A RESONANT ECOLOGY MAX RITTS



A RESONANT ECOLOGY



Richard Misrach, *Cargo Ships (November 20, 2021 6:33am)*, 2022. © Richard Misrach, courtesy Fraenkel Gallery, San Francisco.



SIGN, STORAGE, TRANSMISSION

A series edited by Jonathan Sterne and Lisa Gitelman

A RESONANT ECOLOGY MAX RITTS

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To Val Ross (1950–2008)



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In December 2011, I traveled to the North Coast to spend a rainy week listening to whales at a makeshift research station called Cetacea Lab, on the southern tip of Gil Island. Headphones on and left alone most of the time, I considered the recordings of humpback whales the lab had taken the previous summer. These were, cofounder Janie Wray explained, songs, and they communicated the returns of a species that had been extirpated from the region for decades. I sat there, letting the songs come at me in trumpetings, pitch shifts, and intensity bursts; the hydrophones that recorded them hissing steadily beneath. They were profusely beautiful sounds, but it was their geographical qualities, not their musical ones, that had inspired my visit. In the early 2000s, this remote section of northern British Columbia became marked by an unsettling concurrence of events: humpback whales reappearing at almost the exact same time the Canadian government began broadcasting its support for regional energy development, including a multibillion-dollar shipping project (Enbridge's Northern Gateway project), which would bisect many marine habitats.1 At Cetacea Lab, songs were being recorded to support conservation efforts that would protect whales and other species from Enbridge and the existential risks it posed. The extraordinary nature of the effort had not gone unnoticed. Interest in Cetacea Lab would grow so rapidly in those years that Janie and Hermann Meuter (the lab's other founder) felt compelled to develop a volunteer program, "to help us manage the whale recordings and all the visitors wanting to come hear them," as Hermann put it. By 2011, Cetacea Lab was hosting collaborations with documentary filmmakers, ecotourists, and philanthropists, as well as a multitude of scientific research teams. New activity at Whale Point

was impressed upon me in each of the summers I visited (2012–15, 2018). It was easy to grasp why Cetacea Lab's work—with its array of listening technologies, suspended in the quiet waters of Taylor Bight, Squally, and Whale Channel—could produce such abundant evidence and why, with its mist-soaked rainforest and mountain backdrop, environmental groups would so eagerly look to feature it in their campaigns. At the same time, I would become preoccupied with the idea that Hermann and Janie were taking something else from the songs. More than a beautiful sound or piece of evidence, whale song was also, for them, an artifact of loss; a loss expressing hugely historical ideas of humanity, nature, and the relations between.

Cetacea Lab was built on the unceded lands of the Gitga'at First Nation. Since 2001, it has operated on the permission of the nation's traditional and elected leadership. For years, Hermann and Janie had little contact with the community. It was only with the rise of Enbridge that dialogues with the Gitga'at village of Hartley Bay (pop. 120) became routine. Hartley Bay is the closest human settlement to Cetacea Lab, at an hour's boat ride. By the time of my visit, it was also ground zero for anti-Enbridge sentiment up and down the coast.² For the big environmental NGO reps who had descended from Toronto, Vancouver, and further afield, celebrating the Gitga'at Territory's spectacular natures—sharing them across webpages and films—was the best way to protect them. This was not without some proof of concept: it chimed with the earlier forms of media-savvy conservation that have made Canada's West Coast a beacon of environmentalism for decades.³ But not everyone in Hartley Bay was convinced. One dissenter was a young Gitk'a'ata hunter named Spencer Greening. Spencer had spent his teenage years fusing the extreme sounds of black metal music with the traditional drumming of his Ts'msyen culture.4 When I met Spencer, he was twenty-three, and on the cusp of assuming a leadership role with the village band council. Spencer loathed Enbridge, but he also opposed the way "environmentalists like to turn our territory into a theme park." He had formed a band, Gyibaaw, with his cousin, singer and guitarist Jeremy Pahl, several years before. I was able to find a cassette of their debut album, Ancestral War Hymns (2009), by hunting around black metal pages on Reddit. Following Jeremy's advice, I put it on one evening while driving along the Skeena—the huge river that forms the cradle of Ts'msyen culture.5 It was unquestionably abrasive, but as I listened, its cacophony of screams, distortion, and kick drums began to synchronize with the water flowing at my side; the moonlit movements of the river resonating with the harsh repetitions of the music. I have listened to the album a hundred times since. Each time, I am struck by the strange timeliness of its musical vision:



an Indigenous North Coast shorn of capitalist and colonial rule, in which an assortment of peoples and animals, waters, laws, and spirits all move in a complex unity.

This book is about a geography apprehended through sound, made through sound: a resonant ecology. It is dedicated to the great sonic visionaries of the North Coast: the whales and Indigenous musicians who affirm the region as an incomparable nexus of place soundings. The North Coast in the first two decades of the twenty-first century produced a multitude of sounds inscribing an audible development process. Humpback song and Indigenous metal echoed out alongside a host of other soundings, some dissident, and some assenting; some familiar, and some inscribed with global transformations. Their polyphony, expressive of the buildup phase of a massive industrial expansion, reveals sound as a powerful site for charting how nature-society relationships are made and unmade in geographies marked by capitalist and colonial change.⁶

Critical engagements with the ecological dimensions of sound are hardly new. But the proliferation of recent interest here—from the extensive theoretical work on sound, to the celebrated findings of bioacoustics and ecoacoustics, to the civic promotions of citizen sensors—is significant.⁷ Looming large are the twin specters of the Anthropocene and climate change, whose audible expressions reach from the tremors of calving glaciers to the high chirps of invasive insects. Through their combination, questions of sound have come to incite new speculations on nature and agency, and the prospect of reawakening to forces that have long been in humanity's collective midst. For some thinkers trying to perceive the world in new ways, modernist constructions premised on distinctions between humanity and nature have been exposed as outmoded. Climate change has ended the assumption of a stable setting upon which human activities take place. "In an age of global warming," writes Timothy Morton, "there is no background, and thus there is no foreground."8 What there is, for Morton, is a destabilization of material forms and the analytical frameworks designed to address them; an undoing of the sensory hierarchy long designated by modernity.9 Marx claimed that the "formation of the five senses is the labor of the history of the world."10 He linked the question of humanity's sensate relation to nature to the question of humanity's encounter with capitalism, out of which the senses develop as historical products.11 But what about the role of other forces in the emergence of human sensibilities? What about the other life-forms being resensitized in the age of the Anthropocene? How might we narrate and seek to understand their stories? Perhaps radical new frameworks

are needed for making sense of the "instances of recognition" being forced upon us today.¹²

The foregoing has become a prevailing wisdom in many ecologically inclined disciplines, including the one in which I was trained (geography). And while there is much to recommend it, such as the call for greater attention to the nonhuman, it tends to come with a curious assumption: the notion that recent turns to sound are inherently progressive in nature and, if properly socialized, will only aid in the realization of the ecological consciousness needed today.¹³ This assumption is problematic. Routinely unaddressed in Morton and the other exponents of what we might call the Sonic Anthropocene are enabling developments, such as the proliferating economic interests I discuss in this book. These developments pose additional questions. To what degree are ethical frameworks primed to ideas of listening ignoring the ways powerful corporations and the surveillant state are also moving in this direction?¹⁴ How might the popular scientific claim that "nature is always listening" describe evolving relations of nature and society, not the obsolescence of these categories?¹⁵ And not least, what sorts of transformative pathways might some of these sonic turns actually be working to inhibit, and at a time when many of the communities most attuned to difference are suffering escalating forms of loss and violence?16

In this book, I approach sound as a constitutively indeterminate figure in the politics of nature, a social object whose relations and attributed meanings are contingent outcomes of webs of mediation—biophysical, economic, cultural, socio-technical. As a work of sound studies, A Resonant Ecology is also a work of historical materialism. It seeks to continue historical materialism's inquiry into the ways the natural and the social are locked in a "dialectic whose boundaries are to be determined," while taking on new insights regarding agency, place, and science.¹⁷ It considers how new collective interests in the interstices of environments—their insides and outsides; their enabling elements; their pasts, presents, and futures—inform sonic acts (e.g., listening, recording, composing). Through a situated ethnographic engagement, it asks how different communities—group-differentiated, collectively realized engagements with sound/music/noise—know, manage, and contest spaces being programmed for industrial change. Acoustic monitoring at a whale research station; measurements of ocean noise in an international scientific research project; ecological place attachments in an old fishing village; compositions of Indigenous black metal; smart eco-governance projects—each points to enactments involving different kinds of sound. Through them, this book offers a sonic materialist analysis of contemporary



environmental politics; a critical account of development and transformation on the North Coast.¹⁸

Sonic Materialism, Mediation, and Limits

Two observations guide this book's arguments. The first is that a distinctive set of turns toward sound would take place along the North Coast during the years featured here (roughly 2006-18). Sound often gives form to "what is steadily marginalized or located within the more peripheral zones of presence," as Brandon LaBelle suggests. 19 There is a wealth of critical geographical work documenting how sound can extend opportunities for tracing coproductions of space, place, and nature.20 These studies cover everything from multispecies ethics to the socio-technics of urban policing. That a single sound—the ringing of a bell, the broadcasting of a voice—can be said to express a multiplicity of relations might seem a difficult claim to accept. But a central aim of this book is to show through a historically attentive sensibility how sound's transitory natures can unfold the deep structuration and entanglements of the human and natural world. Sonic productions can belie highly conditioned arrangements of material and semiotic elements, replete with theories of listening and cultures of response. They can point to new conceptions of time and space. Above all, the sounds I consider here exist as stories of the changing North Coast. Rather than contingent events, they find their effect within a geography coproduced at multiple scales as a resonant ecology.

What does this mean? In the first, it means a sonic materialism capable of acknowledging the North Coast as much more than a backdrop to this study. Rather, the North Coast is a space marked by different kinds of sonic agency, encompassing humans, animals, and the distinctive capacities of places. And moving among these is a new cohering force: development and its coming boom. Capitalist development is always a disruptive force, both a promise and an imposition. What concerns me in the present instance is the search for new points of resonance it will occasion: the how and the why and the through what means a massive expansion of industrial, logistical, and merchant capital is to be made sense of within an already complex region. On the North Coast, political economies of development are sanctioning new sensitivities to nature in the form of acoustical monitoring observatories, experimental biosciences, changing urban/rural place attachments, shifting regulatory regimes, and the tuning and management of affects. Local turns to sound are intersecting with state surveillance projects and regulatory

regimes and spurring a range of counterlistenings and composings. Amid the activities I have witnessed, I have encountered new convictions about what sound is and can be about. They involve new subjectivities and material situations. Some are guided by particularistic local concerns, many are consistent with the universalistic, white, bourgeois figure of Jonathan Sterne's "Audio-Visual Litany," and still others invite us to consider nonhuman and multiply-agentic coproductions of nature.²²

A second guiding observation of this book concerns digital technologies. The same period that witnessed a diversity of local turns also witnessed a decisive transformation in sound culture at the global scale: digitalization. Sound's becoming discrete, as when waveforms become sampled and thus partitioned at set intervals, has had transformative effects on development geographies worldwide. While the history of sound's digitalization goes back decades, the rapidly developing industrial armature that would begin to shape this process beginning in the early 2000s (from file-sharing protocol and recorder miniaturization to software, algorithms, and sensors) has meant dramatic changes in sound's capacity to direct and inform environmental governance. Karen Bakker refers to the new epistemological possibilities being opened through digitalization as a revolution in "sonics"—akin to the optics that guided the scientific revolution.²³ The proposition of sound as a kind of freely available resource has gained a wide institutional uptake: raw material for extractive industries, digital arts, surveillant states, and innovative technosciences alike. There are powerful logics at work here, and too many lineaments to summarize. But a unifying ethos, of particular significance to this study, appears in a quote from an unnamed source working with IBM's Acoustic Insights Program in 2020: "sound has so much hidden data."24

