Engaging the Environmental Humanities For Ecosystem Recovery

Selected Concepts and Recommendations

A thought paper for the Puget Sound Partnership

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INTRODUCTION

A CASE FOR THE ENVIRONMENTAL HUMANITIES

The broad goal of this thought paper is to address the question, "What can the humanities, qualitative social sciences, and the arts offer the environmental field?" By reflecting on our own experiences as humanists, artists, educators, and scientists in or adjacent to the environmental field, we explore ways in which humanistic and artistic concepts and approaches may support environmental goals and offer recommendations for how environmental professionals might learn about them. Humanistic and artistic insights are especially helpful for navigating the seemingly intangible aspects of social-ecological complexity, from powerful social structures and cultural narratives to the specific histories and values of local communities.

HUMANISTIC AND ARTISTIC INSIGHTS ARE ESPECIALLY HELPFUL IN NAVIGATING THE SEEMINGLY INTANGIBLE ASPECTS OF SOCIAL-ECOLOGICAL COMPLEXITY, FROM POWERFUL SOCIAL STRUCTURES AND CULTURAL NARRATIVES TO THE SPECIFIC HISTORIES AND VALUES OF LOCAL COMMUNITIES.

While the world of ecosystem management expresses increasing interest in "human dimensions," its attention has until recently turned to the quantitative social sciences, including economics, psychology, and measurements of human well-being, which most easily integrate with the biophysical sciences in direct support of conservation goals. Meanwhile, there is budding interest in an additional realm of expertise that still lays largely untapped for its potential applications to ecosystem recovery: the humanities, qualitative social sciences, and the arts, each with large sub-fields focused on human-environment relationships. These fields, collectively termed "the environmental humanities," generate essential questions and knowledge about intangible yet powerful dimensions of environmental challenges, such as cultural values, senses of place, relationships, ethics, sovereignty, political divisions, emotion, and matters of justice (Sorlin 2012).

Humanistic studies that address such highly complex and interwoven issues, in which evidence comes in the form of historical details, interview quotes, and descriptive observations, cannot be distilled into graphs or summaries; most often these

scholars present their findings in densely written books and articles, or apply their research through their professional relationships with communities and organizations. This entire realm of knowledge is not often accessed by environmental professionals because it is not included in most environmental science curricula, is not written specifically for such audiences, and is difficult to accept and apply within the current environmental science paradigm. If taken seriously, however, the humanities could transform environmental thinking, values, and approaches (Bennett and Roth 2019).

IF TAKEN SERIOUSLY, THE HUMANITIES COULD TRANSFORM ENVIRONMENTAL THINKING, VALUES, AND APPROACHES.

Scientists are increasingly recognizing that solutions to contemporary challenges cannot be found only in technocratic approaches, more data collection and modeling, or in modifying environmental systems without attending also to their social context. Anthropogenic climate change, political wrangling over environmental management and funding, and environmental science education all point to the need for more attention to human systems and to a deeper and more complicated understanding of "human dimensions." This thought paper introduces language and concepts from the environmental humanities with the hope of encouraging new ways of thinking and new collaborations among scientists and humanists in our shared work towards a livable, meaningful future in the Salish Sea region and beyond.

Beginning a conversation

This paper results from discussions with a small group of colleagues interested in how humanistic and artistic approaches could contribute to the environmental field, and lessons from our own work as researchers, educators, and artists in the Salish Sea region. We are—with selections of our related work cited or linked:

Sara Jo Breslow, Independent Environmental Anthropologist, facilitating the conversations (Breslow 2011; 2014a; 2014b; 2015a; 2015b)

Natalie Baloy, Assistant Professor of Anthropology, Western Washington University (Broadhurst, Baloy, and Sobocinski 2021; Sobocinski et al. 2022)

Jamie Donatuto, Environmental Health Specialist, Swinomish Indian Tribal Community (Indigenous Health Indicators) (Poe, Donatuto, and Satterfield 2016; Hatch et al. 2023)

