

# SOUNDING THE SACRED HEADWATERS:

APPLIED ECOMUSICOLOGY AS A CRITICAL  
PEDAGOGY OF MUSIC

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## *Abstract*

Ecomusicology and the critical pedagogy of music share a common concern for music and environment. Using social systems theory this paper draws out Freire's pedagogy for critical consciousness—the practice of bringing immanent epistemologies into awareness—and its importance for critical ecological literacy in the new epoch of Anthropocene. This discussion is grounding in an applied ecomusicology project called Sounding the Sacred Headwaters that suggests a central place for Critical Multiliteracies Pedagogy (CMP) in a critical pedagogy of music.

*Keywords:* anthropocene, critical pedagogy of music, social systems theory

## PEDAGOGY OF MUSIC

Critical pedagogy assumes for itself the ability to analyze reality, seen in Freire and Macedo's (1987) often-cited position that critical literacy is "a critical reading of reality" (p. 36). But, there is potential conflict here in Critical Pedagogy theory. It is well known that Freire was, and indeed Critical Pedagogy is, influenced by the Frankfurt School. As an ethnomusicologist, I can see the family resemblance between Freire's claim of a "critical reading of reality" and Theodor Adorno's *The Culture Industry* (1991). Adorno, unlike Freire, seems to make an ontological, not critical constructivist, claim for the 'reality' of the culture industry that his Aesthetic Theory (1984) then sets out to critique. For Adorno and his followers, the culture industry seems to be a 'thing', though outside of his theory and their discourse, its material reality is less certain. I see one of Freire's great contributions to critical theory as the opposite of this orientation.

As outlined in *Education for Critical Consciousness* (Freire, 1974/2013), his dialogic community work is not oriented towards describing the ontological reality of colonization (the other). Freire's great insight is that the location of resistance emerges when the subject of education becomes the *immanent epistemology* already located within the community (the self). Freire shows that dialogic practice (the speaking of community knowledge) brings immanent epistemology into awareness and that this practice makes possible the emergence of a *critical consciousness* ready to stand against colonial capitalist literacy pedagogy. Adorno however, seems to have little faith in this potential.<sup>1</sup> To bring out this tension more clearly, there are two contradictory interpretations of *critical* awareness. The first is inherited from a Marxist orientation and promotes a heightened consciousness of the other (capitalism) and the second, a complexity theory orientation, utilizes *recursion*, that is a self-awareness of being a self-aware system, what is called *second order observation*.

My work with Freire is rooted in this second approach. I believe that by taking a social systems theory orientation to a reading of *Education for Critical Consciousness* it may become possible to more clearly theorize Freire's dialogic model. The consequence of this clarity is an increased understanding of the mechanics of the

critical pedagogical processes that will: help the application of critical pedagogy to other modes of communication like music and contribute to the development of ecological education rooted in people's consciousness of themselves and their ecologies. It is my contention that the application of social systems theory<sup>2</sup> to critical pedagogy helps bring the subject of *critical awareness*<sup>3</sup> into tighter focus. I believe that music education is in dire need of such a critical re-evaluation of praxis, and one that can be found in a critical pedagogy of music read through social systems theory.

Though this paper does not deal with classroom based school music education directly, the applied ecomusicology project taken up here can make an important contribution to that literature. And while the applied project discussed in this paper, *Sounding the Sacred Headwaters*, is a dramatic example, applied ecomusicology does not have to be this elaborate. Any person could produce a collection of field recordings about their neighborhood using Freire's method that would make a valuable contribution to bringing the immanent epistemology of their community into greater focus. The theoretical assertions that underpin this approach to applied ecomusicology can be widely used in music education and may provide music educators with theoretical support for experimentation.

## **FREIRE'S APPROACH TO SECOND-ORDER OBSERVATION**

Through his twelve lessons/situations in *Education for Critical Consciousness*, Freire introduces a method that brings into awareness the shared practices that contribute to the differentiation of community from environment. Each of the situations brings focus to the communication resources that resonate with and within the community. He facilitates discussion to bring to awareness the coupling of psychic and social systems and with environmental systems. Freire's situations *bring to awareness*, a process called second order observation.