This idea of sound qua data, with data being the central commodity of digital capitalism, has been brilliantly explored in the realm of music by Eric Drott. In *Streaming Music, Streaming Capital*, Drott shows how music's observable capacity to produce data about intimate sites and spaces of social reproduction has become monetized by music streaming platforms and turned into a new tool of mass surveillance. But digital sound is also a fecund site for producing socially useful material about myriad environmental changes. In a North Coast where Smart Oceans Systems are expanding capacities for predictive analysis, animal tracking, and real-time regulation along heavily shipped trade corridors (chapter 5), networked digital technologies are apprehending underwater sound as a resource for sustainable marine development. In turn, they are rearticulating the ocean medium in



potent and pointed ways. This is not a smooth displacement of the old for the new—a fiction speaking to the very ideology smartness means to impose. Rather, as I stress at several moments in this book (e.g., chapter 1), sonic claims and practices being established through digital technologies are intersecting along the North Coast with other valorizations and lifeways, producing a range of negotiated experiments. Alongside the emergence of new sensor technologies and the technologically mediated search for new animal intelligences are more mundane reorientations: musical integrations of community, individual presentiments of loss. Instead of clean breaks between "sonic epistemes," digitalization is producing new admixtures and gaps; ideations we can hear in a resonant ecology and use to compose that ecology analytically.²⁵

To study these dynamics, this book employs a method I call sonic materialism. A dialoguing across several scholarly traditions—above all, historical materialist geography and critical Indigenous studies-sonic materialism is guided by the observation that sound exists in and through its complex and shifting mediations. By mediation, I refer to "activity which directly expresses otherwise unexpressed relations."26 Mediation implies the world-disclosing powers of media, whose technological forms (e.g., hydrophones, guitars, maps) can transmit both content and associated cultural meanings. This book seeks to account for the different ways sonic mediations (and media) compose the North Coast and how interlinked contests over sound's measure, meaning, value, and effect can index broader forms of struggle. In this, I draw from Theodor Adorno, who sought to explore how the mediations and media of music—from the classical music of Beethoven to the hiss of the record player on which Beethoven is played—are expressive sites of historical transformation.²⁷ Adorno also helps elucidate sonic materialism's structural critique: to make sense of the North Coast at a time of uneven development; to trace in sound the mediations that connect a panoply of elements in order to identify the conditions coproducing them. Alongside the dialectical model, this project also advances assemblage approaches to sonic mediation. In assemblage thinking, Julie Guthman writes, "nonhumans play an active role in bringing phenomena into being."28 Assemblages reveal how particular combinations of mediations can characterize sonic productions. This focus on distributed objects and nonhuman forces can reveal how a range of elements can constitute sonic mediations, in ways that exceed the stipulations of Adorno's model.

As such, the central object of investigation in this book is a kind of multiplicity. Sound is a contested object formed through the mediation of social

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and material forces that are expressed and (variously) legible in its internal form. Sound can also operate as one of a group of agents articulated in an assemblage. At still other moments, sound can emerge to orchestrate and legitimate already entrenched inequalities of power. So how do we arbitrate between these tendencies and the various realities (social, political, technological, spiritual) they denote? My answer here is to return to the normative impulse of historical materialism. For David Harvey, historical materialism entails "a study of the active construction and transformation of material environments (both physical and social) together with critical reflection on the production and use of geographical knowledge within the context of that activity."²⁹ In a similar vein, my aim is not to catalog all the mediations at play at a given moment. Rather, it is to pursue those forms necessary to the book's critical project: a situated critique of capitalist-colonial development.

A sonic materialism defined as such is not an innocent critique. It has as its inheritance a Marxist tradition marked by the Enlightenment pursuit of knowledge; a tradition that was forged in the belief that ferreting out the unseen forces capitalism inserts into the world can be a basis for capitalism's critique.³⁰ The non-innocence of this idea is clarified by considering its Eurocentrism. Insofar as questions of access, transparency, and ethics mark investigations of sound on the North Coast, any account seeking the term critical must acknowledge this intellectual provenance. On the North Coast, this means confronting the colonial legacies that continue to shape perceptions of the region and its inhabitants.31 Dylan Robinson's critique of possessive listening practices, as developed in his book *Hungry Listening*, is helpful here. Robinson foregrounds the central importance of asking for whom a sound is made meaningful and why. As Vanessa Watts, Kim Tall-Bear, and Leanne Simpson further demonstrate, categories like knowledge and justice are not derived from universal doctrines and abstract principles. Rather, they are keenly situated, informed by protocol, and involve a host of human and nonhuman participants. This is a significant observation for a region from which anthropological practices of salvage would gain their wide disciplinary and even cultural assent. It was in the lands and waters of the North Coast that Franz Boas, salvage's great exponent, arguably inaugurated the discipline of sound studies with his efforts to classify the "alternating sounds" of disappearing Ts'msyen speakers.32 It bears emphasizing that his prefigurative sonic extractions were about more than academic knowledge production. They worked to inform projects of Anglo-European modernity and Canadian state conquest; projects that in various ways sought to incor-



porate the North Coast and its peoples under banners of progress, improvement, technological rationality, or simply white supremacy.

The analytical and ethical perils of what amounts to a white settler's fieldwork on Indigenous lands and waters (e.g., my own) points to the critical importance of limits in this account. To explain, I need to unpack this polyvalent term. Political ecologists approach limits as "differentially malleable conditions of possibility for different forms of human activity."33 They suggest capitalist development as routinely a story of the overcoming of limits, given capitalism's endless interest in converting limits (of production, exchange, etc.) into "mere barriers." ³⁴ For Gavin Steingo and Jim Sykes, sound studies can also be described in terms of limits—in this case, as "an ethnographic experiment" with culturally inscribed forms of audibility.35 Both formulations hold insight for this project, but the limits that most interest me involve something else: responsible research in Indigenous territories. For Audra Simpson, acknowledging limits can mark an awareness of a sovereign order. Simpson develops this idea in her powerful critique of ethnographic accountabilities, Mohawk Interruptus. "Rather than stops, or impediments to knowing," she writes, "limits may be expansive in their ethnographic nonrendering and in what they do not tell us."36

It is worth pausing to consider the implications of this idea. Simpson is not saying that once the ethnographer encounters limits along "Research Path A" they should go about their way along "Path B," armed with the productive knowledge that "Path A" was unavailable. Rather, limits are better understood as being about a community's right to self-representation. They are about researcher commitments to this right, to community well-being and the maintenance of relationships among humans and the natural world. From the nineteenth century to the present day, sounds have been extracted from the North Coast and made into the possession of others—as culturally valued music, as quantifiable animal calls, as spectacle, as data. Against this possession, sonic materialism must pursue "counter-possession"—radically refusing both "hungry listening" and the unjust conditions it sanctions.³⁷ If this moment can help to establish a normative, ultimately decolonial project from this study, counter-possession is also useful for the meta-reflection it invites of the book more generally: What are the limits of sound to the study of the North Coast, to its unassailable rhythms and shifting temporalities, to the Indigenous actualities it effectuates in people like Jeremy and Spencer?

I still need to identify the other element in sonic materialism. This is its flipside: sonic capital. Sonic capital is a latent element in this account; the actor waiting offstage, hovering as potential.³⁸ But sonic capital is essential

to recognize if we are to grasp the political stakes this project raises. On the North Coast, between 2006 and 2018, different communities will provide routes through which capital will seek to move, and through which new opportunities for capitalist valorization will arise. Collective capacities realized in the wake of new environmental challenges, socio-technical developments, economic conditions, and regulatory adjustments will become opportunities for, among other things, sonic capital: sonic inputs into the capitalist valorization process. Sonic capital is not the sounds of capitalism—as might be discerned, for instance, in the ocean-bearing noise of global maritime traffic. Rather, to continue the example, sonic capital is what emerges when technoscience works to apprehend ocean noise as a fungible risk/opportunity (chapter 2). Sonic capital *becomes* in the assetization process; in the abstraction of whale listening into exchangeable (and profitable) sense data—activity that is presently spurring lucrative markets in industrial noise assessment and data analytics.

A clear place we can observe these logics is in the construction of Smart Oceans (chapter 5) and the way sonic data is being enrolled in the creation of coastal listening stations (sonic fixed capital). The ambient sound plots Smart Oceans generates to predict marine flows, like the animal recordings acoustical analysts are leveraging to improve data products, reveal noise as a consistent figure for sonic capital generation.⁴⁰ The noise/value relation has been an interest for sound studies since the work of Jacques Attali, if not earlier.⁴¹ It proposes numerous links to the present study. To listen to Gyibaaw's noisy music (chapter 5) is to ask after capital's perpetual dependence on "free gifts" of human and nonhuman creativity, and how noise becomes cultural commodity. To listen to Gyibaaw is also to ask how cultural forms might resist sonic capital and its depredations. There are deeper dynamics at play here. The fact that epistemologies marked by partial perspectives, plural agencies, and recursive temporalities are appearing with equal force across decolonial Indigenous art and algorithmically managed smart environments is not a fact we should overlook. It speaks to the Janus-faced character of today's resonant ecologies and the need to employ tools capable of attending to the varied ways contemporary ideas of sound can articulate with material life and economic possibility.

Sonic capital is not preeminent among the different circuits of capital now reshaping the North Coast. And its prospect should not absolve us of the need to attend to those other axes of social domination at play, such as neoliberalism and settler colonial rule. But sonic capital helps to focus a key question



that spans the different cases of this book: What kind of a North Coast does capital desire? The answer, I will wager, is this: a predictable one. A predictable North Coast is a coast readied to absorb new forms of transnational marine activity (e.g., shipping). It is a coast whose rhythms can be made manageable, whose anomalies can be monitored and mitigated before they occur, and whose different imaginaries can be guided into the form of a "sustainable marine development."42 This is the horizon to which sonic capital and capitalism more generally—strives in the present context. It is to this end, with its contradictory demands of limitless and sustainable growth, its false synthesis of capitalism and ecology, that Smart Oceans technologies are presently listening to Chatham Sound, the Douglas Channel, and other to-be-shipped areas of the North Coast. And to which several other sonic practices, discussed in this book, also press. There is much to question about this vision, including its evacuation of "differences, temporalities, and societal structures."43 But if this book has an argument in support of sonic materialism, it is to be found here too.

The North Coast as a Development Geography

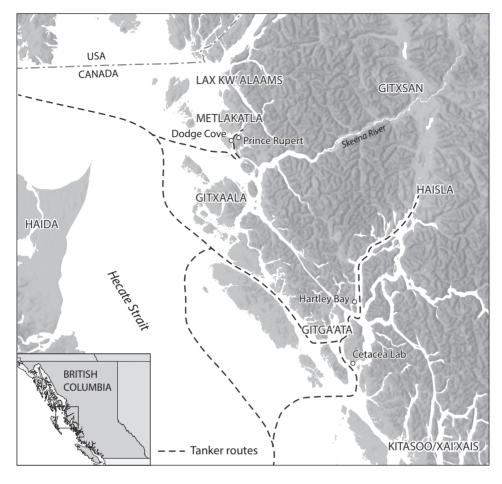
Liminal geographical zones of capitalist-colonial activity are often marked by overlapping cultures of sounding and sense-making.⁴⁴ This is indeed the case for the region in question here: a rugged collection of islands, continental shelf, and sparsely populated coastal fjord land extending over 800 kilometers from the tip of Vancouver Island to the bottom of Alaska. The North Coast has known many names over recorded history, with the actual term North Coast only being consecrated in 1990 (as a provincial electoral district for the Legislative Assembly of British Columbia, Canada).45 As many written accounts about it emphasize, it is above all a watery space, dominated by huge ocean swells, moody gray skies, and seemingly endless rain. Water assumes many functions here (as it will in this book). The marine biologist E. F. Ricketts referenced water in his depiction of the North Coast as an interplay of "quiet water" and "wave-shock" life-forms. 46 Industry boosters have long emphasized the advantages of the region's maritime trade routes—linking North America to the Asian metropoles more speedily than anywhere else. For the Ts'msyen, water is the very medium of life: an ocean (gyiyaaks) unfolding in rising (leeksa'aks) and falling (tsoo'aks) tides. Water is the etymological source for sounding and noise, concepts that assume shifting local meanings.⁴⁷ Rather than just an elemental condition, it is helpful to

conceive of water as a "hydro-medium," a condition that will enhance and extend sound's properties and political lives in various observable ways.⁴⁸

The North Coast I would come to know through watery and terrestrial sounds is also an Indigenous North Coast: a space of stories and territories, defined through the circulations of the Ts'msyen who have occupied it for thousands of years: Gitga'at, Gitxaala, Metlakatla, Kitasoo/Xai'xais, Lax Kw'alaams, Gitsumkalum, and Gits'ilaasü—circulations shared with Gitksan, Nisga'a, Tlingit, Haida, and Haisla.⁴⁹ Recent years have brought renewed public attention to these histories, including in ways that have benefited Indigenous peoples. But it would be a mistake to minimize the countervailing reality the development process serves to highlight. For most visitors, the remote, storm-battered North Coast remains a "purification machine"-a place where history is to be left behind.⁵⁰ In Jean Barman's words, the North Coast is "the West beyond the West," the temporalized edge of the projective, expansive frontier central to settler colonial ontology.⁵¹ Ferrying up the Inside Passage from the northern tip of Vancouver Island, I can still recall how the North Coast first appeared to me: open waterway after open waterway, buttressed by huge walls of hemlock and cedar. It suggested a great indifference to human scale and activity, an impression I shared with the person sitting next to me, an elder from the Heiltsuk village of Bella Bella. He smiled and called me k'amksiwah. As we sailed on, he pointed out patterns of second-growth forest, lightly etched lines of logging roads and power lines where I had seen only brush. He noted locations where gold mining was still taking place, behind hillsides. There was more, he added, but he was feeling too tired to talk further.

