placentas, plastic pollution & place

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Abstract The recent discovery of microplastics in placentas opens up a critical line of inquiry for art educators to consider ongoing processes of environmental pollution and our complex, entangled, and interdependent human-land relations. In this co-study with my daughter, we engage in making open-source water trawls (a.k.a "baby legs") to learn with the waters near our home located on the unceded and traditional territories of the Quw'ustun Peoples in the Cowichan Valley on Vancouver Island, British Columbia.

Keywords *Environmental Pollution, Arts-Based Research, Intercultural Education, Art Education, STEAM, Critical Inquiry, Visual Journal*

On a balmy August evening six years ago, I was standing outside on my balcony, watching the moon rise over the lake, when I felt a sudden swoosh. My water had just broken. With my bags pre-packed, I met my midwives at the local hospital and gave birth to my daughter just after sunrise. Many memories have stayed with me from my birthing experience. In particular, I remember the challenges of birthing the placenta, a temporary life-giving organ that me and my daughter co-created and spent nine months with. In all my pregnancy classes and medical check-ups, there was little mention of the placenta's biological purpose, birth, and cultural significance. In many ways, the placenta was treated as an inconvenient afterthought, much like its commonly used synonym, afterbirth.

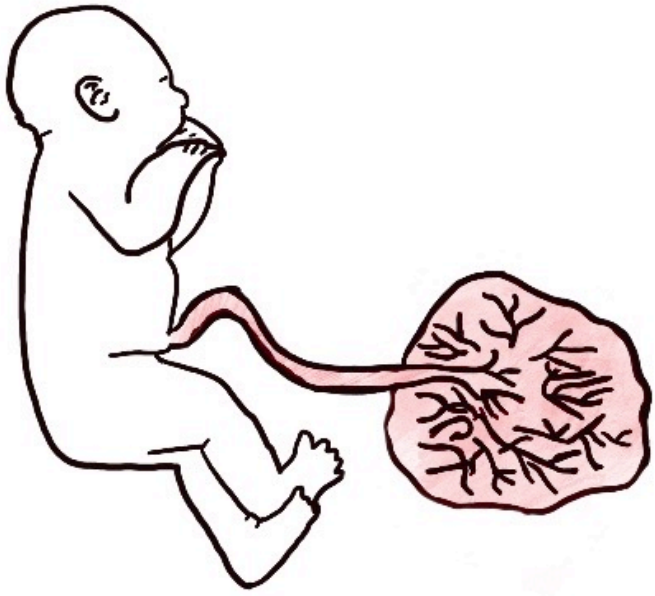

Figure 1. baby & placenta. 2022, Nicole Rallis, digital drawing.

Western-centric medical and cultural knowledge about placentas remains limited. According to the U.S. National Institutes of Health, "the placenta is one of the most important organs in the body," yet "despite its importance, we know little about this critical but temporary organ" (NIH, 2021, n.p.). Following the birthing of a placenta in a hospital setting, it is often discarded as medical waste. However, Indigenous scholar Barbara Alice Mann of the Ohio Bear Clan Seneca states that many cultures hold traditional reverence for and postnatal care of the placenta:

As we have seen, in Matriarchal cultures of Turtle Island [North America], placentae, umbilici, and placental blood clots require very careful handling to ensure the wellbeing of all material existence: the flora, the fauna, the landscape, and the skyscape. (Mann, 2017, p. 69). I let go of my curiosities about placentas in the years following my daughter's birth. However, during the height of the COVID-19 pandemic, I found myself scrolling through medical journals in the evenings. I came across studies demonstrating that microplastics are now easily detectable in human placentas and the human bloodstream (Leslie et al., 2022; Ragusa et al., 2021). The discovery of microplastics in this essential yet understudied organ opened up a critical line of inquiry into ongoing processes of environmental pollution and our complex, entangled, and interdependent human-land relations.

Figure 2. What are microplastics? 2022, Nicole Rallis, digital drawing.