The subject of awareness is not the individual per se, but the communication resources immanent to the communication system. The subject of the education is *communication*, the system from which community and all of its members emerge. Communication produces *system differentiation* and *continuity*—autopoiesis<sup>4</sup>—through the

selectivity of *resonance* and *coupling*. Social system theory states that without selective communication “the system would not be able to distinguish itself from the environment. It would not exist as a system” (Luhmann, 1989, p. 16). It seems that Freire was able to deduce that colonization<sup>5</sup> interferes with local autopoiesis. The mechanics of these *processes* (as I believe colonization is a de-coupling and re-coupling of subsystems) are in need of continued, deep and careful analysis.<sup>6</sup>

Before I move onto a discussion of *Sounding the Sacred Headwaters* there is one more important piece of contextualization. Critical pedagogy today must struggle with a new but related issue: the colonization and transformation of the world by the capitalist-world system. While Freire dealt with the complexity of social environments, the natural environments he worked in were relatively stable and the communities he worked with were anthropologically intact. We are tasked to update critical pedagogy in a period of increasing climate instability and highly complex and fragmentary urban environments. Neither “nature” nor “community” provide as it once did, the stable background for analysis.

This requires that we learn to speak about the complexity of changing social systems coupling with changing environmental systems. This is a new level of complexity, the autopoiesis of multiple systems and the awareness of the coupling of human and non-human systems. Niklas Luhmann wrote that “We must be careful in our presentation of the concept of exposure to ecological danger as long as we do not know what it is about. So we will understand it very broadly” (1989, p. 28). We now have a much clearer picture of the complexities and the dangers. Freire’s context was rapid industrial expansion, ours is rapid global capitalist expansion and climate change brought on by these impacts. This must form the basis of our critical pedagogy.

## **ANTHROPOCENE**

We are living in a new epoch called Anthropocene.<sup>7</sup> It is defined by human action that is, for the first time in the history of the planet, having a direct impact on climate and the environment. This impact marks the conclusion of the geological epoch called Holocene that

lasted 11,700 years and included the entire evolutionary history of human civilization. Particularly striking evidence was forwarded in Steffen et al. (2015), *The Trajectory of the Anthropocene: The Great Acceleration*. They showed that rising rates of 12 human systems mapped directly onto 12 earth systems, and these increasing rates of impact began after the Second World War.<sup>8</sup>

The Great Acceleration was the expansion of socio-economic activity charged by increasing resource use that created new technologies that further expanded rates of consumption. This was a celebrated new socio-economic phase that was supposed to lead to full employment and a bright future for all. It was also the beginning of a next phase of the capitalist world-system accelerated by increasing urbanization. By 2008, humanity officially entered a new urban phase where 50% of the earth's population lives in urban spaces. John Bellamy Foster et al. (2010) argued that capitalism has produced an ecological rift caused by a Core<sup>9</sup> of the capitalist world-system out of step with ecological resources and system thresholds.<sup>10</sup>

The Great Acceleration produced a staggering amount of wealth that benefitted a very small percentage of people. In 2010, OECD countries had 18% of the earth's population but accounted for 74% of GDP. But it is reported that only .1% controlled this vast wealth. This is illustrated in the 2015 Oxfam released *Working for the Few*<sup>11</sup> a terrifying document that shows, "Almost half of the world's wealth is now owned by just one percent of the population" and that, "The bottom half of the world's population owns the same as the richest 85 people in the world," (p. 2) and that this already extreme economic disparity is getting worse. So while it is clear that everyone will be impacted by the implications of Anthropocene, its causes and the economic value that emerges from these impacts are not equally shared. A new form of ecological inequality has developed.<sup>12</sup>

## **SOUNDING THE SACRED HEADWATERS: THE CONTEXT**

I was on a production break for a filmic applied ecomusicology project called *Pimachihowan* (2015) and I began to hear about an environmental struggle occurring in the neighboring province.

I contacted Shannon McPhail, director of the Skeena Watershed Conversation Coalition. After a series of conversations we decided to begin work towards a partnership to produce *Sounds of the Sacred Headwaters*, an audio map that told the complex environmental and cultural story of the headwaters region through sound. Each contribution would emerge from the location where it was recorded. It would be a mix of songs, stories, and environmental recordings that allowed the listener to enter into the sonic space of the headwaters, thus turning a news story into a lived space. This project sought to produce an audio map that would allow the listener to travel across this important and contested space. The ethico-political purpose of *Sounding the Sacred Headwaters* was to promote an environmental ethos, an empathy for a space many have not visited, so that they could better understand what is at stake. But for the community living in the Sacred Headwaters, the project has the potential to bring their immanent ecological epistemology into awareness thus becoming a critical pedagogy of ecomusicology and contributing to their ongoing resistance. While the project is not yet completed a great deal has already been learned.