Since the early 2000s, environmentalist narratives of wilderness have increasingly aligned with scientifically informed appraisals of the North Coast as a biodiversity hotspot. This framing has been incredibly productive for the storied encounters with whales, spirit bears, and coastal wolves the region uniquely provides. Expression this framing were the Great Bear Rainforest agreements of 2004–6, which secured new financing for local forms of economic development and ecosystem-based management. Coastal First Nations—a political alliance made up of nine nations, including the Gitga'at—would use the new resources to advance collective frameworks of Indigenous regional stewardship. One result was the Coastal Guardian Watchmen Program (founded in 2006): "the eyes and ears of the Land and Sea." The Watchmen are central to many of the governance successes that have transpired in the region since that time. Certain members would also become key interlocutors to my own regional understandings, as I relate below.





MAP I.1. The North Coast.

Initiatives like the Guardians are hopeful endeavors and cut against a dominant logic touched upon already: the land-centered project of settler colonialism. In this book, I propose that settler colonialism is routinely a "sound-centered" project too.⁵⁴ Early in my research, I found a story in Marius Barbeau's 1951 book *Pathfinders of the North Pacific* about Metlakatla—a Ts'msyen village just across the harbor from Prince Rupert. It concerns an encounter between William Duncan, who was a nineteenth-century Anglican priest, and an unnamed messenger from a local First Nation. At issue is Duncan's unwillingness to cease ringing the newly installed village church bell, despite requests:

"The bell so disturbs our mysteries," the messenger pleaded.

"Would you not be kind enough, today, not to ring the bell?"

"I can't do that."

"You could ring it softly?"

"No, I will have to ring it as usual, so they can hear it."

The story is likely apocryphal. The only record Barbeau had access to came from the self-aggrandizing Duncan, and via John Arctander's hastily assembled 1909 biography.⁵⁵ But the episode is instructive for its evocation of the despotic character of Duncan's tenure on the North Coast (1857–1918). It also speaks to the sonic colonialities Duncan supported, and which remain central to grasping the region's political character today, over one hundred years later.⁵⁶

From nineteenth-century surveyors to contemporary enactments of networked digital monitoring, Indigenous-settler relations on the North Coast express a recurrent aural facticity: a settler colonialism that has repeatedly sanctioned new and expanded forms of social and territorial control; a settler colonialism that seeks to disintegrate prior social formations and relations to nature and create "socially useful" ones. More than a solitary gesture, Duncan's bell was participant to a network of soundings, silencings, and listenings. It included the impositions of Christian music during missionization (1857–1948), the censuring of Indigenous aural traditions in the Potlatch Bans (1884–1951), the disciplinary silencing enacted by the Indian Residential Schools (1879–1948), and the Canadian government's recent turn to reconciliation policy (2015-), modeled in the reflexive posture of an accommodating, listening state. Like these moments, Duncan's demanded the repression of other sensings and other temporalities.⁵⁷ As an audible formation on the North Coast, his bell prefigures an increasingly capacious colonialism too: now underwater, in the air, and amid circulating digital sound objects.

This book's critique is not with colonialism, however, but capitalist colonialism. More needs to be said about interaction of these concepts, and the ways they combine through development. Many geographers have observed how settler colonial regimes do not function as singular logics but are instead coproduced in relation to capitalism's global political economy. The five cases explored in this book share origins in the early 2000s, a period of sustained efforts by the Canadian state to support new global production networks across the Pacific Rim. The central role the North Coast might play in Asia-Pacific integration has long been the stuff of local lore—in high school, children in Prince Rupert are regularly reminded that the trade



routes connecting their city to the Asian metropoles are a day's voyage closer than from any other North American port. $^{60}\,$

In step with China's ascendance as an industrial superpower with unprecedented energy needs and faced with a continental glut of fossil fuels, pressures to forge new supply chain infrastructures in North America began intensifying post-millennium. Among other places, they eventually found expression in the eastern and coastal portions of northern British Columbia. Here, new state provisions would be established for oil and gas extraction as well as bulk container cargo shipping activities. Port expansion projects were pitched in Prince Rupert and Kitimat, along with infrastructure upgrades to regional rail and road networks. These were followed by rounds of digitalization, linked to governance but also to narratives of economic well-being. Throughout the region's inner fjord land and across its outer shelf, the federal and provincial governments conceived of high-speed internet networks capable of supporting new programs of oceanographic profiling, mapping, and tracking.⁶¹ Eventually, large-scale marine planning projects like the World-Class Tanker Safety System (2014-17) would evidence the considerable investments Canada made to ensure the economic transformations that met its policy objective of sustainable marine development. In Prince Rupert, a powerful boosterism took hold, with community newspapers and City Hall making promises and threats not to stand in the way of progress.

Environmental governance is a crucial mediator between capitalist colonial logics and the biophysical conditions they encounter. Following Gavin Bridge and Tom Perreault, this book conceives of environmental governance as a decentralized process, encompassing state interests but moving beyond the state's remit. 62 As suggested earlier, from the mid-1800s to the present day, the thrust of environmental governance on the North Coast has been to maintain orderings of colonial law and support the capital accumulation process. But in recent decades, new political actors—bearing new forms of transnational science, social organizing, and legal authority—have begun to exert influence over this trajectory.⁶³ Through its focus on sound, this book considers some of the novel engagements that have resulted-from within contested measurements of ocean noise, where data analysts seek to cost the effects of shipping by assessing the sensitivities of constitutionally protected marine species, to emergent forms of Indigenous music, whose "performance of other worlds" articulates new community demands. 64 As nonhuman participants to both processes, whales deserve special mention here. Among other things, whales are supremely acoustic creatures, with

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distinctive cultures of musical composition and acoustic-spatial awareness that give them elevated positions of authority and respect in many human cultures. But whales are also among the most resourced animals in the annals of western civilization, a historical fact that encompasses over four decades of industrial whaling along the North Coast. As I note in chapter 1, these trajectories co-constitute a taxon that is both cherished as an object of eco-politics and exploitable as a resource in the same sounded moment. In industrialized waterways around the world, whales are straining to listen past raucous shipping conditions while being pursued by conservation drones and acoustic monitoring technologies. 65 Violent new behaviors are being registered, suggestive of a growing metabolic rift that manifests formally in ocean noise. But this is not the only story in which whales feature. As I relate in chapter 1, unexpected flourishings are also happening for certain species on the North Coast. We can find hope in institutional efforts that affirm different kinds of human-whale relating, that work to value nonhuman nature and bear witness to it in remarkable ways too.

My principal fieldwork site of Prince Rupert (pop. 11,500) offered a special vantage onto the changing region. The hub for the region's network of fishing villages and work camps, Prince Rupert profiles as a classic depressed resource periphery, with a Main Street expanse of abandoned buildings and little-used sidewalks. It was founded in 1910 as the terminus of the Grand Trunk Railroad, when it was enshrined with the promise of Asia-Pacific economic integration that has marked the North Coast over the ensuing century plus.⁶⁶ But behind this staid appearance are undercurrents of surprising depth, richness, and complexity. Prince Rupert has the largest Indigenous population per capita of any city in Canada, and despite decades of institutional racism and high rates of poverty, numerous Indigenous cultures flourish there. Alongside the settler fishing and logging communities who arrived in the mid-twentieth century, and the older waves of Italian and Norwegian immigrants, the city boasts more recent communities of Sikh missionaries, Vietnamese crabbers, and Filipino dockworkers. They can all be found downtown, conversing in that great polyglot space of the Canadian North: Tim Hortons. Many of the materials that inform this book emerged from these community spaces. They afforded me opportunities to consider how locally distributed references to sound—in personal anecdotes, newspaper editorials, or industry pamphlets—could index the development process.⁶⁷ The resulting methodology is experimental in that it recursively moves across different sites, scales, and methods—from archives, regulatory review, and structured interviews to sound walks, boat trips, and personal-

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ized headphone journeys—to build an ethnographic account of the different communities operating in the region.

By the end of my first spring, I had acquired a sense of the general reactions development prospects had elicited across different sectors of the region. Environmentalists despaired of the contamination risks and impacts on wildlife. Municipal and city officials pointed to budgetary shortfalls amid a growing housing crisis. Fishermen in Oona River and Dodge Cove worried about further attrition to already diminished economies. But many working-age residents in Prince Rupert eagerly awaited development. It promised an end to high regional unemployment and youth out-migration.⁶⁸ Here, two decades of neoliberal policy have all but destroyed the once-vaunted civil society institutions and a city's status as a union town. While the initial play of the Enbridge Northern Gateway project fell flat ("If anything," Hermann Meuter told me, "Enbridge has only further united this coast against development"), liquefied natural gas (LNG) proposals would prove far more considered. As journalistic reportage later confirmed, LNG proponents were able to skillfully exploit local economic anxieties while assuaging ecological concerns through the presentation of an innocuous fossil fuel resource. 69 LNG drew attention away from the huge upgrades ongoing at the Port of Prince Rupert's Fairview Terminal, another key facet of local development ambitions. The early 2000s saw the arrival of new road, rail, and port infrastructures, along with programs for job reskilling and training. Although largely greeted as apolitical, the ongoing penetration of digital connectivity into these spaces would also begin to reshape politics in consequential ways. In the form of smart technologies, digital computation would become a key ideological support for extensive state investments in coastal monitoring and emergency response. Taken as a whole, the result of these interlinked developments (development boosterism, policy neoliberalism, digitalization) has been a local population primed to abandon historical identifications with fishing and logging and pressed into accepting a brave new world of network-enhanced supply chain movement.

The politics of development become murkier when we move to the question of Indigenous communities. Because the lands and waters encompassing the North Coast, like most of the province of British Columbia, were never settled through historic treaty or surrender—that is, the conditions for legal Crown possession under the terms of the Royal Proclamation (1763)—key legal questions surrounding territorial access remain unresolved. Ensuing stateled efforts to pacify and preempt Indigenous oppositions to development—whether through patronage, assurances, threats, or intimidation—have

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produced mixed results. Decades of impoverishment and inadequate state services have no doubt compelled some communities into seeing recent energy prospects as an opportunity to gain some measure of economic security. But while impact benefit and sharing agreements would be signed between energy proponents and several local band councils, development would also mobilize powerful assertions of Indigenous refusal and place attachment. This is exemplified in the dramatic appearance of Indigenous water and land defenses at energy choke points along the coast and inland. Some of these continue to gather international attention as this book goes to print.⁷⁰ Meanwhile, hereditary and elected First Nations leaders armed with important victories in the Canadian courts would build on earlier efforts to reshape resource co-management regimes. This has boosted local capacity in areas of conservation and marine stewardship and inspired innovative forms of intercultural science and research. The socioeconomic changes have been less salutary. Ten years after I first moved to Prince Rupert (2013), it is the urban Indigenous communities who continue to suffer most from the destabilizing effects of development, as measured in high rates of houselessness, poverty, and substance abuse.