To learn more about microplastics, I engaged with the work of Max Liboiron, a Metis scientist and geographer. Liboiron states that "[microplastic] pollution is best understood as the violence of colonial land relations rather than environmental damage. These colonial relations are reproduced through even well intentioned environmental science and activism" (2021, p. 7). Liboiron's theory of pollution as colonialism focuses on relational and ethical commitments to each other and the more-than-human world—the ways we relate in our day-to-day activities, our researching, teaching, making, and being. Following Cree scholars Shawn Wilson (2008) and Dwayne Donald (2012), Liboiron emphasizes the importance of "how" we conduct ourselves and our research, which must always be accountable to sustaining relationships ethically and caringly (Liboiron, 2021, p. 121). This type of thinking and being has been traditionally grounded

in feminist science studies, feminist philosophies of science, and Indigenous Knowledges through the idea of cultivating the capacity to respond to the world in response-able ways.[1]

Figure 3. response-ability. 2022, Nicole Rallis, digital drawing.

Liboiron's lessons on the interconnectedness of pollution and colonialism lingered in my mind and my body as I reflected on my positionality as a settler-Canadian mother, teacher, researcher, and artist. I thought about the unceded Quw'utsun lands and waters I live on/ and with in the Cowichan Valley on Vancouver Island, British Columbia. The Cowichan Estuary is a partially enclosed coastal body of brackish water with rivers and streams flowing into it, connecting to the sea of the Saanich Inlet. It is home to 230 bird species and a habitat for four salmon and three trout species. I think of this transitional zone between rivers and maritime environments, a place subject to marine influences like tides, waves, and the influx of saline water and fluvial influences such as fresh water

[1] Some prominent thinkers include Karen Barad, Dwayne Donald, Donna Haraway, Sandra Harding, Natalie Loveless, Katherine McKittrick, Alexis Shotwell, Zoe Todd, Vanessa Watts & Sylvia Wynter.

and sediment flows. This mixing of waters, in many ways, symbolically reflects the relational life between a mother, her baby, and the placenta they co-create.