## THE SACRED HEADWATERS

The *Sacred Headwaters* is a sub-alpine basin and source of the Stikine, the “Grand Canyon of the North”, the Nass and the Skeena rivers which feed the north pacific in Alaska, the BC coast at Iskut, and a series of inland waterways important to the province of British Columbia.<sup>13</sup> Each year salmon swim over 400 km from the Pacific Ocean to spawn in the upper sections of these rivers. This Sacred Headwaters region, rich in natural resources, has always been home to indigenous communities and has become home to settler communities in waves since the end of the 19<sup>th</sup> century. Since 2005 the Sacred Headwaters has been under industrial threat forcing Tahltan elders to block Royal Dutch Shell from developing mineral claims on and near their traditional territory. The elders succeeded in halting the development of Shell’s fracking until 2013 but open pit projects have been moving ahead.<sup>14</sup> During this intermission, community-based groups formed to protect the local salmon fisheries, the environment,

and to attempt to exert domestic control over the regions rate of industrial development.

Since 2012 this threat level, after years of quiet, has increased, partially spurred by U.S. President Barack Obama's refusal to allow the Keystone pipeline from Alberta's Oil Sands to enter America. Oil Sands companies along with two Prime Ministers of Canada (one conservative and one liberal) have publicly discussed, both at home and abroad, a pipeline from northern Alberta to the B.C. coast and waiting tankers to ship the bitumen to China.<sup>15</sup> This is an added threat to the three watersheds of the Sacred Headwaters because the proposed pipeline would feed tankers in the Pacific and would, if any spill were to occur, wipe out the salmon migration central to these river cultures. This connection best expressed in the Wetsuweten word, *Yinta*, the health of the people is the health of the land, a relationship that is the basis for shared social, cultural, and biological health which has been threatened not only by the recent expansion of the oil and gas industry, and the introduction of private property into communities with histories of communal ownership.<sup>16</sup>

Artists, both local and regional, have begun working with local environmental and community development groups to assist in the communication of this threat to a wider public. In fall of 2011, Dr. Wade Davis along with the International Association of Conservation Photographers organized a photo exhibit at the Banff Centre of the Arts in Banff, Alberta. Dr. Davis, along with Dr. David Suzuki, published selected photos from this collection in a book called the Sacred Headwaters earlier in the same year and helped set the stage for the photography exhibit.<sup>17</sup> From the perspective of artists interested in ecological protection, immersion into place, or the creation of 'place-ness', creates a possibility of connection and this connection may play a vital role in engendering protection of a place one has never directly visited. Of course this 'feeling of connection' is what aesthetics studies. On my way out of the show, I mentioned my thoughts to Dr. Davis, and he suggested that I consider getting involved somehow.

A few days later I sent an email to the Skeena Watershed Conservation Coalition (SWCC) and gave them my background and suggested that I could play a role in their work perhaps by making

a CD. I received an immediate reply saying that they had been discussing this very thing.

The emerging project idea is an applied ecomusicology project. When I began working on the design for the project, it became clear to me that Wade Davis and the Conservation Photographers were interested in using aesthetics as a way of communicating the aesthetics of ecological sacredness learned from Indigenous elders. The consequence of this sacred experience was a political commitment to blocking, or at least slowing, industrial development in the Sacred Headwaters region. But I also knew from my time there, and from the Skeena Watershed Conservation Coalition, that locally-controlled and environmentally-responsible development was very important to the local people. The entry of the oil companies and the federal government into this conversation added more voices all vying for control of the discourse. Every time I saw a news clip about the region it was paired with a photo of an industrial development that suggests to the viewer that building was already underway, and political resistance to economic development is futile.

However, when environmental groups spoke of the region it was accompanied by nature photos of pastures, rivers, salmon, bears, and unspoiled nature. These images however, excluded people, communities, and local industries developed sustainably with the environmental ecology over generations. The political discourse we were engaging in, our political environment, was bifurcated along Man:Nature binaries inherited from the enlightenment. On the one hand, the colonial capitalist narrative of “progress” and of “man against nature,” and on the other, the colonial Romantic construction of a nature without man. Neither of these discourses make sense in a decolonial context nor do they makes sense within anthropocene. A critical pedagogy of ecomusicology emerged as a way forward.

## **THE CRITICAL PEDAGOGY OF ECOMUSICOLOGY**

In “Ecocriticism: Ecomusicology and Musicology” Aaron S. Allen (2011) explains that ecomusicology considers how art “reflects, relates to, or relies on nature” (p. 391) and “the relationships of music, culture, and nature” (p. 392). In his view, ecomusicology



is “a socially engaged musicology that seeks to understand not just music, musicians, and/or musical communities, but also their interconnections in the world, both natural and socially constructed” (p. 393). In a survey of available literature that attempts a definition for ecomusicology (Allen, 2011; Guy, 2009; Pedelty, 2012; Rehding, 2011; Watkins, 2011), the general understanding is that of an interdisciplinary field that combines musicology and ethnomusicology, with ecocriticism and environmental activism. It studies the relationships and interconnections between music, people and place, as well as the repercussions and consequences that affect nature and culture.