This, then, is the historical-geographical arc surrounding my time on the North Coast: a time of uneven development, political unrest, and rapid technological change. A time of the Anthropocene, when algae blooms, red tides, and surging storm systems entered more deeply into a region's lifeways, along with new migratory bird populations, unexpected sightings of Humboldt squid, and movements of coastal wolves. In the following chapters, I consider some moments that emerged within and alongside these changes. I reflect upon the analytic powers of sound and sound's analytical limits to a series of dynamic ecological changes. To all this, one more detail needs to be added. At the center of my time in the North Coast was a collaboration I undertook with the Gitga'at First Nation. For three years, I worked with their chapter of the Guardian Watchmen, collecting digital records of their traditional territory. At the beginning of each month, when the weather allowed, we would motorboat out from Hartley Bay. I would sit in the back with our two teenaged field technicians, Steven and Ethan Dundas, sharing earbuds and listening to A\$AP Rocky as we bounced across waves past rain-blurred shorelines. By documenting all the life in the coastal archipelago—as recorded from the sounds of birds, whales, waves, wolves—we worked to generate an aural record of environmental change for the nation's decision-makers. We called it the Gitga'at Ambient Baseline.71

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The baseline is not something I discuss at length in this book. In the protocol agreement I signed with the nation, it was requested that I not use it as an opportunity for ethnographic study. It is an encountered limit to this account, a silence that nevertheless speaks to the systems of accountability and friendship in which this research was embedded. These systems are central to the way the North Coast is "experienced, known, evaluated, and critically interrogated" in A Resonant Ecology. 72 They hold me to the region in other ways than I recount here, involving other sounds and other stories, and many friendships. But for all this, the baseline raises some questions about which I can speak: What sorts of local histories should researchers seek to bring to community engagements? To what extent can contemporary experiments in sound making and listening enable desired political collectivities? With its architectures of metadata and code, the baseline continues the hegemonic accountings of place and ecology prescribed by the development we sought to challenge. Can new potentials nevertheless be found from within capitalism's contexts of rapid technological change, as Walter Benjamin famously argued for his own time?73 Perhaps baselines invite opportunities to listen against the closures their methods might insinuate. Perhaps this baseline will be a basis for future perceptions of the North Coast, community-led and utopian in ambition. Sorting out the prospects for such possibilities is a task I consider in the remainder of this book.

Chapter Outlines

With one exception, the book's five case studies proceed in a chronological sequence, following the course of my fieldwork engagements. In their presentation, they also mean to build into a sense of the interconnected ways in which sound informs the dynamics of North Coast development: how the aestheticizing tendencies of environmentalism (chapter 1) help to provision a technoscience that attached itself to whales as bearers of environmental risk (chapter 2); how a noise abatement campaign delimited by neoliberal rule and settler nostalgia (chapter 3) operates against the prefigurative noise celebrated in an Indigenous popular music (chapter 4). With the final empirical chapter (chapter 5), I present something of synthesis—a decidedly false one—in the form of an eco-governance project (Smart Oceans) that seeks to assemble the cast of North Coast perspectives noted into a hegemonic vision of sustainable marine development. Let me now address each chapter in more detail.

Chapter 1 considers coproductions of whale song at Cetacea Lab. Through an ethnography of the lab, I consider how institutions shape ways

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of listening-including historical forms with embedded presences up and down the North Coast. Thinking with the aesthetic regime Theodor Adorno terms "late style" affords me the opportunity to consider how whale song with its histories of New Age practice, musicking, and the domination of nature—extends possibilities for institutionalizing the senses, while expressing divergent histories of human-cetacean relations.74 Deeply felt investments in whales on the North Coast form at a time when degrading animal habitats around the world are being marked by new kinds of investment/ concern. Yet they are being delivered through a conservation spectacle whose very mediated qualities deepen its loss—premised as they are on the delimitation of the nature they seek to liberate. But whale music's ontology is also bound up with mediations that transcend human historical forms.⁷⁵ At Cetacea Lab, the mediations of whale music reveal complex and multifaceted listenings: attentive to lateness and crisis ecology, to institutional dynamics and cultures of technoscience, but also to the ceaseless and spiraling inventions of nature itself.

Chapter 2 moves from listening human subjects to the new ecological problems confronting acoustically sensitive whales. Worldwide, the vulnerability of whales to ocean noise has forced shipping capitals into acknowledging ocean noise as an acoustic-biological risk and an economic hazard, especially in regulatory hotspots. Rather than address the problem, ancillary markets in technoscience are rendering acoustical impairment as an assistive pretext, that is, impairment as a frontier for capitalist-led innovation.⁷⁶ As I show through readings of disability studies and political ecology, noisy listening has become a productive power offered freely by whales, with technoscience organizing "work as a multispecies process." Pursuing this idea across cartographic projections of North Coast marine space, chapter 2 links ocean noise to industry science, to state regulatory inertia, and, later, to the hidden yet enabling work of shipping labor. Today, a liberal regulatory politics making ocean noise's impacts more visible to some is contributing to the occlusion of the spatially distributed work of many others. This calls for a new science, coupled with a new labor politics, of ocean noise.

Chapter 3 moves landside and into the small ex-fishing community of Dodge Cove. Beginning in 2007, the conversion of Prince Rupert's Fairview Terminal into an intermodal container port has subjected residents to the abstract sounds and accelerating rhythms of economic globalization. The chapter's point of departure is the sensory logics that emerged as residents sought to contest an encroaching spatial envelope of industrial noise. Building on Henri Lefebvre's concept of "state space" and Mishuana Goeman's



"settler grammars of place," chapter 3 argues that residents' listening practices reveal rich ecological place attachments alongside increasingly tenuous claims to land. In Dodge Cove, residents feel hemmed in by the future and the past: by the prefigurative activities of port expansion, and the cherished local rhythms port activities could dissipate. Instead of a "revolt of the living against abstraction," local turns to listening will tighten a possessive sense of place, an imagined bulwark from capitalist anesthetics that is in fact constitutive of development logics. The result is a story of doubled sonic forgetting: state space, and the coloniality upon which it operates.

Chapter 4 moves into the visionary spaces of music. It relates a history of Gyibaaw, a local musical project that cultivated critical forms of Indigenous self-recognition through the idiom of black metal. In conversation with family members, friends, and Gyibaaw's founding musicians (Spencer Greening and Jeremy Pahl), I look at how teenage passions, "fugitive aesthetics," extractivist development pressures, and living connections to territory would mark a short but eventful career. Drawing from critical theories of Indigenous art, I consider how Gyibaaw's music was mediated by globally ascendant sound cultures and locally honed opacities—a combination that would prove tragically amenable to white ethno-nationalist rearticulation. This speaks to music's incomparable polysemantic powers, as well as the challenges of ethical listening. To consider Gyibaaw through sonic materialism is to discern the rumblings of the conjunctural, while striving to recognize that concurrent temporalities are echoing out in other ways, for other audiences.

The final chapter (chapter 5) considers multipurpose acoustic ocean observing as an expression of new enclosures on the North Coast. Smart Ocean Systems is a state-supported effort to synthesize diverse regional interests into an inclusive network of monitoring and environmental risk preparedness. Since 2014, Ocean Networks Canada (ONC) has established a range of regional community observatories in key development areas of the North Coast. Drawing on theories of enclosure from Álvaro Sevilla-Buitrago and Mark Andrejevic, I consider how the sonic objects, practices, and discourses of onc's Smart Oceans presage the emergence of new socialities on the North Coast and, with them, a normalization of digital-cum-maritime enclosure.81 Central to this analysis are digital sound and the consequential mediations digital sound enables. Smart Oceans is erecting the constituency deemed necessary for Canada's sustainable marine development. As it promises new capacities in the face of unknowable future shocks, it facilitates the loss of once-integrated socialities and the sensory knowledges they helped cultivate.

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What is to be done about all of this? The conclusion considers prospects for liberatory environmental politics on the North Coast. After reviewing the book's major arguments and findings, it considers the formation of new research networks in Gitga'at Territory and beyond. Alongside the hopeful possibilities of the Whale Sound project, I consider the rise of an Indigenous rematriation movement that seeks to return stolen songs and decolonize the ear. I close with country music, a cultural form with surprising breadth of appeal in the North Coast, a place where "country belongs in no country"; and a place, perhaps, where new alliances can be forged from new sensibilities.

DUKE

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AT CETACEA LAB WHALE SONG AND CONSERVATION'S "LATE STYLE"

At first, there is nothing but hiss. Then, a bright sonic flutter, lasting several seconds. What comes next might be described as two long gestures, interspersed with pauses. In those pauses, the echoes are clear. It is hard not to intuit a purpose: the animal composer listening back, interpreting, sounding out the surrounding space. As featured in the online article "Caamaño: The Sound of (Whale) Music," this sample of humpback whale song is short (just over a minute and a half long).¹ I know it as part of a much longer display, since I was at Cetacea Lab during the period in which it was recorded—as was Darcy Dobell, the media strategist whose text seeks to profile and celebrate the remote part of the coast where Cetacea Lab operates.

When I first arrived at Cetacea Lab, its mission appeared to me both firm and fixed. It was a sentinel for listening, a beacon of conservation-inaction. The tiny station was regularly being profiled by journalists, environmentalists, and policymakers up and down the coast. Cetacea Lab's rise had been swift. It was only a few years earlier, in the early 2000s, that Janie Wray and Hermann Meuter began encountering humpback whale songs for the first time.2 "This was remarkable because humpback whales were thought to have been extirpated from the North Coast waters for decades," Janie told me.³ In 2004, they cataloged thirty-five individual humpbacks. By 2006, the number had doubled. A total of 543 individual humpback whales were recorded in 2018, more than enough to convince many conservationists that the waters surrounding the station should be designated Critical Whale Habitat under Canadian law.4 For Hermann and Janie, this would be a timely development, given the untimely news of regional development proposals and the transformative changes development was posing to their research.

In this chapter, I consider the different kinds of mediation humpback whale song arranges at Cetacea Lab, including the receptions Dobell celebrates in her article. More than illustrations of a passionate environmentalism forged in sound, these mediations tell a story of conservation's changing institutional field. The changes I would witness at Cetacea Lab over my four years there are a story of how, as structures of norms and rules, institutions inform particularized ways of listening. The visiting interns whom I met at Cetacea Lab listened to support its conservation science. Some also listened to gain a validating personal experience, one affixed to an economic imperative: to "inspire caring, which translates into commitment, which leads to action, which is assumed to be productive."5 As I explore below, this latter moment spoke to the new relations of conservation spectacle that were forming along the North Coast in those early years of development politics. At Cetacea Lab, it would intercalate with still other valorizations of singing humpbacks. With his concept of late style, Theodor Adorno signaled an interest in art's capacity to articulate lateness; the lateness or moribundity of existing social orders. Late style, I will wager, captures something about the aesthetic guiding Hermann and Janie's cetacean listening practices. It historicizes their project and connects it to an emotionally charged conservationism unique to this part of the world.7 It denotes an interest in nature's prefigurative loss, as expressed in humpback song. It helps to explain an enduring depth of investment in the listening act; with late styles' imbued sense of,



to draw from Edward Said's gloss, "being at the end, fully conscious, full of memory, and also very (even preternaturally) aware of the present."8

To consider Cetacea Lab's varied listenings (scientific, experiential, aesthetic) is to consider how a conservation-focused project internalizes what is in fact a powerfully unsteady combination of mediating interests, each bound to distinctive logics. "That which enables anything to make sense," notes John Mowitt, "reaches well into the institutional field." The institutional focus is overlooked in geographies of sound, which tend to focus on the body, the territory, or even the planetary as preferred sites. Here, it is useful to momentarily return to the article at the top and ask: What kind of institutional project does this propose? Dobell's piece was written for the Hakai Institute, the conservationist arm of the Tula Foundation, a BC-based private nonprofit rooted in the marriage of tech entrepreneurism and cutting-edge conservation science (and which funds several entities that fund Cetacea Lab). What her article suggests is a conservation built not on oppositions, such as might restrict whales from human interference, but connections. This is a conservation fit for the neoliberal moment, one that transposes promises of alterity with instrumental institutional objectives—discouraging ruminative aesthetics in favor of spectacle-driven listening modes. Whale song will carry this move, with all the institutional pressures it solicits. But more than a singular imposition of what is, ultimately, a development process, my time at Cetacea Lab would also affirm whale song as something else: a distributed object, without original or facsimile—but flourishing variations that speak to the creativities of humpback whales.

