community members that are not contractors.
6. Finally, I coordinate and provide training, troubleshooting, and support for Associate Deans of Research, grant facilitators, and staff in Research Grants and Contract Services (RGCS) on Indigenous research grants, contracts, and IP.

To meet these goals, I meet regularly with the Special Advisor to the President on Aboriginal Affairs, the Student Affairs Officer on Aboriginal Affairs at Grenfell campus, and the Director of the Labrador Institute.

*Building regional, national and international networks*

As mentioned in the section above on committees, I sit on **national and regional steering committees** and boards with the goal of sharing ideas and initiatives on strengthening Indigenous research, including: Oceans Research in Canada Alliance (ORCA), Alliance of Canadian Comprehensive Research Universities (ACCRU), and the Ocean Frontier Institute's (OFI) committee on Excellence, Impact and Engagement Committee (EIEC).

I am part of the Canadian Data Sovereignty Network to strengthen intellectual property and data sovereignty practices, including working with leading experts in the field at the University of Arizona and Otago University in Aotearoa/New Zealand. I am currently working with our legal counsel to create a template **research agreement premised on Indigenous data and IP sovereignty**.

I pay a leading role in the **Nunavut Arctic College**'s partnership with Memorial University, and particularly int heir goals for increasing research capacity. I work with their Director of Research, Vice-President, and other staff to support a potential internal Indigenous ethics review board, an Indigenous-methods field school in Nunavut, potential changes in their research agreements, and other tasks as they request. To support this, I have monthly meetings with their Director of Research.

Finally, I have played a key role in **Canada's Dimensions Program** (formerly Canada's Athena SWAN), a Canadian program directed by NSERC for post-secondary transformation to **increase equity, diversity and inclusion (EDI)** in research in all disciplines and help drive deeper cultural change within the research ecosystem. The program addresses obstacles faced by, but not limited to, women, Indigenous Peoples, persons with disabilities, members of visible minority/racialized groups, and members of LGBTQ2+ communities and provides public recognition for institutions committed to achieving increased EDI. It is based on the UK's Athena SWAN program. I was part of consultations for Dimension's charter, which outlines the key principles of the program. Based on my feedback during Memorial's consultations, I was invited to work with a small group of NSERC appointees to craft the final language of the charter, which currently has over 90 Canadian universities, colleges, and research centers as signatories. Finally, I was part of an expert review panel that reviewed the 40 letters of intent for the Dimensions Pilot program. A letter of acknowledgment for this work is in the appendix.

## Community service where the individual has made a contribution by virtue of special academic competence 11.29b

One of the commitments that ties together my research, teaching, and service is activist and advocacy work that attempts to make local and regional worlds more livable and just. I have written a paper on what is sometimes called "interventionist research," where research aims to make positive change and is a combination of research and service, or research-informed service (Liboiron, 2016). Many of the activities and achievements I have written about above have been efforts to scale my research into service and social change, such as my role on AMAP, PAME, and 5 Gyres, my expert testimony at the House of Commons, or the way we do community-based research at CLEAR. The last initiative here does not appear in any other section but was conducted in the same spirit.

*Gathering for Open Science Hardware (GOSH) (Co-organizer, 2016-2017)*

From 2016-2017, I was co-organizer of The Gathering for Open Science Hardware (GOSH). GOSH is a **diverse, global community working to enhance the sharing of open, scientific technologies**. The Open Science Hardware movement contains many different groups and people with different--and even divergent-- points of view and ideas of how to move Open Science Hardware forward. But we agree that it is important. GOSH exists to bring these differences together and synthesize them so that we can work collaboratively to achieve our shared goal of open scientific technologies becoming the norm in knowledge production, rather than the exception. In 2017, we came together in Santiago at the Innovation Centre, Pontificia Universidad Católica de Chile. Participants represented 30 different countries, and we constructed diversity targets to ensure conversations were not dominated by already powerful voices in technology settings: **48% of invited participants were women or trans; 25% were people of colour; 55% were from low GDP countries ("the global south"); 34% were from NGOs or community groups; and 33% came from Latin America**. Participants were scientists, artists, lawyers, architects, community organizers, developers, teachers, and students. I cannot overstate the **types and extent of labour that meeting these targets requires**, from ensuring a diverse pool through direct recruitment and advertising, ensuring (and constantly re-ensuring) the selection committee was aware of biases and best practices, facilitating visas and travel for people from low GDP countries, and fundraising so economics were not a barrier to participation. This diversity is crucial to a global movement, which became apparent in discussions and workshops-- the problems of OScH are different in different places for different people, and so ways forward are equally diverse. To support this diversity, GOSH organizers **created a Code of Conduct** based on respecting difference. It also required **considerable facilitation** to ensure all voices were heard, which I did most of during the gathering. I received a special thank you from participants for this work (The full GOSH community report in the Appendix).

Max facilitated many of the of the sessions to foster collective intelligence and brainstorming.

## Plans for future service work

In 2018, the Vice President's Council and President of Memorial University **extended the position as AVPIR for another year, until August 31, 2020**, citing the importance of the position and already notable improvements in Indigenous-university relationships and understandings of challenges. This extension will allow me to finish many of the initiatives listed above as well as build up robust and long-lasting infrastructures and documentation that will outlast my departure. I am also dedicated to making the AVPIR a permanent position (for someone else to fill upon my departure!).

I will be applying for sabbatical for the 2020-2021 academic year. If granted, this will reduce my university service load, and I hope to bring my experiences as AVPIR into my research and write about theories of administrative agency and activism. Already I am working with two colleagues on a paper about queer paperwork that use administration activities as a source for theory. I have been granted a visiting position at the University of Toronto if my sabbatical request is accepted, and the Society for The Social Studies of Science (4S) will be held in Toronto at the end of that year. I will be helping coordinate that international conference during that time.

## Appendix

1. Department of Geography Curriculum and Planning Committee Report, 2018
2. Labrador Institute Task for Report, 2019
3. Technology Transfer and Commercialization Strategy, Draft from 2015 with key open license sections highlighted.
4. Letter of thanks from NSERC for participation in the Dimensions Program, 2019
5. Global Open Science Hardware gathering community report, 2017