I have been working on a social systems theory description of ecomusicology that required a description of the Aesthetic subsystem. In Aesthetic Systems Theory, I take a definition of ecology as the study of *an organism in its environment*. There are two important distinctions here. First, the definition of the organism is not self-evident, and because we are dealing with living systems, they have self-awareness. The organism is a self-reflexive system, and its environment from its orientation can be *known* only through the resources available within the system. But what these resources are and what kind of perspective they contribute about the environment would be unknown until a second-order observation (Freire’s critical awareness) takes place. The process of self-awareness allows for the theorization of autopoiesis (who are we and what do we think we know about our context, and how might we continue). There is no privileged claim to ontology here, the community does not get access to the environment in a clearer way, only to an awareness of what they think they know. This is when social systems theory and critical constructivism come into alignment.

The second distinction is that AST forwards aesthetic resources as another contribution for autopoiesis that is different than language. It operates through the making, sharing, and using of aesthetic resources that are activated through aesthetic labour, made concrete as art in aesthetic production that leads to the regulation of group subjectivities providing constraints needed for the production of individual subjectivities (MacDonald, 2016a). So while much of contemporary

ecomusicology examines productively the crossroads of ecocriticism and musicology, I am taking a slightly different orientation of ethnomusicology and social systems theory. In my approach, a critical pedagogy of music may provide a very useful model for community engaged critical analysis of the ways that aesthetic systems couple with linguistic, ethnic, political, legal and economic systems.

The consequence of this orientation is a growing awareness that what is described as nature *is determined by the resources available* for those who attempt such a description. Applied ecomusicology can be a critical pedagogy of ecomusicology because it helps raise second-order observations about systems that claim to speak authoritatively about nature. The remainder of this paper confronts hyperreality within communication systems and concludes with a final discussion of *Sounding the Sacred Headwaters*.

## **CRITICAL AESTHETICS AND MULTILITERACIES PEDAGOGY**

To this point we have not yet brought up the specter *hyperreality* and contributions by Walter Benjamin (1968) and Jean Baudrillard (1981;1993;1998). While both thinkers were concerned that all of language is being re-coded by marketers, and that all modes of symbolic exchanges are being taken over by corporations, Baudrillard went further, introducing *hyperreality*. This, for him, represents a kind of invisible hijacking of anthropological culture, what I understand as the insinuation of market sense into common (as in shared evolutionary and anthropological) sense. Freire would likely find great resonance in the comparison between industrial development in Brazil and the expansion of hyperreality within the capitalist world-systems. Just as Freire forwarded critical pedagogy, Baudrillard forwards *critical aesthetics* as a necessary epistemological technique to fight against hyperreality. While Freire located resistance against industrial expansion, today the expansion is epistemological, the expansion of market sense. I believe that critical aesthetic education needs to happen within Freire's model; only through the practice of second order observation (seeing the practice of self) can communities come into critical awareness of their immanent aesthetics. And perhaps only after

arriving at critical consciousness will it become possible to rediscover an aesthetic practice located in community.

Applied ecomusicology will allow a coming into awareness, a second level observation, of the two sides of hyperreality and the decolonial narrative of local place. In the above contextualization of *Sounding the Sacred Headwaters*, there are two forms of competing hyperreality that emerge from two aesthetic systems: *aesthetics of capitalist development* and the *aesthetics of romantic nature*. In this case, it is not enough to learn to read the signifiers being presented, it is necessary to come into awareness of the way these aesthetic systems attempt to hijack a local culture that has yet to bring its own aesthetics of place into awareness.<sup>18</sup>

There is a good fit here with Multiliteracies (Cope et al., 2010; Cope et al., 2000; Ho et al., 2011), a pedagogy oriented towards building new media literacy skills necessary to productively navigate the “hybrid and frontier media forms and content ... [that] will generate new text-based social repertoires, communication styles, and symbolic systems for accessing and participating in new knowledge and cultural configurations” (Luke, 2000, pgs.69-70). In short, a new set of multimodal literacies (multiliteracies) (Hodge and Kress, 1988; Masny et al. 2009) are needed to replace the outmoded understanding of literacy as reading and writing text. I argue that multiliteracies discourse can benefit from the inclusion of Baudrillard’s critical aesthetics, can fit well within critical pedagogy, and can be enhanced through social systems theory. This new literacy orientation may assist students in the development of critical aesthetic education.