"Just Listen": Legacies and Lineages in BC Whale Conservation

Katy Payne, Paul Spong, Helena Symonds, Janie Wray. The experimental fringes of whale conservation have long been a space where experimental listeners have pushed against dominant strains of scientific objectivism. Theirs is a project which demands that officialized conducts of observation cede space to empathetic and even intuitive approaches, and in some cases, different domestic and working arrangements too. Janie Wray is the lead researcher at Cetacea Lab. Since cofounding the station with Hermann Meuter in 2001, she has dedicated her life to whale song, often listening alone here for weeks on end, miles from any human community. For this, the whole southern tip of Gil Island (also called Whale Point) has been acoustically reengineered: the lab's front room is a hub for its regional network of

hydrophones, headphones, and mixers. They broadcast sound across the tiny outdoor speakers that have been threaded along forested pathways and into the back building. Cetacea Lab interns quickly grow accustomed to kicking out of their tents at 3 a.m. to respond to a whale call. Where technologies and human senses do not suffice, other actors are employed. Neekus, one of Cetacea Lab's two canine residents in the early years of my visits (he passed away in 2016), had been trained to bark upon olfactory detection of whale scat, so as to alert humans to the possibility of an encounter. Cetacea Lab's is an almost delirious investment in listening. Addressing an arriving batch of interns on a bright summer day in 2014, Janie elaborated on its ethos: "When you sit and put those headphones on and start to listen to [whales] communicating with each other, close your eyes. If there is something strong near your nose, move it away. Envision that you are in the water. So, there is all this dark space, and then all of a sudden there are these sounds moving through. Just listen. That, on some level, is what it is like for a whale."

Just listen. Since the 1970s, humpback whale songs have played a formative role in the evolution of human listening practices—musical, scientific, ecological, and otherwise. Whales aver Steven Connor's point that animals "play an indispensable, though often ignored, part in our care of the senses." Just as we mediate the world through the senses, humpback whales "mediate our senses to us." In this way, we develop new listening capabilities, and with animals, new institutionalized cultures of listening too. Humpback whale songs are perhaps the paramount instance of conservation's aesthetic mediation of sound. There are countless books (many of which I've read) exploring this relationship. They discuss how songs deliver powerful conversion experiences and lead young men and women to devote entire lives to the work of protecting whales. There are books, and there are also living devotees like Janie Wray and Hermann Meuter, who have constructed Cetacea Lab as a testament to the validating powers of cetacean sound.

This appeal rests on a legacy of liberal environmentalist aesthetics. But it also rests on that legacy's congeniality with the epistemological orientations of cetology (whale science), a field with long-held convictions about underwater sound. In 1966, two of the discipline's founding theorists, William Schevill and William Watkins, observed, "We are pretty well restricted to acoustics for underwater measurements and observations at any distance greater than a few meters, for of our available sensory paths only sound passes well through water." Years later, this has remained the case. "It comes down to what you can measure and record," Andrew Trites, director of marine mammalogy at the University of British Columbia, told me during an





FIGURE 1.1. Listening at Cetacea Lab, 2012. Photo by the author.

interview in his Vancouver office. "Acoustics is probably the simplest and most consistent thing that can be done." Acoustics lies at the basis of Cetacea Lab's conservationist ethos: to generate data from listening, in support of its effort to convince the Canadian government to designate the region as Critical Whale Habitat, but also to change people—thus saving both from industrial development. 15

But this simplicity of recorded outputs does not equate to a simplicity of inputs. Humpback whale song is a wondrously complicated scientific proposition. For cetologists Luke Rendell and Hal Whitehead, it is the most compelling case of nonhuman culture in the entire animal kingdom. "The progressive changes that humpbacks make . . . to their songs are so rapid and extensive it is hard to think of what else could account for them," they note. Vocal variations in humpback songs have been used as evidence of cetacean memory, innovativeness, and sophisticated spatial analysis. While there are many other remarkable animal acoustic cultures, beginning in the 1970s, song appraisals in particular would find a broad uptake through the crossfertilizations of popular music and popular environmentalism. For white middle-class communities in particular, the mediations of musical form

facilitated new determinations of an intrinsic species worth, paradoxically, alongside a new interest in whales within mass culture. Singing hump-back whales entered exclusive domains of human civilizational worth—intelligence, creativity, economic value—to a considerable degree through the sounds they made, which were circulated far and wide, and celebrated in various ways.²⁰

One of the listeners enabling these developments was Katy Payne. Until recently, Payne was largely known as a supporting figure for her ex-husband Roger Payne. Roger Payne's celebrated 1970 study—the first formative proposition of humpback whale song defined in terms of acoustically discernable and hierarchically organized themes and phases—features her as a sidekick.21 But his discovery rested to a considerable degree on Katy Payne's listening. Katy Payne was not a trained scientist. But she was a trained classical musician. To make sense of the sounds her husband sought to study, Katy Payne had turned to the sonata form—with its three-part structure of development, exposition, recapitulation. Janie Wray deeply admired Katy Payne, noting how her practice combined experimental ethics with "years of patient and repeated listening." Speaking to me from her home in Ithaca, New York, Katy Payne vividly recalled the sense of reflexive engagement the whales conveyed: "Well, you definitely know that the whale is listening to its own song and has decisions which are population wide about how each portion of the song is changing with time. . . . The song itself is an ever-changing pattern of, you'd almost say, 'decisions,' and all the singing whales that we recorded from a certain place and time were adhering to these decisions."22

Reviewing this history helps us grasp the appeal that continues to circulate at Cetacea Lab. For Katy Payne and for researchers who have followed in her wake, whale song carries models of interspecies spatial relating that challenge modernist dualisms of subject and object, body and environment. Song is a relentless stream of cetacean innovation that manifests as a continual branching, producing a proliferation of distinctive song variants. For Gregory Bateson, shiftless forms of humpback whale song were an expression of "extended mind." Here, song is not ersatz resolution, but late style in its complexity and movement.²³

Cetacea Lab is a research station. It is also a kind of Earth spaceship. Remote and self-powered, it is an expression of the environmentalism that began to populate remote landscapes of North America in the 1970s, combining crisis ecology with New Age communitarianism. A third institutional model is also on display here, the recording studio—a project defined by its acculturated investments in documenting and experiencing sound. As



Louise Meintjes reminds us, recording studios can be forceful sites for projecting cultural ambition.²⁴ As a recording studio, Cetacea Lab captures a range of interests in the aesthetics of environmental music-institutional experiments with field recording, stage/setting, fidelity, and the prospect of nonhuman musicking. In this sense, it captures one of Adorno's criteria for late style—engagement with historicity of musical forms. It is through the recording studio mediation that whale song delivers its evident capacity to enact musically meaningful environmentalism. When David Rothenberg writes that "we would never have been inspired to try to save the whale without being touched by its song," he is speaking to this sonic community.²⁵ He is speaking to Janie's eco-musicalization of humpback whales, a practice all Cetacea Lab interns are taught to cultivate. This is a playful environmentalism, but as a history of human-cetacean relations, it is also mediated by something less exultant. In Janie's practice, it is imbued with a sense of lateness—a lateness that spans a gulf between individualized feelings and the outward appearance of fading natures; between "embodied sensations and feelings as psychic or cognitive experiences," to quote affect theorist Ann Cvetkovich.26 We find it throughout the cetological history Janie and Hermann relate: in Scott McVay's 1966 lament about the waning of "the great whales," in Roger Payne's 1995 career retrospective, and in the more recent expostulations of Tom Mustill, who compares cetacean encounters to "read[ing] by the light of a library as it burns." 27 Whale song evokes a history steeped in understandings of human destruction. As a recording studio and listening practice, Cetacea Lab mediates several historical feelings, some uplifting, some not.

During rainy stretches, when singing whales were absent, I would sometimes wonder what had driven Hermann and Janie to come all the way to Gil Island. Here they were, without scientific accreditations or money, in a land-scape where weather can keep you landlocked for days. But in addition to its eco-musical ideals, whale song has long nurtured a lifestyle promise that resonates here. In BC, there has long been a cottage literature celebrating whale research as a kind of sentinel practice: young men and women, white and able bodied, venturing into the wilderness to discover whales and themselves. Books like Farley Mowat's *A Whale for the Killing* (1972), Rex Weyler's *Song of the Whale* (1986), Erich Hoyt's *Orca: The Whale Called Killer* (1984), or Bruce Obee's *Guardians of the Whales* (1992) tell tales of hydrophonically mediated whale encounters on misty mornings, along windswept beaches, and near abandoned village sites. Lingering animal voices appear as remnants of once-massive prewhaling populations. Sometimes, they inspire

longer-term partnerships—sentinel stations like OrcaLab, or the Centre for Whale Research, or Cetacea Lab itself. In concretizing such visions, individuals get to live out public fantasies of nature immersion. Lateness figures a kind of asceticism, an environmentalism of self-imposed exile. As explored in the Dobell article, such efforts can also become objects through which nature experiences can be broadcast to the world.

This is significant as regards local development politics. Here as well, we find the substitutive logics that have long marked ideologies of nature in British Columbia, with singing whales both symbolizing and ensuring the silencing of colonized First Nations (who tend to be heard in the whale narratives only as voices from the past). When I met Hermann and Janie in 2011, it was apparent that they were doing much to acknowledge the territory in which they operated. They spoke gratefully of their Gitga'at hosts and how the late Chief Johnny Clifton's support "was the reason we can still be here," as Hermann put it.²⁸ But Hermann and Janie were also concerned with how the station's new attention was affecting local relations. There were so many visitor requests, not from Hartley Bay, but from the myriad other communities with whom they had lately become connected. What was becoming increasingly evident to Hermann and Janie was that many of these communities did not recognize the weight of their territorial responsibilities.²⁹

Cetacea Lab is modeled on OrcaLab, a whale research station established in 1978, three hundred miles south of Gil Island. Hermann and Janie met there as interns in 1992. Its architect was Paul Spong, a brain scientist and flautist who is the hero of Weyler's 1986 book *Song of the Whale*. On Hansen Island, OrcaLab championed the noninvasive listening-based approach that various research institutions up and down the coast (and, to a certain extent, in New Zealand and Australia) have since adapted and elaborated. OrcaLab is an argument for the geographical specificity of whale musical mediation, the promise of live encounter through local encounters with musical sound.³⁰ It is also a space marked by an aesthetics of loss, a feeling to be both suffered and cherished, and whose logics would be repeated in Cetacea Lab's built form and cultural ambitions.