Jessica Gigot, Writer, Farmer, Harmony Fields, Skagit Valley; and Coach, Ecointegral Coaching, Bellingham, WA (Gigot 2015; 2020; 2022; 2023; 2024)

Melissa Mark, Director, Doris Duke Conservation Scholars Program, University of Washington

Amir Sheikh, Transdisciplinary Urban Environmental Researcher, Curator, and Collaboration Builder, University of Washington (The Waterlines Project Map; Duwamish Meanders Instillation; Djidjila'letch to Pioneer Square animation)

Coll Thrush, Professor of History, University of British Columbia (Thrush 2007)

In two facilitated conversations, we responded to the following prompts:

- *What areas of the arts and/or humanities do you travel in? What areas of the environmental field do you travel in?*
- *Do you experience a gap between these areas (arts/humanities and environmental field)? If so, how would you describe that gap? What does it feel like? Why does this disconnect persist? What could artists and humanists do about it? What do you think the environmental field should do about it?*
- *What aspects of the arts and humanities (including humanistic social sciences and social theory) do you wish you could discuss with your environmental colleagues? What key concepts or terms do you wish they understood? Are there ways of thinking or being within the arts and humanities that you find true and generative – but that you don't find or see in the environmental field? And vice versa: what from the environmental field do you appreciate that you feel is missing from the arts and humanities?*
- *How, from your perspective as humanistic/artistic thinkers, do you think the environmental field needs to change? How would the arts*

WHAT ASPECTS OF THE ARTS AND HUMANITIES DO YOU WISH YOU COULD DISCUSS WITH YOUR ENVIRONMENTAL COLLEAGUES?

and humanities ideally transform the environmental field? Why? How urgent is this transformation? Which ideas are most salient from your respective fields and work?

- *How could these ideas be effectively communicated? And once understood, how would environmental professionals put them into use and make change?*

We captured our responses to these prompts in notes, and then continued to develop our ideas in writing through several drafts of this paper. Far from offering complete answers, this thought paper is intended to initiate and inspire further conversation on these types of questions.

What are the environmental humanities?

Definitions

The **humanities, qualitative social sciences, and arts** are academic disciplines as well as sub-disciplines and multidisciplinary fields, that, while differing greatly in their focus, methods, goals, and norms, are joined in the work of *exploring and making meaning of the human condition.* "The humanities" commonly refers to a set of established academic disciplines, while the "qualitative social sciences" are areas of social science largely engaging qualitative methods. The arts include the practice, theory, and history of art.

THE HUMANITIES, QUALITATIVE SOCIAL SCIENCES, AND ARTS ARE JOINED IN THE WORK OF EXPLORING AND MAKING MEANING OF THE HUMAN CONDITION.

With the qualifier "environmental" or "ecological", and in some cases a specialized term, these fields turn their attention to the meanings, values, and responsibilities in the relationships of humans with the natural world – or what humanists have variably called the "more-than-human" (Abram 1996) or "multispecies" world (Kirksey and Helmreich 2010; Kirksey 2014). In the last decade these areas of study have collectively become known as **the environmental humanities** (Rose et al. 2012).

The humanities predominantly rely on qualitative, as opposed to quantitative, modes of producing knowledge. **Qualitative research methods** often involve *in situ* "participant" observation, interviews, archival research, and interpretation of texts, while quantitative methods often involve sampling a defined population, systematic data collection through a research instrument, and statistical analyses of numeric results. Each of these different methods have been rigorously developed to understand and explain different types of phenomena. Qualitative methods are best suited to exploring and interpreting the symbolic meanings of human experiences, while quantitative methods are best suited to uncovering underlying patterns and predictable trends in biophysical and sociological phenomena. Both are useful in explaining the causes of things.

QUALITATIVE METHODS ARE BEST SUITED TO EXPLORING AND INTERPRETING THE SYMBOLIC MEANINGS OF HUMAN EXPERIENCES, WHILE QUANTITATIVE METHODS ARE BEST SUITED TO UNCOVERING UNDERLYING PATTERNS AND PREDICTABLE TRENDS IN BIOPHYSICAL AND SOCIOLOGICAL PHENOMENA.