## **CRITICAL MULTILITERACIES PEDAGOGY**

This intervention might take the form of Critical Multiliteracies Pedagogy (CMP). CMP would be oriented towards developing critical self-awareness about the aesthetics resources of the capitalist culture industries, a subsystem of the expanding Information and Entertainment Economy (IEE), itself a subsystem of the global networks of Interactive Digital Media (IDM).

Baudrillard (1993) shows that exchange within capitalism is about the production of value, all exchange is about value and as such he

argued Marx cannot transcend capitalism by focusing on value.<sup>19</sup> The outside of commodity value, he argued, is not use value but symbolic value. Symbolic exchange, emerging from aesthetic systems creates a bond between people, establishes the basis of community and puts emphasis on the giver. Capitalist accumulation reverses this and puts emphasis on consumption. But not only that, there has been a transformation within capitalism which has disconnected the value of things from the things themselves. As Mark Poster (1975) usefully summarizes:

Capitalism detaches the signifier from the signified, making the signifier its own signified. What is crucial about, say, a given underarm deodorant, is not that it has a given exchange value or given use value, not that the workers who produced it were alienated or exploited. The secret of this commodity is that it can totally transcend all of these “referents,” that it can become a totally detached object of exchange and that the person who consumes it can find a “meaning” in it to be appropriated that is totally divorced from the mechanisms of production and distribution. (p. 9)

And that is what makes it possible for deodorant to be ‘revolutionary’, to smell like teen spirit.<sup>20</sup> It is no longer the product that is being consumed at all but the sign that has transcended the materiality of the product, a sign that can be consumed for the feeling that it provides, a deodorant that symbolizes. Capitalism has swallowed semiotics. Consuming is about collecting and displaying prestige, status, sexiness, desirability, intelligence, up-to-dateness, coolness, independence, and revolution through the purchase of tooth brushes, hair care products, jeans, and t-shirts. The exchange of money for these products is the exchange of signs. Capitalism is the process of transforming ideas into objects, object into commodities, commodities into signs, and signs into profit. Baudrillard’s (1993) critical interrogation of contemporary society begins by recognizing that exchange in capitalist society is governed by, what he calls, the third-order simulacrum. He historicizes simulacrum, a copy of an object without an original, as a way of understanding changes in exchange.<sup>21</sup>

The challenge for us here is to, perhaps, begin to think of the *symbols of place as part of place*. In this view, linguistic and musical symbols might be artifacts as ‘real’ and as telling as water samples or material culture. This perspective is not all that speculative. The reciprocal relationship between a caretaker and an infant form a dyad, the primary one within any culture, and within this dyad exchange of symbolic resources connects it to the “ecosocial system,” (Deely, 2005, p. 282), itself a “net of particularity” (Deely, 2005, pp. 188-193). This embedded-ness occurs as the process by which all of us develop our language skills, a process that is “dialogical and social” (Thibault, 2004, p. 282) and embedded in place (Feld, 1994; Feld, 1996).

The particular language system in a place functions within rules shared by members of the community. These rules help to formulate the system’s structure, perhaps understanding it as “a structure that is produced and reproduced by the system’s operations” (Luhman, 2000, p.185), its *code*. As Luhman (Ibid.) points out: “once the code is established, the implicitly assumed temporal dimensions unfolds into an explicit observational schema” (p.188). So it can be asserted finally, that the applied ecomusicology project needs to utilize Freire’s concept of second order-observation in the aesthetic production of the immanent aesthetic system, that is, to articulate the local symbolic system and discuss how these symbols are coupled to the environmental ecology essential to support their lives.

## **APPLIED ECOMUSICOLOGY: SOUNDING THE SACRED HEADWATERS**

It became clear that I am not simply making an audio project, but that I am entering into a critical pedagogy of ecomusicology with a focus on bringing into awareness the immanent aesthetic system of the Sacred Headwaters region. Currently, the media discourse on the area draws little from local symbols. Some First Nations’ communities received media attention when they sign or end agreements with oil companies, or hold a protest, but that is really all that is ever seen, and often these images are strategically silent. The drums of protest or greeting are rarely heard. The voices of assent and dissent picked up by media are rarely attached to anything, bodies or communities,

histories and stories, rocks and rivers. One wonders whether disassociated text are voices at all.

I began to wonder about even using the words *Sacred Headwaters*. Wasn't this as much an environmentalist simulacrum as the *Northern Gateway*, a proposed pipeline that will cross near this region, which refuses to mention the bioregion in its media.<sup>22</sup> My project will engage with the flows of signs and I want to find a way to navigate the current signs without getting pulled in by either hegemonic gravity. But, I am very much feeling the pull. Praxis becomes incredibly necessary here.