Spong, who is widely credited with having convinced Greenpeace to launch their Save the Whales campaigns, agreed to host me for a few days in the fall of 2013.³¹ We met on a desolate gray morning at the Port Hardy harbor, and I got inside his tiny skiff. Much like its junior station up north, OrcaLab peers out from the forested mist like a hallucination: an oceanside perch built of curved beams and stained glass, nestled between thick lashes of cedar and hemlock. The Earth spaceship ideal is strong here. More than



an aesthetic choice, the mandalas and solar panels are reminders of the apocalyptic earth narratives that first drove Spong and many others to the fringes of the BC coast. "My beliefs about animal captivity in the 1960s were not made through the training I received," Spong said in his quiet voice, as we sat drinking tea on the front porch. "They were made through the whale I listened to." We talked about the pods of orca in the waters around us. Like his former interns Hermann and Janie, any mention of whaling or of present risks of ocean noise filled Spong with a visible unease. Emotionalism was at the basis of his ethically charged turn against mainstream science. In Spong's telling, conservation needs to extend not only from awareness of ecological crisis but also from the human spiritual crisis born of diminished attunement to the world.³² The failing might be ameliorated, if never fully rectified, through musical listening. As far back as 1972, Spong was describing whale music as a system for "the communication of emotional data" with "significant potential in the realm of interspecies communication."³³

Spong's critiques of a cetology divested of listening's empathetic capacities have made him a "difficult beast for some" (his words). While beloved by environmentalists and journalists, OrcaLab has had rocky relationships with the whale research community and the Canadian government, to say nothing of industry. Perhaps an avowedly noninvasive research approach, with only intermittent interest in publication, makes this opposition to the mainstream unavoidable, I suggested, given the different institutional pressures it involved. Spong demurred. He wondered aloud if younger generations of regional inhabitants were not becoming less interested in whales, in spending real time with them. "We are losing whale habitats, and are we not losing them too," he asked me, "the actual effort to become dedicated partners?" While it is hard not to find some of this persuasive, it is also hard to avoid context. There is much in Spong's eco-philosophy that seeks to challenge Western dualities. But at OrcaLab, whale song aligns with a "bourgeois ideology of nature"—an ideology whose power extends from its capacity to simultaneously appraise nature as external and universal, and as an experience that is beautifully consumable.³⁴ Here, nature's ideological contradictions are pursued in the privileged belief that sound "brings us closer to everything alive."35

Adorno elaborated his late style from the same postwar Los Angeles context in which Spong had trained as a scientist (he completed his PhD at UCLA in 1966). For both figures, LA was far from the center of European high culture, if also riddled with the excesses of capitalist consumerism. As David Jenemann argues, a sense of dissonance, fragmentation, and dislocation—born from

these circumstances—marks much of Adorno's West Coast writings (much as it did for his fellow Frankfurt School expats).36 In the years following Adorno's death (in 1969), and right around the time of the release of Songs of the Humpback Whale (1970), a new generation of white middle-class men and women sought exit from its moral-spiritual decay—and the growing calamities evident in human relationships to nature. Spong was very much a part of this history. But sitting with him at Orca Lab, forty years later, it was evident that Spong's listening featured something more than a late-style commitment to endings. At OrcaLab, late style might well index a consciously produced sense of exile—both geographical and historical in nature. That this sense could be paradoxically assayed in a remote and purifying nature (and one built from acts of Indigenous erasure) speaks to contradictions of bourgeois modernity the late-style aesthetic affirms. But the whales one listens to at OrcaLab are not exiled figures, and Spong knows this. Rather, the whales are home, or, within one of the many homes whales make in their ocean movements. At OrcaLab as at Cetacea Lab, whale song's presentation as sonorous artifact of an extant but fading nature, as something yet intimately tied to the violence of western culture, confronts a human historical limit: the realization that here other senses take place, and take place in ways humans may never know.

The Hydrophonic Hiss

"Listening to whales," a Scottish intern named James told me candidly one day, "is more listening for whales. They usually aren't there." What is there is the sound of the hydrophone, hissing, gurgling away, bringing flows of underwater space into our awareness. The hydrophone is always there, bubbling like a coffeemaker at one moment, or the quiver of a record player at another. Adorno was fascinated by the hissing record player. In this sound, he discerned what he called the truth of mediation: the fact that modernity impels second-order technological experiences that both shape and substantiate experiences of the natural world. At Cetacea Lab, the hydrophone is the central mediator of human acoustical life. It is the basis for Cetacea Lab's Passive Acoustic Monitoring (PAM) research, intercepting soundwaves and converting (transducing) them into voltage for airborne detection.³⁷ For Hermann and Janie, as for Spong, using hydrophones upholds a normative commitment to whales—"passive" as opposed to "active"; "monitoring" as opposed to "intervening." To engage whales through hydrophones means a "commitment not just to whale research but whales as well," as Hermann

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once put it. In 2001, he and Janie had just one hydrophone, a homemade unit loaned from a friend down south. They would canoe to the middle of Taylor Bight and drop it in the water "just to have an ear" (Janie). When I first arrived at Cetacea Lab, hydrophone-based listening involved a multichannel recording rig. You adjusted knobs (pans) on a large mixing board to foreground different channels corresponding to the four hydrophones installed around in the region (Taylor Bight, Squally Channel, Whale Channel, and Caamaño Sound). In 2013, Hermann and Janie acquired two Ocean Sonics icListen hydrophones, priced at about \$10,000 each. They came through the philanthropic giving that had swelled in the wake of Enbridge.³⁹ In 2014, four more listening locations were added, giving the station expanded coverage in Ursula Channel, Verney Passage, and Otter Pass, as well as new possibilities for aggregating data and triangulating calls. 40 Cetacea Lab's older analog hydrophones had not been calibrated, meaning they offered incommensurable magnitudes when compared against one other.⁴¹ This had been fine for the lab's interest in simple abundance statistics. But it was inadequate for the kinds of collaboration envisioned by Hermann and Janie's new partners—Ocean Networks Canada (ONC), the World Wildlife Fund (wwf), Save Our Seas, and the Department of Fisheries and Oceans. In the North Coast, the digital hydrophone is a story of the expanded concerns of whale conservation. It is also a story of the expanded power of data analytics, digital labor, and sonic capital. It is, to a considerable extent, a story of development politics.42

Cetacea Lab's move to a condition in which whale song was to be captured by automated sensors, compressed, and transmitted to satellites and stored in the cloud did not happen all at once. Rather, it evolved in a piecemeal fashion. The process would be marked by new funding windows, personnel availabilities, and the enduring physical challenges of the locations where they wanted to install new units. But Cetacea Lab was far from alone in expanding its tools: In 2015, I conducted an informal survey of five other nongovernmental whale research stations along the BC coast—simres, Salmon Coast, OrcaLab, Pacific Wild, and Strawberry Isle. All confirmed similar investments in digital hydrophones at roughly the same time. At Cetacea Lab, the most remote of the stations, now centrally figured in the crosshairs of a development spectacle, these investments displayed hallmarks of the technological modernization that was reaching up and down the coast in new ways.

During my third summer at Whale Point, a disappearing sound seemed to imprint these changes with a strange poignancy. Clipping is what happens when an audio signal is amplified past the maximum allowed limit. It is undesired from a scientific perspective: generally, scientists want good (i.e., measurable) frequency response, which clipping compromises though its delivered effect of overdrive. During my first two seasons at Cetacea Lab, Hermann and Janie actively solicited clipping. Before going to bed, they would boost the gain on their outdoor speakers so that loud sounds would max out and produce audible distortions. They did this to ensure that opportunities for whale detection were not missed during sleep. One result was the experience several interns would gamely recall as the "3 a.m. wakeup call." Moments before the signal broke, clipping was informing us that a humpback (or a killer whale) was singing nearby and ready for monitoring on headphones. With hydrophone digitalization, the schzzzzz sound was no longer necessary. I never heard it during my fourth season at the lab because there was now software that could automatically record signals that were amplified to a certain level, bypassing the need to test the physical components of the speaker on us.

With the loss of clipping, a small but meaningful marker of activity and intentionality at Cetacea Lab was gone, an event that had mediated and expressed a desire to encounter whale song in a particular way. Clipping hardly qualifies as an object worthy of nostalgia. Many cetologists appreciate the affordances digitalization allows—everything from the increasing flexibility of study design to the augmented size of the audio datasets they can store. But researchers openly wonder about the unaccounted costs of research digitalization. Paul Spong told me that when less time is needed for actual listening, there is "less opportunity for finding real connections"—of the sort that informed his ethical orientation. Not unlike Adorno, Spong promoted a philosophical commitment to the particular; a *lingering* with it. His long-time collaborator and life partner, Helena Symonds, told me that an automated research approach would obfuscate the goal of trying to live more intimately with nature: "I think one of the most satisfying experiences in life is to be in the lab, and you are there, and you are trying to understand what's going on, and there's all these groups out there. And it goes on and on. And then it's over and you realize that you've been there for this whole several hours of life, movement, and activity."

In a 2021 paper, cetologists Eduardo Mercado and Christina Perazio argued that information theoretic analyses of humpback whale songs (which recommend digital hydrophones, owing to the copious data they require) obscure "how singers are changing song features over time by discounting acoustic details."⁴³ They can hide otherwise discernible interests in rhythm

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as an organizing template in humpback song organization. At Cetacea Lab, these debates offer windows onto the changing relations of science that have transformed observation-based conservation around the world. The 2010s were the decade when machine listening approaches entered mainstream institutional usage.⁴⁴ It might one day be remembered as an incipient period of human-machinic exchange, when different logics worked to find points of agreement and cross-purpose, much as they appeared to be doing at Cetacea Lab.

The effects of technology were equally if not more transformative in another sphere of daily listening activity. Throughout my time there, representations of Cetacea Lab's headphoned listener were a commonplace theme in antishipping environmentalism. A spate of recent documentaries including Oil in Eden (2010), SpOIL (2011), Tipping Barrels (2012), Groundswell (2012), The Great Bear Rainforest (2017), and The Whale and Raven (2019)—sought to harness the region's natures for advocacy purposes. In their routinized portraits of Cetacea Lab, they sought an "affective aura" one that could incite viewers to feel and care in the structured ways Cetacea Lab's featured listeners evidently did. 45 These efforts evoke Dobell's blending of musical environmentalism and scientific musicalism. With song, it is not simply place that needs to be conserved, but the fleeting artifact of nature that conservation alone can protect. Each becomes a site of viewer/consumer attachment. Like the song sample in her article, the film's samples do this work efficiently. Song scenes are never more than five seconds, enough time to guarantee the Althusserian obviousness that is proof of their ideological character, but never so long as to detract from other sites of investment.⁴⁶ Several days before my first visit, an MTV film crew had been on site, filming Pipeline Wars. "What was it like to listen on camera, with a film crew pointing at your ear as you listened?" I asked one of the interns. She didn't really know, she said. But then she added, "It made things feel a bit faster than if they weren't there." The intern's sense of harried uncertainty contrasts with the communicative gestural listening modeled by the MTV reporter, made visible in the film.⁴⁷ Upon encountering whale song at the station, she first registers shock, then turns to the camera and exclaims, "That sounds like a David Guetta soundtrack!"

The increasing presence of what Jim Igoe calls "spectacular conservation" would have integrative effects on the listening practices Cetacea Lab pursued.⁴⁸ As Guy Debord famously observed, spectacle does not pursue relations of dialogue.⁴⁹ It does not valorize listening of the type Michel Chion once called "semantic mode"—where formal curiosities about songs are allowed to exercise themselves. Nor does this conservation satisfy his threshold for "casual listening"—the simple marking of sound's appearance, such as to mark animal presence.50 What Pipeline Wars models instead is a kind of instant recognition: gratified and possessive.⁵¹ In this, it upholds an imaginary of neoliberal conservation: that a region and its natures can be saved through the consolidating structures of networked individuals inspired to demand change. This imaginary solicits a listening without durative temporality, one that delimits the questions that might otherwise unfold: Is this song something the whale takes pleasure in singing? Is its structure changing because of other dynamics, like the encroaching presence of warmer waters? In accepting neoliberal conservation, Hermann and Janie would accept practices that posed jeopardy to the slow commitments they sought to cultivate. Pipeline Wars, like so many products of its anxious moment, only needs to communicate that nature experiences are *happening*. It projects a clarity that holds little value for the embeddedness of the experience, its micro-gestures of self-identification, relation, environment.52

The promotions of whale song by the NGOs and large media organizations are not purposeful attempts to de-valorize other listening practices. But their efforts to ensure a particular received effect must nevertheless be understood in terms of an expanded commodity logic. Digital communities have the form of commodities; they can be bundled and sold to advertisers. "Dramatic performances" of conservation activity can happen; and they can happen as consumable, calculable, listening experiences that will motivate new interests in whale conservation.⁵³ In the 2010s, the effected link between conservation and advocacy-entertainment blossomed into carefully curated discourse: environmental media communication. As I witnessed firsthand, Cetacea Lab's funders and partners would routinely ask Hermann and Janie to furnish their promotional efforts with a communicative intensity. "If you experience this place," Janie intones in a 2016 web video posted by the WWF, surrounded by ocean mist and lush vegetation, "you will be driven to protect this place." In 2010, Cetacea Lab was one of the first whale research stations to livestream its whale recordings to listening publics. By 2016, this iteration of "wired wilderness" was commonplace.⁵⁴ Online visitors from around the world can tune in to flows of whale migration at places like Whale Point and participate in the "making of global connections." 55 The song gets scattered globally-sucked through hydrophones channeling the ocean waveguide and flung into networks made of far-off reception points. I sometimes scanned the content posted on Cetacea Lab's Facebook page, the song clips eliciting hundreds of enthusiastic comments, likes, reposts, and links.⁵⁶ As Lab-based

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interns work to ensure the feeds are kept up, they become increasingly committed to their maintenance of these networks and not the ones around them.