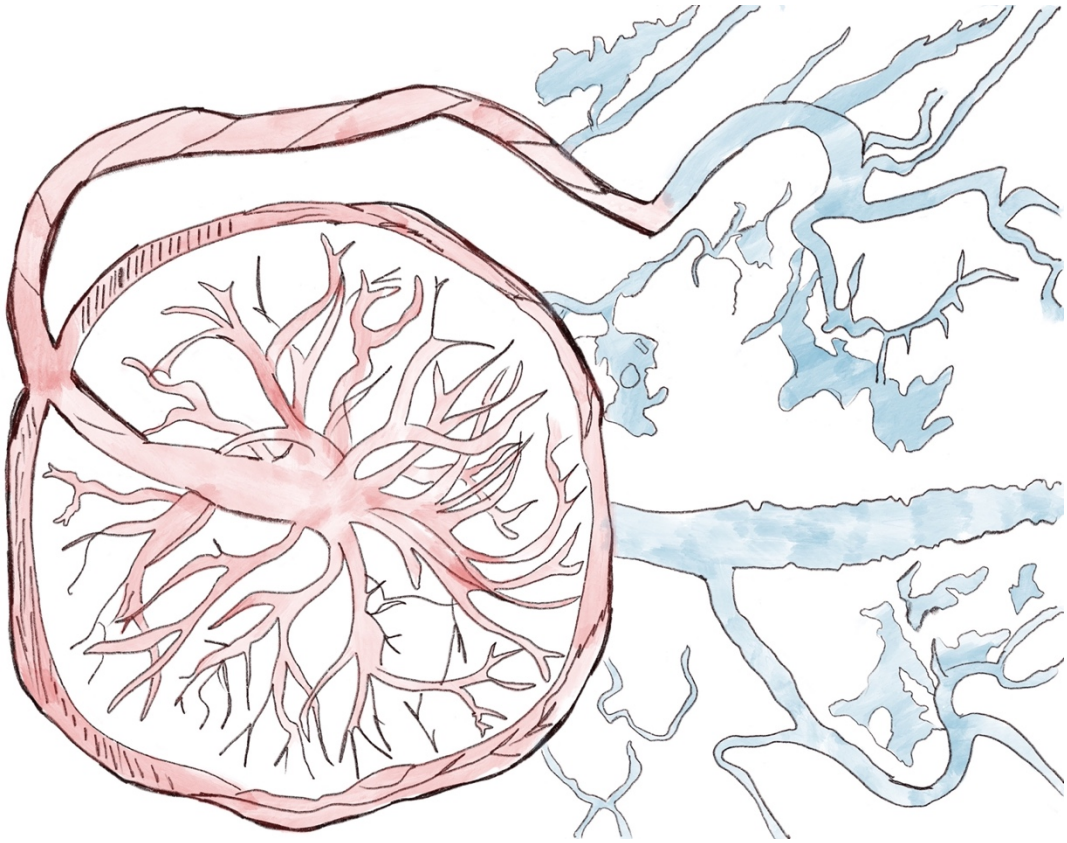

Figure 4. bodies of blood & water. 2022, Nicole Rallis, digital drawing.

Thinking through and with placentas, microplastics, and place deepened my reflections on the Truth and Reconciliation Commission of Canada (TRC, 2015). The TRC has set out calls to action for educators to challenge colonial and anthropocentric frameworks of ecological and cultural violence. Artists and arts educators have a responsibility to create and nurture curriculums that allow for students to enter spaces, conversations, and practices driven by calls to ethically and respectfully respond to the violences of colonialism. One way to begin responding to the violences and bad relations fostered in colonialism is, "to move toward concrete conversations about the Land to significantly reshape settler consciousness" (Ray, Cormier & Desmoulins, 2019, p. 81).

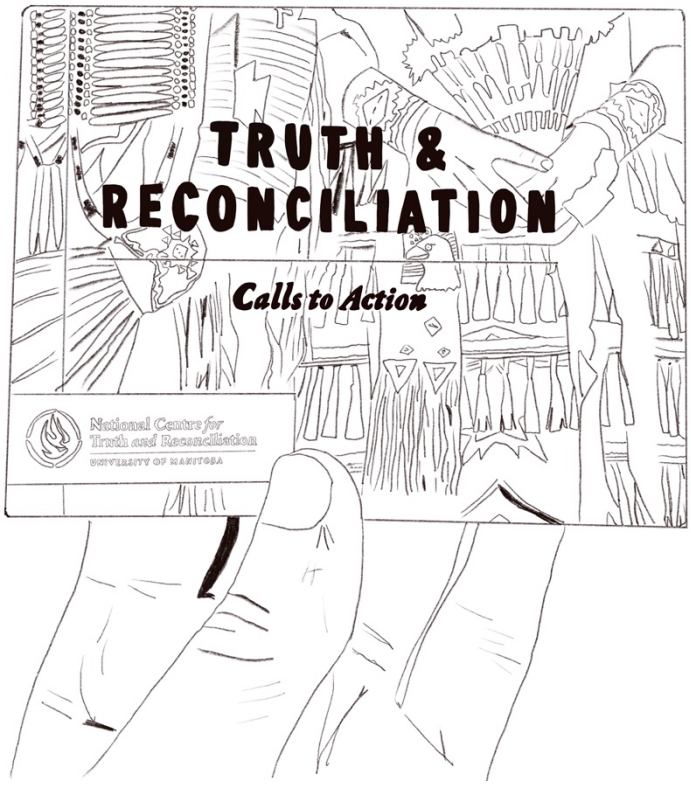

Figure 5. TRC calls to action. 2022, Nicole Rallis, digital drawing.

Microplastics and their entanglement with our bodies and the land is a material representation of our unhealthy relations. I wanted to embark on ways to make and think with these concepts that would inspire reflection and action. I engaged with toolkits made available through the Civic Laboratory for Environmental Action Research (CLEAR) directed by Max Liboiron, located in Newfoundland, Canada on the traditional Mi'kmaw territory, and home to the Beothuk, Mi'kmaq, Innu, and Inuit peoples (https://civiclaboratory.nl/). The CLEAR lab provides both experienced scientists and beginners with templates and lessons for thinking and experimenting with microplastic research. I used their open science wetware tools template to build a surface water trawl, also known as "baby legs" (https://civiclaboratory.nl/methodological-projects/babylegs-a-diy-surface-water-trawl-for-microplastic-pollution/).

Figure 6. making "baby legs". 2022, Nicole Rallis, digital drawing over photo.