I was experiencing this tension when I left for my first trip. I met with Shannon and others from the Skeena Watershed Conservation Coalition. I spent a week with her at her home in Hazelton visiting with local artists and performers. I spent some time asking for sounds that spoke to community members as sound-marks, sounds that said home-in-this-place. I went out and recorded those sounds, and now, I am reflecting on the ways that community members identify sounds that I at first I didn't notice, or when noticed thought they would be generic. I began to learn with local people the unique way they heard the sound of the Skeena River as it passes Hazelton. I was told, on more than one occasion, that it has very different personalities in different places. The Skeena sounds like it does at Hazelton because of its width, depth, its banks and the location of houses, all factors that contribute to its sound-in-this-place. Regions within the Sacred Headwaters sounded differently than other places and when people from that region are added to this perhaps it might become possible to know the region by sound, and in that knowing maybe something specific happens. Maybe we learn more about the relationships people make with the environmental systems that sustain them. It is my intention as this project continues, to identify what happens when community members share their recordings. Maybe a community process of recording songs, poems, stories, histories, along with sounds of the environmental ecology will allow the aesthetic system of the Sacred Headwaters to emerge. And perhaps this emergence will contribute to a critical awareness of the immanent aesthetic system, and the need to promote ethical action fitting for the epoch of

Anthropocene. That would be a good outcome of any critical pedagogy of ecomusicology.

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## Notes

1 Adorno had no faith in popular music evidenced in his often-cited essay *On Popular Music* (1941) concerned with the maintaining a distinction between serious and popular music. Popular music is the structural standardization of human expression manufactured to fit into expected response patterns. The explosion of youth music cultures and its movements of resistance may have surprised Adorno, though there is room to speculate that he would have maintained his resistance and cite the ease at which popular music forms that maintain structural relations to each other become assimilated, musically and politically, into the neoliberalism.

2 The American cybernetician and ecologist Gregory Bateson and the German sociologist and social systems theorist Niklas Luhmann contribute language more suited to the task of describing Freire's methods. Though they did not do this in their work it is none-the-less a task we might take upon ourselves. Reading Freire through social systems theory may help clarify his methodological experiments in dialogic education. It could open new orientations to the analysis of critical pedagogy and provide a foundation of critique when dialogic methods become reified as talking circles or become reduced to academic theorizing of today's headlines. I ground this project in Freire's insistence on praxis.

3 Please make note of the shift from *critical awareness* to *critical awareness*. In the first, Marxist, instance the subject of consciousness is assumed, as it is in the humanist tradition. Awareness and consciousness are exchangeable. Awareness in the Marxist instance

relies of Kant's notion of Enlightenment, which is the individual use of Reason for the transcendence of locations of social knowledge and shared morality (rulers, clergy, teachers etc.) The intellectual deals with the problem in society, within this framework, through the development and application of *critique* and that leading to this praxis comes about through the awareness of the structural problems in society, emerging from an inequality that arose from the distribution of forces and relations of production within the capitalist mode of production. In this theoretical framework *consciousness* has been assumed and does not need to be explained. The Frankfurt School, like the Freudians, accepted the self-evident existence and operation of consciousness and turned to explain the subconscious. But Gregory Bateson for instance, pointed out that consciousness had not yet been explained. Given this oversight it is necessary to review the role of critical consciousness in Freire's work, to assess to what degree Freire imported assumptions about the operation of consciousness and how emerging ideas of systems theory might help clarify the ways in which Freire's talking approach operates to raise awareness of the operation of consciousness as the first step towards a critical consciousness. This oversight further requires a re-evaluation of the Deleuze and Guattari's reworking of the Frankfurt School in their *Capitalism and Schizophrenia* series where they import concepts from Bateson but then return to Freud.

4 Originally forwarded by Humberto Maturana and Francisco Varela (1972), autopoiesis is means self (auto) creation or production (poiesis). Niklas Luhmann takes the theory of autopoiesis from biological sciences and applied is to sociology as a key element of social systems theory. While others have attempted to apply autopoiesis in the social sciences, Luhmann is unique in his approach. Instead of trying to identify the key element of society as the individuals in the production of social groups, he identifies the key element as communication, he wrote: "Social systems use communications as their particular mode of autopoietic reproduction. Their elements are communications which are recursively produced and reproduced by a network of communications and which cannot exist outside of such a network" (Luhmann, 1986, p. 174). Specialized