Like Janie, Cetacea Lab's more public spokesperson, Hermann Meuter, is deeply charismatic. But his demeanor is more unpredictable, and he can be surprisingly candid in extended conversation. Hermann told me he despaired of the social media labors Cetacea Lab was being asked to do. A former semipro soccer player from Stuttgart, Germany, Hermann had journeved to OrcaLab on a whim. There, he met and fell in love with Janie. In the early 2000s, their romantic relationship ended, but they continued to collaborate on Cetacea Lab. But Hermann had become despairing of the ways the station was being branded. He told me about the random emails he received from ecotourists looking to promote the station by way of a free afternoon visit. He yearned for the period when he had been able to immerse himself in the sounds. "The most abundant period for us was between 2006 and 2010," he told me one day. "The songs in Whale Channel used to last for hours into the night. We just sat there and listened." A detail surprised me. During the years I had been there, it was Caamaño Sound, not Whale Channel, that served as a focus for the lab's efforts. This is what the Dobell article suggested. Like Lelu Island, Kitlope, Gwaii Haanas, and Khutzymateen before it, Caamaño Sound was being branded as the next Eden on the North Coast that needed saving. "Perhaps Whale Channel was just not spectacular enough?" I said, half-joking. Hermann laughed. "In this part of the world, that would have been saying something." I proposed a different topic. Had he and Janie ever tried to identify individual humpback singers, I asked, much like they could do with photo ID of their flukes? "No," Hermann said at last. "That would have been very difficult to do, and we would have had to get out there . . . and that would not have been appropriate. This whole thing, for us, was about listening to them, not disturbing them in that process."

Hermann's concerns over intrusion, something he saw as relevant to my question, reminded me of Spong's own refusals. During the documentary filming periods, or when large troops of visitors were there, whales, too, might be feeling uneasy, Hermann later explained. The human accoutrements of spectacle—the bags of recorders and sensors, the relentless movements, the hours spent waiting to capture the perfect moment—all of these were inconsiderate extractions of the spaces in which whales acoustically made place. Intruding in the composition was something Hermann was unwilling to do; even talking about it made him upset. As the conservation NGOs pursued greater connection and access, he was moving in the other direction, increasingly concerned with the strange discontinuities of whale song. I came

to understand this as a position that had cost him considerable support in the conservation community, costs he was still working out, years later.

Conservation is failing, environmentalist and former Nature Conservancy head Peter Kareiva has written, because humans are "increasingly disconnected from nature, and as a result less likely to value nature."57 The sentiment has only grown more commonplace in the years since Kareiva wrote those words (2008). By and large, desires to promote nature experience have only deepened NGO investments in the communicative media that promise ever greater nature integration—pixelated, high-fidelity, virtual natures, if not physical ones. While expressly concerned with biophysical spaces, the agreements that established the Great Bear Rainforest in fact support this logic.⁵⁸ They support a whale conservation that pursues its mission alongside various kinds of human presence, not absence. They support acts of saving nature alongside nature exposure activities—like ecotourism and commercial fishing—and thus, economic growth and even development.⁵⁹ What, I wondered, does all of this mean for the contemplative listenings pursued by Paul Spong or Janie or Hermann; the listenings that strive to be "fully conscious, full of memory"?

"Something feels different this summer," Janie said one evening. We were sitting around a campfire by the beach: four interns, myself, and Janie. It was August 2015, my second to last season as a Cetacea Lab visitor. I had noticed something that week myself, a perturbation in the collective mood.⁶⁰ Was it anxiety over another looming visit from one of the millionaire prospective donors staying at nearby lodge? Was it to do with Hermann, upstairs in the lab listening to '80s German pop on his headphones? It was also true that we hadn't heard whales for over a week. Years later, I would learn that the time of my visits (2012-15) had been marked by some impactful ecological shifts. Bioecologies up and down the North Coast had encountered a range of disturbances, including the arrival of a debris field from the Tohoku tsunami (2011), a large El Niño Southern Oscillation event, and a Pacific Decadal Oscillation switch that contributed to record-breaking surface temperatures the year before. One of the resultant effects was a sudden decline in the humpback whale population's calving rate. It is possible that Janie had been attuned to some of this change. For Janie, humpback whales' life stories are actively inscribed in regionally composed whale songs. The idea is akin to Bakhtin's "utterance," with each song containing echoes of past voices, past songs. 61 A talented former intern named Eric Keen later published work that lent support to Janie's convictions about humpback place-making. The aesthetic qualities of the North Coast's underwater fjords are a "motivating



factor" for the visiting whales, Keen wrote.⁶² They come here to sing, and they come here to communicate the losses and the changes they have experienced, season after season, year after year.

More can be said about these historically minded insights. Less than 100 kilometers from Cetacea Lab, tucked inside a sandy cove at Kunghit Island, are the remains of Rose Harbour. Established in 1910, the former whaling station was once responsible for some of the most intensive harvesting up and down the West Coast. 63 Humpback whales, the first species to be hunted in British Columbia, would have been dragged up a long wood haul-up slip. Their blubber removed by flensing crews, they would then be winched onto a carcass slip, where bones, meat, and viscera would be extracted and processed. The bodies came in the hundreds. Janie told me that the humpback whales who visit the North Coast today know this history. In ways she cannot substantiate scientifically, they have returned to the North Coast "because they feel safe here again," she explained. It is an intuitive claim, but there is no reason to assume it is false, given what cetologists have learned about the historicity of whale song's production. History—human and animal is made up of rhyming structures. It is possible that the insights we gather from future whale songs will reveal communities whose challenges bear an eerie semblance to today's. Rose Harbour is now an ecotourist guesthouse where kayakers can explore tidal meadows and the remains of Haida totem poles. But who is to say it can't return to its violent past?

Conclusion

This chapter has considered humpback whale song as a distributed object, with changing interrelations between its component mediations. At Cetacea Lab, these different moments combine into a story of development politics, a story about how one multispecies community has navigated some of the disruptive changes development enacts. A whale music understood to be cetacean in origin is also produced by human desire, human technology, and human loss, I have shown. At Cetacea Lab, humpback whale song thus reveals something about how institutions function, and how Cetacea Lab in particular would function as an institution in transition: between political economies and attentional modes, technologies and ecologies, calls and responses. I have offered late style as one artifact of this transition; a historically minded listening being displaced by other forms. But this is not a lamentable thing necessarily. There are other, more radical ways of listening to whales today—engaged with new questions of nature and humanity, with

whales "as a form of life that has much to teach us about...vulnerability, collaboration, and adaptation." ⁶⁴

Much has changed at Whale Point. What started as a couple with a tent and a hydrophone in 2001 transformed by the middle of the 2010s into an internationally recognized project, with funders, partners, social media followers, and a battery of marine acoustical tools. Compelling studies about area abundance and habitat use would be published. New partnerships would take shape with local and international collaborators. But tensions between Cetacea Lab's two founders would deepen across this span too. Eventually, the development dynamics would provoke an insurmountable rift. In 2017, a messy institutional breakup occurred. 65 Janie left Whale Point to start her own research institution, BC Whales, on nearby Fin Island. Hermann continues to work out of Whale Point, but the name Cetacea Lab is gone. He has turned away from the conservation groups and the research ambitions of his former organization. By the outset of the COVID-19 pandemic in 2020, Hermann's Pacific Whale Society had become an important space for marine educational engagement among Gitga'at youth, who could visit from nearby Hartley Bay. By all accounts, the last few years have been a challenging time for both Hermann and Janie. Nevertheless, they continue to share song recordings as part of their lifelong commitments to the whales of the region.

Most visitors to Cetacea Lab have some understanding that ocean warming, acidification, plasticization, and diverse sources of harmful anthropogenic noise are all steadily making their way into the waters around Whale Point. In invisible ways, slow and perhaps deadly violence is seeping into the lives of humpback whales, possibly affecting how and what they sing, possibly inducing changes that will become measurable only later. All of this is an occasion to listen, and to grieve. Late style, Robert Spencer reminds us, is less about an individual composer than the social order being revealed in their work—one whose presentation requires a great many acts of mediation.⁶⁶ But there is a twist at the end of this story. It returns us to the whales who first brought Cetacea Lab to worldwide attention. Despite myriad ecological concerns and unaccounted costs of extant industrial change (including more barge and ferry traffic), humpback whale populations have been doing well on the North Coast. In 2012, the numbers were considered low. Observable population changes began slowly but grew into a strong evidence base by 2018—when Cetacea Lab, in its last official year, recorded 543 individual humpback whales. As overall conditions of regional ecological health track downward and people anxiously await news on shipping proposals, whale song carries a different story—a countermovement, perhaps—to the declen-

40 CHAPTER 1

sionist arc of a "late conservation." When I last visited Cetacea Lab, it was for a quick drop-in on an afternoon in July 2018. Approaching the station from a Guardian survey vessel, I suddenly worried that we'd miscommunicated. I was relieved when Hermann finally appeared on the outcropping to wave us ashore. The humpbacks of Whale Point were doing better than they had in decades. The humans, less so.

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NOTES

INTRODUCTION

- 1 The key initiative supporting these efforts was the Asia-Pacific Gateway and Corridor Initiative. See Government of Canada, "Canada's Asia-Pacific Gateway and Corridor Initiative." For nationally and regionally focused coverage, see Stalk and McMillan, "Seizing the Continent"; Ircha, "Serving Tomorrow's Mega-size Containerships"; Markey and Heisler, "Getting a Fair Share." The historical nature of this ambition is captured in Hick, *Hays' Orphan*; and Large, *Prince Rupert*.
- 2 Dembicki, "At Ground Zero for Next Huge Enviro War."
- 3 The Great Bear Rainforest agreements were formulated during the same period the Asia-Pacific Gateway and Corridor was taking shape. For critical accounts of the rainforest agreements, see Dempsey, "The *Politics of Nature* in British Columbia's Great Bear Rainforest"; and Low and Shaw, "Indigenous Rights and Environmental Governance." For a commentary that considers the intercession of oil and gas, see Rossiter and Burke Wood, "Neoliberalism as Shape-Shifter." A general, albeit self-promoting, institutional history of the agreements can be found at Coast Funds, "From Conflict to Collaboration."
- 4 I follow local convention in specifying the Ts'msyen Nation as the general political organization to which broad ideas of culture are assigned, and Gitga'at First Nation as one of the territory-specific bands constituting the Ts'msyen Nation. Other bands include Gits'ilaasü, Gitsumkalum, Kitasoo/Xai'xais, Metlakatla, Lax Kw'alaams, and Gitxaala.
- 5 There is too much literature to recount here, but one unofficial (i.e., white settler) account that Spencer himself recommends is Miller, *Tsimshian Culture*.
- 6 Throughout, the capitalist-cum-colonial development in question here is the sort Gillian Hart terms "Little d"—that is, development "as geographically uneven but spatially interconnected processes of creation and destruction." See Hart, "D/developments after the Meltdown," 119. References to sustainable

UNIVERSITY PRESS marine development and economic development throughout should be read with Hart's idea in mind.

- 7 See Ritts and Bakker, "Conservation Acoustics."
- 8 Morton, Dark Ecology, 99.
- 9 A longer history of this story would engage the forces that have historically accorded sound a secondary status under modernity's hierarchy of the senses. See Sterne, *The Audible Past*, especially the classic passage on the "Audio/Visual Litany" in the book's introduction.
- 10 Marx, Economic and Philosophic Manuscripts, 114.
- 11 Here, I am thinking of a tradition spanning Simmel, "The Metropolis and Mental Life"; Adorno, "On the Fetish-Character of Music and the Regression of Listening"; Bull, "No Dead Air!"; Drott, *Streaming Music, Streaming Capital*.
- 12 Ghosh, The Great Derangement, 5.
- 13 See especially Morton, *Dark Ecology*. For a good example of Morton's approach in action, see the multidisciplinary Art-Science collaboration by Sonic Acts and Hilde Methi, *Sonic Acts—Dark Ecology*, which involved various in situ listening exercises across damaged Eurasian ecologies between 2014 and 2016. Also significant is the work of Bruno Latour. In his influential *Facing Gaia* lectures, Latour brings a distinctly techno-managerialist perspective to this idea, writing: "This is what it means to live in the Anthropocene: 'sensitivity' is a term that is applied to all the actors capable of spreading their sensors a little farther and making others feel that the consequences of their actions are going to call back on them, come to haunt them." See Latour, *Facing Gaia*, 141. Both tendencies—Mortonian and Latourian—persist across popular works of sound studies. For examples, see LaBelle, *Sonic Agency*; Bakker, *The Sounds of Life*.
- 14 The specific phrase can be found in Friedner, *Sensory Futures*, but my uptake of the idea draws more from Bratton, *The Stack*.
- 15 Popova, "Nature Is Always Listening."
- 16 TallBear, "An Indigenous Reflection on Working," 232.
- 17 Malm, *The Progress of This Storm*, 173. Nature and society are coproduced forms. The separation of nature and society, as proposed here, thus proceeds on an analytical basis. This move allows for the consideration of how each historically distinct stage of society consists in its distinctive metabolic exchanges with nature. See Malm, *The Progress of This Storm*, 61; and for another helpful elucidation, see Saito, *Marx in the Anthropocene*, 110.
- 18 The term *sonic materialism* has been invoked in various ways in sound studies, most notably by Christoph Cox, who uses it to develop a Deleuzian approach to sound study. See Cox, *Sonic Flux*. Another lineage extends from Salomé Voegelin, who uses *sonic materialism* to construct dialogues with the work of Quentin Meillassoux (e.g., Voegelin, "Sonic Materialism"). As this introduction hopefully makes clear, my uptake is more firmly located in debates that extend from the central claims of historical materialism.
- 19 LaBelle, Acoustic Territories, 298.