During the making of the "baby legs," I was homeschooling my daughter due to the COVID-19 pandemic. She became my co-learner, co-creator, and co-conspirator. In the making process, I conceptualized the water trawls as placentas—something my daughter and I co-created that temporarily connects bodies of blood and water. We collectively made the "baby legs" from the simple materials of used milk and juice jugs, children's tights, a plumber's clamp, and rope. We brought the "baby legs" to the different water sites near our home. As we started putting our trawls in the different waters, many questions arose: What kinds of plastics would our trawl collect? What would the plastics be able to tell us about the life and the well-being of the waters and its more-than-human inhabitants? Where were the microplastics coming from? Who produced them? Who is stewarding and protecting the waters we are visiting? How can we help them? What are our responsibilities to these lands and waters? I also considered the placenta my daughter and I co-created years ago. Was it filled with microplastics? What are the long-term

consequences of being born with/cohabitating with microplastics in the health and development of this little human I love?

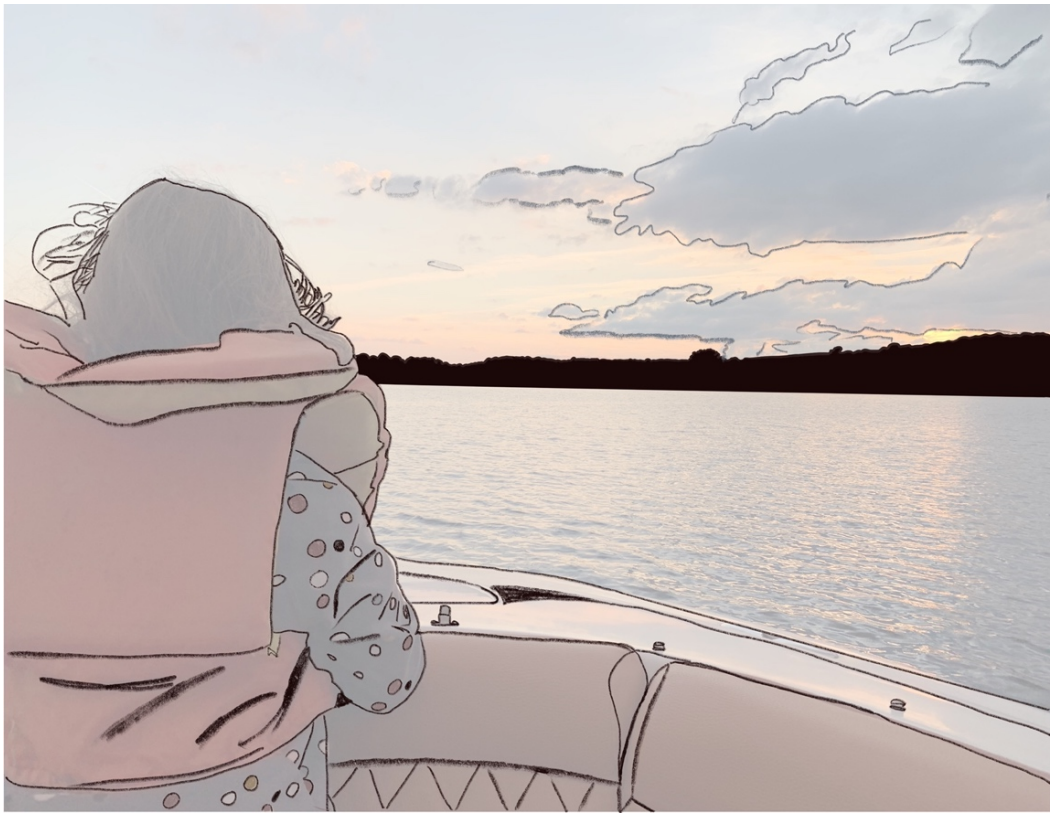

Figure 7. on the water. 2022, Nicole Rallis, digital drawing over photo.