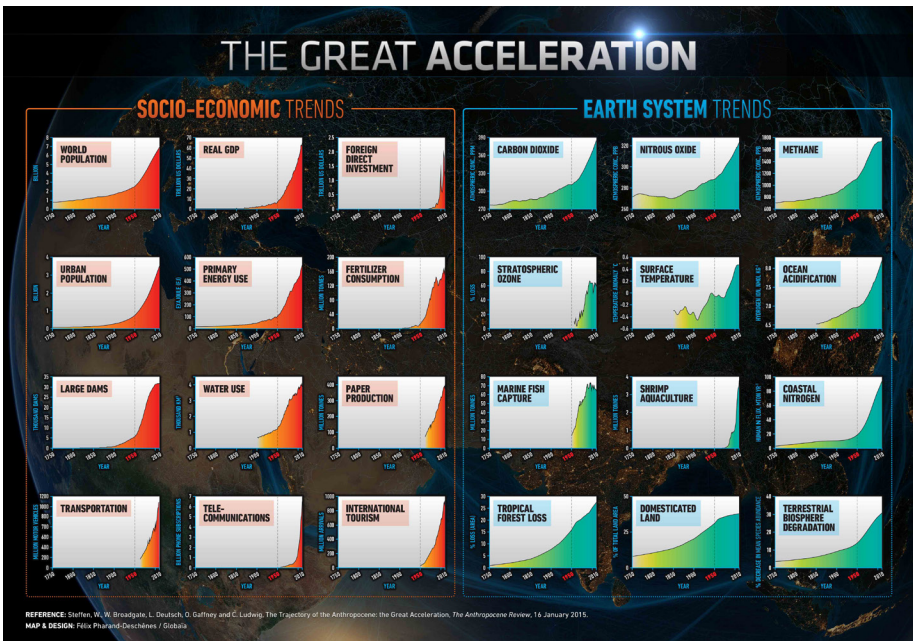
modes of communication produce systems by creating *resonance* and *constraint*. Resonance emerges as the internal work of the communicational resources which constraint in communication produces social borders. Law produces legal systems, power produces political systems, aesthetics produce aesthetic systems. Bateson calls this system *mind*, and Luhmann writes that “the observing system can discover that the environment of the observed system is not constituted by *boundaries* at all, but, perhaps, by *constraints*” (1989, 23). I have drawn upon this notion for the formulation of Aesthetic Systems Theory.

5 Freire noted that Portuguese literacy for indigenous Brazilians was damaging, an extension of colonization without critical pedagogy. While he noted this power at work, the mechanics of how it happens remained obscure. Social systems theory makes this clearer. Society is constituted in systems and these systems are constituted by communication.

6 Colonization is the interruption of *the operation of a conscious system*. Critical pedagogy works to bring consciousness to consciousness. Immanent consciousness is the subject of this critical consciousness, not just being alive, though of course this is fundamental, but consciousness of the immanent system of communication used for the autopoiesis of this community.

7 While geologists do not formally recognize the Anthropocene as an official unit of geological time—until the International Commission on Stratigraphy makes it official—the interim position concludes that there is sufficient evidence of human impacts on the planet to warrant it.

8 source: International Geosphere-Biosphere Programme <http://www.igbp.net/globalchange/greatacceleration.4.1b8ae20512db692f2a680001630.html>



9 To understand the macro relations between the global mining interests and the Sacred Headwaters I rely on Immanuel Wallerstein's World-Systems Analysis where he has historicized the development of the world economy, or world-system in terms of the Core, semi-peripheral, and peripheral world areas. The Core is not necessarily a geographical world area (a nation state) but is the center of the dominant systems of production (global capitalism). Canada is a semi-peripheral area that benefits from not being peripheral but still sends its natural resources to the Core. The impact of the Core upon peripheral areas has been described.

10 Particularly concerning is of course the carbon dioxide limits, and this is much discussed. But more concerning are some of the other earth systems like nitrous oxide, methane, ocean acidification and coastal nitrogen. We are not having a public discussion about the correlation of these systems nor the possible impacts that may arise from breaching their limits.

11 <https://www.oxfam.org/en/research/working-few>

12 As I have discussed elsewhere (MacDonald, 2016a; 2016b) social scientists already know that human impact on the earth

are not equally disseminated across the globe and locations of resistance often located in capitalism's periphery are beginning to emerge. While environmental scientists study environment impacts, and environmental studies and environmental activists politicize governments and society to these impacts, social scientists from within a critical theory or cultural studies tradition have an opportunity to talk about what Niklas Luhmann calls "ecological communication" (1989). Social scientists in many disciplines are beginning to develop new approaches informed by this emerging data. Ecomusicology is one example.