- There are too many texts to list here. Some of the pieces that particularly influenced the writing of this work are Gallagher, "Field Recording"; Jasper, "Sonic Refugia"; Gallagher, Kanngieser, and Prior, "Listening Geographies"; MacFarlane, "Governing the Noisy Sphere"; Kanngieser, "Sonic Colonialities"; Revill, "How Is Space Made in Sound?"; Hemsworth, "Feeling the Range'"; Dawkins and Loftus, "The Senses as Direct Theoreticians"; Lally, "Policing Sounds."
- 21 The term sonic agency comes from LaBelle, Sonic Agency. My usage is slightly different from LaBelle's. I reference agency as involving capacities to act, in this case in relation to sound, rather than proposing sonic agency as a novel theoretical construct.
- 22 The "Litany" is first proposed in Sterne, The Audible Past, 15.
- 23 Bakker, The Sounds of Life, 14.
- 24 Greco, "Hear That?"
- 25 James, The Sonic Episteme.
- 26 Williams, Culture and Materialism, 8.
- 27 Adorno, Essays on Music.
- 28 Guthman, Wilted. Guthman's book is exemplary in its combination of assemblage and classic political economy approaches to the study of nature. It is capacious without stretching the analytic too far—as is the case, for instance, in Richard Grusin's "radical mediation," which conceives mediation as a "fundamental process of human and nonhuman existence." See Grusin, "Radical Mediation," 125.
- 29 Harvey, "On the History and Present Condition of Geography," 6.
- 30 See Heinrich, An Introduction to the Three Volumes of Karl Marx's Capital.
- 31 Robinson, Hungry Listening.
- 32 Boas's 1898 essay "On Alternating Sounds" might be the inaugurating effort of twentieth-century sound studies. In this short piece, Boas discusses his efforts listening to Ts'msyen speakers, noting how their word for *fear* produced a variability of written transcriptions—*päc* and *bas*, in this case. For Boas, this indexed a more general linguistic inaccessibility regarding Ts'msyen soundings. The upshot was not to abandon ethnographic study but to account for cultural variability in the collection effort. For more on Boas's text, see Fee, "Rewriting Anthropology and Identifications on the North Pacific Coast."
- 33 McCarthy, "Limits/Natural Limits," 419.
- 34 Harvey, "The Enigma of Capital and the Crisis This Time," 90.
- 35 Steingo and Sykes, Remapping Sound Studies, 12.
- 36 Simpson, Mohawk Interruptus, 113.
- 37 Mann, "From Countersovereignty to Counterpossession?"
- 38 Various uses of the term *sonic capital* are in circulation today. See Bürkner and Lange, "Sonic Capital and Independent Urban Music Production"; Kerr, "Compression and Oppression"; Schulze, "Das sonische Kapital"; Hracs, Seman, and Virani, *The Production and Consumption of Music in the Digital Age*. All share a general interest in linking sound—and usually, digital sound—to contemporary expansions of the capitalist value form. I use the term in a

- rather limited fashion, specifically, as a way to chart new inputs into the capitalist valorization process.
- 39 The idea of linking sonic materialism and sonic capital emerged out of conversations with Sumanth Gopinath. The framework is indebted to the extensive knowledge Sumanth has shared over the years regarding interplays of sound and logics of capital (as well as via his landmark text *The Ringtone Dialectic*). My account of an absent-present sonic capital also draws from Michael Heinrich's *An Introduction to the Three Volumes of Karl Marx's Capital*, with its interest in depicting the fetishistic idea of capital as a force with productive powers all its own, independent of labor, and expressive of an "overwhelming social interaction that cannot be controlled by individuals." See Heinrich, *An Introduction to the Three Volumes*, 12.
- 40 To my knowledge, there has yet to be a full-fledged study of the ways that aboveground industrial development conditions are supporting today's environmental noise sectors. Various kinds of noise assessment, mitigation, and forecasting routinely transpire around industrial megaprojects, sounding out the limits of the economy (to paraphrase Stefan Helmreich), determining the spaces, niches, and moments where sonic capital can circulate amid expansive and unruly spaces of change.
- 41 Attali, Noise.
- The policy was most explicitly laid out in the 2016 Oceans Protection Plan. See Government of Canada, "The Prime Minister of Canada Announces the National Oceans Protection Plan."
- 43 Halpern and Mitchell, The Smartness Mandate, 15.
- 44 See, for example, Cruikshank, *Do Glaciers Listen?*; Gordillo, *Rubble*; and Ogden, *Loss and Wonder at the World's End*.
- 45 Following local convention, I use the term *North Coast* in this book, cognizant of the many other names that have been used to describe the general region in question.
- 46 Ricketts, Ed Ricketts from Cannery Row to Sitka, Alaska.
- 47 See, for example, Kahn, Noise, Water, Meat.
- 48 Zylinska, "Hydromedia," 45.
- 49 Following convention, as well as the self-identifying language of the Indigenous peoples I encountered, I use the broad signifier *Ts'msyen* to describe the cultural group that encompasses several of these nations: Metlakatla, Gitga'at, Gitxaala, Kitasoo/Xai'xais, Gits'ilaasü, Gitsumkalum. Gitga'at thus appears as a specific instance of a broader Ts'msyen culture.
- 50 Braun, *The Intemperate Rainforest*, 231. "Purification machine" is Braun's term for those places of "un-civilization" where settlers commit acts of self-reinvention through nature.
- 51 Barman, "The West beyond the West."
- 52 See, for example, McAllister and McAllister, The Great Bear Rainforest.
- 53 On the Guardian Watchmen Program, see Coastal First Nations, "Eyes and Ears of the Land and Sea."

- 54 For a related discussion of this idea focused on other contexts, see Kanngieser, "Sonic Colonialities."
- 55 Arguably, the inaugurating sound of settler colonialism and its accompanying capitalist political economy came a century earlier, in the form of the gun salutes issued by James Colnett's English scouting ships in the 1780s. See Galois, *A Voyage to the North West Side of America*.
- 56 Barbeau, *Pathfinders in the North Pacific*, 209–10. Duncan's relationship to the duties expected of him by the Church of England was complex, but as a missionary he consistently required that his Ts'msyen congregations relinquish their Indigenous traditions in the process of their inevitable assimilation into a larger North American society. See Neylan, *The Heavens Are Changing*. Neylan's book is a wonderful account of the brass band culture through which Christian conversion efforts were routinely negotiated by Indigenous peoples on the North Coast. It serves to establish an additional point: Duncan was by no means the only local missionary who combined his acoustic proclivities with his settler colonialism. When he wasn't helping to coercively secure the purchase of Ts'msyen reserve land to the Grand Trunk Railroad, Archbishop Frederick Du Vernet (1860–1924) was perfecting Radio Mind, a telepathic transmission system that enabled listening to distant speakers by harnessing vibrations moving through air. For a history of this lesser-known but also momentous religious figure, see Klassen, *The Story of Radio Mind*.
- 57 The territorialization of bells in relation to Catholicism has done similar work for centuries, as Alain Corbin has observed. See Corbin, *Village Bells*.
- 58 One of the most compelling recent investigations into the political economy of settler colonialism in Canada is Pasternak, *Grounded Authority*.
- 59 From an economic and ecological standpoint, the most important sector in the development in question is liquefied natural gas. By the early 2010s, Kitimat and Prince Rupert had become the ports of choice for a number of projects hoping to leverage market conditions and the region's geographical proximity to Asia. See Petroleum Human Resources Council of Canada, *Labor Demand Outlook for BC's Natural Gas Industry*.
- 60 Large, *Prince Rupert*. Consider the city's founding poem ("Prince Rupert") by Riddell Elliot, published in the local newspaper, the *Evening Empire* (March 28, 2014): "Behind you, young Prince Rupert / Rests a country big and grand / The raw material for an Empire / Wooing the magic touch of man. / Here in you progressive Rupert, / Is the gateway big and bold / To a kingdom of vast riches—/ Of copper, silver and pure gold."
- 61 The combined North Coast and Lower Mainland regions probably contain more acoustic telemetry than anywhere else in the world. See Hussey et al., "Aquatic Animal Telemetry"; Favali, Beranzoli, and De Santis, *Seafloor Observatories*.
- 62 Bridge and Perreault, "Environmental Governance." The authors argue for a definition in which environmental governance is concerned with the ways different entities—such as actors, spaces, processes—can be "brought into durable forms of alignment" (485).

- 63 The foundational accounts here are Coulthard, *Red Skin, White Masks*; Simpson, *As We Have Always Done*.
- 64 Simpson, As We Have Always Done, 173.
- 65 Duffus and Dearden, "Non-consumptive Wildlife-Oriented Recreation."
- 66 Large, Prince Rupert.
- 67 Ochoa Gautier, Aurality, 3.
- 68 The most egregious example probably came from the province of British Columbia under Christy Clark (2011–17). Her administration's promise of a \$100 billion Prosperity Fund that would ensue from the LNG buildout was never remotely realistic.
- 69 Critique of the project from coastal communities drew from Enbridge's arrogant dismissals of local territorial concerns. This was brought home in the Douglas Channel Watch's (2014) tragic-yet-funny "disappearing islands" campaign. See Bowles and MacPhail, "The Town That Said 'No."
- 70 Perhaps the most notable land defense—at least in terms of the capacity to draw international attention—is the ongoing Unis'to'ten Camp (Wetsu'wet'en Territory, 2008–).
- 71 In July 2012, I first contacted the Gitga'at Nation to express my interest in supporting their resistance to the Enbridge Northern Gateway project. I proposed interviews with local elders whose deep knowledge of the land could help elucidate the threats the shipping prospects posed. The proposal was rejected. If I wanted to work with the Gitga'at, research director Chris Picard explained to me, there needed to be "tangible benefit" to the community, over and above good messaging. Between 2013 and 2016, I worked with the nation to position and collect data from eight SM2 sensors in select areas along the shipping route that cuts though the middle of the nation's marine territory. The eco-acoustics baseline project aimed to support the nation's territorial protection efforts and provide scientific materials for intervening in a state-directed energy project assessment process (the Joint Review Panel). See Ritts et al., "Collaborative Research Praxis to Establish Baseline Ecoacoustics Conditions in Gitga'at Territory."
- 72 De Leeuw, Cameron, and Greenwood, "Participatory and Community-Based Research," 188.
- 73 Benjamin, Illuminations.
- 74 Adorno, Essays on Music. See also Leppert, "Music 'Pushed to the Edge of Existence."
- 75 Born, "On Musical Mediation."
- 76 Mills, "Deaf Jam," 25.
- 77 Moore, Capitalism in the Web of Life.
- 78 Lefebvre, "Space and the State" in State, Space, World; Goeman, Mark My Words.
- 79 Martineau and Ritskes, "Fugitive Indigeneity."
- 80 Hall, "Gramsci's Relevance"; Coulthard, Red Skin, White Masks.
- 81 Sevilla-Buitrago, "Capitalist Formations of Enclosure"; Andrejevic, "Ubiquitous Computing and the Digital Enclosure Movement."