As much as using a water trawl is traditionally and pedagogically considered a scientific endeavour, I began to think of our trawls more artfully. I thought about the aesthetic, poetic, political, spiritual, and non-utilitarian standpoints they inspired. Our microplastic collection process was only sometimes successful. Sometimes we would be by the rivers or salt waters for entire afternoons, unable to collect large samples. That could be considered positive that we could not detect microplastics in the waters near our home. However, it could also indicate that we were not collecting correctly. Regardless of our results, it was in the process of making the "baby legs" and visiting and spending time with the different bodies of water that a living curriculum emerged (Aoki, 1993). In making the "baby legs," we thought about the production of the materials we used; the milk jug that contained milk from a cow- a cow who had a baby for whom the milk was created; the plumber's clamp made of metal, produced by workers in China; the synthetic rope, whose fibres would someday break down into the microplastics we

planned on collecting. The making reminded us of our entangled web of human and more-than-human relations in each moment. Staying with and visiting the waters, putting our hands in them, listening to the sounds, witnessing a heron fishing, or seeing orcas breaching, also became moments where my daughter and I could appreciate the entanglement and interconnectedness of all life.

In *How to Make Art at the End of the World* (2019) Natalie Loveless reminds art educators and researchers that:

> It is our deepest, doggiest, most curious loves that we are beholden, and that it is love—eros—that must drive our research questions as well as our methodological toolkits… To do research of any kind –it is not simply to ask questions; it is to let our curiosities drive us and allow them to ethically bind us; it is to tell stories and to pay attention not only to which stories we are telling and how we are telling them, but how they, through their very forms, are telling us. (p. 28)

Reflecting on placentas, microplastics and place has helped me develop practices that are grounded in, accountable to, and relationally connected with local human and more-than-human communities, histories, and the calls to action by the Truth and Reconciliation Commission of Canada. Understanding pollution as colonialism helps to trouble existing environmental activism(s) that continue to be situated in settler futurity and colonial violences. It is my hope that this project will contribute to how art educators and arts based environmental researchers are thinking about our complex kinship networks between bodies and place.

Figure 8. a living curriculum. 2022, Nicole Rallis, digital drawing.

References

Aoki, T.T. (1993). Legitimating lived curriculum: Towards a curricular landscape of multiplicity. *Journal of Curriculum and Supervision,8*(3), 255-268.

Donald, D.T. (2012). Indigenous Metissage: A decolonizing research sensibility. *International Journal of Qualitative Studies in Education, 25*(5), 533-555.

Leslie, H.A, van Velzen, M.J.M, Brandsma, S.H, Vethaak, D., Garcia-Vallejo, J., & Lamoree, M.H. (2022). Discovery and quantification of plastic particle pollution in human blood. *Environment International,* 1-39.

Liboiron, M. (2015, May 31). Baby Legs: Created with baby's tights, soda pop bottles, and easy to find materials, #Babylegs can be used to trawl for floating marine plastics by hand or from a vessel. https://civiclaboratory.nl/2015/05/31/babylegs/

Liboiron, M. (2021). *Pollution is Colonialism.* Duke University Press.

Loveless, N. (2019). *How to make art at the end of the world: A manifesto for research-creation.* Duke University Press.

Mann, B.A. (2017). Placental waste: Wild boys, blood-clot boys, and long-teeth boys. In Jordan, N. (Ed). *Placenta Wit: Mother stories, rituals, and research.* (pp.57-73). Demeter Press.

National Institutes of Health. (2021, May 17). *Human Placenta Project*. https://www.nichd.nih.gov/research/supported/HPP/default

Ragusa, A., Svelato, A., Santacroce, C., Catalno, P., Notarstefano, V., Carnevali, O., Papa, F., Rongioletti, M.C., Baiocco, F., Draghi, S., D'Amore, E., Rinaldo, D., Matta, M., & Giorgini, E. (2021). Pasticenta: First evidence of microplastics in human placenta. *Environment International,146*, 1-8.

Ray, L., Cormier, P., & Desmoulins, L. (2019). Fish fry as praxis: Exploring land and a nexus for reconciliation. In S. Wilson, A.V. Breen, & L. Dupre, *Research & reconciliation: Unsettling ways of knowing through Indigenous relationships.* (pp.73-85). Canadian Scholars.

Truth and Reconciliation Canada. (2015). *Honouring the truth, reconciling for the future: Summary of the final report of the Truth and Reconciliation Commission of Canada.* Winnipeg: Truth and Reconciliation Commission of Canada.

Wilson, S. (2008). *Research is ceremony: Indigenous research methods.* Fernwood Publishing.