13 Personal Correspondence from the Director of the Skeena Watershed Conservation Coalition: The Sacred Headwaters is made up of 3 watersheds...not just 1 watershed with 3 rivers. The Stikine, Skeena and Nass are most certainly rivers...but they're made up of 100's of other rivers and streams - thus making them each an individual watershed. The cool thing is that watersheds are always completely distinct from each other without any sharing of surface water. These watersheds are different as they all begin in the same valley and there is some mingling of waters in the Sacred Lake (Spatsizi River flows out of one side into the Stikine and the Skeena flows out the other side of the Sacred Lake - SO COOL!). There is also the Damdochax which can flow to the Skeena or the Nass depending on what the beavers have done that year. So amazingly cool. A watershed can be completely altered by beavers!! I think it's a good metaphor for this region - things aren't supposed to mix but they do...just like our cultures and the people who live here. Cowboys and Indians aren't supposed to be on the same side - but we are! Hazelton Secondary School was the first non-segregated indian-white guy school in Canada (I believe).

14 Personal Correspondance from the director of the Skeena Watershed Conservation Coalition: "While Shell's fracking and CBM development is halted until December of this year - the open pit coal mines and mountain top removal mines are still trying to pound ahead (the mines are owned by different companies: ie: Fortune Minerals owns the coal rights to remove Klappan Mountain from the heart of the Sacred Headwaters - they are currently trying to build a railway down the Skeena to transport the coal to port).

15 Harper touts Canada's energy capabilities in China speech, Jason Fekete, Postmedia News Published: Friday, February 10, 2012 <http://www2.canada.com/story.html?id=6132635>(accessed May 1, 2012)

16 The Nisga'a are among the earliest First Nation adopters to convert reserve land to private ownership with the accompanying right to sell the land for profit. For a background see an article in the Economist <http://www.economist.com/node/15066090>(accessed February 2012).

17 During my dissertation research on folk festivals in western Canada I had documented the Kispiox Valley Music Festival, which is situated on the Skeena river, and had interviewed the founders of the Skeena Watershed Conservation Coalition and I had signed up to their listserve which I have continued to follow.

18 I am aware that local cultures may not have any notion of the way anthropocene is going to impact their lives and livelihoods however, I do take the creation of the Skeena Watershed Conservation Coalition as an emergent structure within the system whose aim is to produce a shared language capable of describing these changes and then bringing community organizations together to work towards responses.

19 What is centrally important in the early work of Jean Baudrillard from *The System of Objects*, *The Consumer Society*, *For a Critique of the Political Economy of the Sign*, *The Mirror of Production*, and *Symbolic Exchange and Death* is that he does three things simultaneously: a) interrogates Marxism's reliance on production as a way of criticizing capitalism and shows that this discourse traps itself in a conversation of production values (use and exchange), shutting down the possibility of transcending capital and therefore becoming trapped in capitalism; b) introduces into critical discourse a focus on consumption and breaks the link that bound semiotics to structural linguistics so that consumption can be studied as a critical semiotics and specifically as sign exchange; c) introduces symbolic exchange as a fitting counterpoint to commodity exchange.

20 A deodorant company whose brand shot to fame after Nirvana's song *Smells Like Teen Spirit* became a chart-topping hit. The song's title came from Kurt Cobain's ex-girlfriend's graffiti: "Kurt smells like teen spirit" suggesting that he now was marked with her scent, because she wore Teen Spirit deodorant. <http://www.songfacts.com/detail.php?id=416> (accessed April 26, 2012)<sup>21</sup> Simulacrum in the first period, the 'classical' period, which ran from the Renaissance to the Industrial Revolution, was the period of the *counterfeit*, when high status goods are 're-produced'

with inexpensive materials. The second, or *production* period, is the industrial era of mass production which Benjamin discusses in *Art in the Age of Mechanical Reproduction* in which Benjamin

shows that reproduction absorbs the process of production, changes its goals, and alters the status of the product and the producer.... Benjamin was also the first (with McLuhan after him) to grasp technology as a medium rather than a 'productive force', as the form and principle of an entirely new generation of meaning. (Baudrillard, 1976/1993, p. 55-6)

Social life in this period is marked by

reactionary conditioning, inspired by the Pavlovian apparatus of programmed and repetitive aggression which we also saw scaled up in 'heard sell' advertising and the political propaganda of the thirties. A crafted but industrial violence that aimed to produce terrified behaviour and animal obedience. This no longer has any meaning. Totalitarian, bureaucratic concentration is a schema dating from the era of the market law of value. (Ibid., p. 70)

22 A search found no reference to the Sacred Headwaters on the Enbridge Northern Gateway website. [http://www.northerngateway.ca/project-details/route-video/SearchForm?Search=sacred+headwaters&action\\_results=Go](http://www.northerngateway.ca/project-details/route-video/SearchForm?Search=sacred+headwaters&action_results=Go)(accessed April 26, 2012)