For example, a mixed-methods study of gardening as a human-nature relationship might use qualitative methods to explore why home gardeners choose to cultivate certain vegetables (perhaps serving to nurture connections with ancestors or homelands), and the history and changing symbolism of home gardening in a particular region or nation (e.g., from victory gardens to wellness). They might use quantitative methods to ask how gardening affects their nutrition, how much urban land is in home gardens, or the effect of home gardening on local wildlife populations. Note that while one type of method often predominates in particular disciplines, qualitative and quantitative methods can be powerfully complementary.

Nevertheless, because the environmental field has traditionally sought expertise and legitimacy through quantitative, scientific approaches, it persists in using them to understand the "human dimensions" of environmental problems. The trouble is that a large proportion of those dimensions are not quantifiable yet still vital to understanding the "why" of human behavior (including the thinking and behavior of the scientist). From a humanist's perspective, trying to quantify the cultural, historical, political, and

symbolic dimensions of the human experience—i.e., much of what makes us human—is like trying to measure the frequencies of words in a novel to understand its meaning: it just doesn't make sense, and what's more, the meaning is entirely missed. In the quantitative world of environmental science, these aspects of human-environment relationships, although powerful, become invisible. This is why the environmental humanities—grounded in decades of scholarship and now flowering—are essential to addressing the "people" parts of our social-ecological challenges.

FROM A HUMANIST'S PERSPECTIVE, TRYING TO QUANTIFY THE CULTURAL, HISTORICAL, POLITICAL, AND SYMBOLIC DIMENSIONS OF THE HUMAN EXPERIENCE — I.E., MUCH OF WHAT MAKES US HUMAN — IS LIKE TRYING TO MEASURE THE FREQUENCIES OF WORDS IN A NOVEL TO UNDERSTAND ITS MEANING.

Finally, this paper admittedly emphasizes humanistic research more than the arts. A thorough exploration of how ecological and environmental art as well as research-based art and arts-based research can support ecosystem recovery in creative and powerful ways deserves its own thought paper.

TABLE 1. EXAMPLES OF HUMANISTIC AND ARTISTIC FIELDS AND THEIR ENVIRONMENTAL SUB-FIELDS.

HOME DISCIPLINE OR FIELD	THE ENVIRONMENTAL HUMANITIES
THE HUMANITIES	
History	Environmental history
Philosophy	Environmental philosophy
Literature	Ecocriticism
Languages	
QUALITATIVE AND HUMANISTIC SOCIAL SCIENCES	
Cultural Anthropology	Environmental anthropology
Cultural & Historical Geography	Political ecology
Political Science	Environmental politics Environmental governance
Cultural Studies	Critical environmental studies Science and technology studies
Gender Studies	Ecofeminism
Religious Studies	Environmental religion Ecospirituality
Indigenous Studies	Braided knowledges and two-eyed seeing (Mervis 2023)
Environmental Studies (interdisciplinary)	Environmental justice (influenced also by ecotoxicology and many other fields)
THE ARTS	
Visual arts	Ecoart
Creative writing	Ecopoetry
Performing arts	Ecodrama
Music	Ecomusicology

While not a complete list, this table illustrates the wide range of subfields in the social sciences, humanities, and arts focusing on environmental issues.

Humanistic critique and the humanities-sciences divide

With their focus on *meanings, values, and ethics* the humanities, qualitative social sciences, and the arts, while widely diverse, share certain intellectual influences and pedagogical approaches that distinguish them from the STEM fields. These differences maintain a long-recognized philosophical and cultural divide between the sciences and humanities (Snow 1962). Perhaps most significantly, fields from architecture to cultural anthropology transformed during the "postmodern turn" of the 1980s in which they adopted the intellectual program of critically analyzing and "deconstructing" the authority and interdependency of major paradigms structuring modern society, among them the presumption of modern progress itself, patriarchy, colonialism, white supremacy, the modern nation-state, capitalism, and western science. While other academic disciplines including ecology have also been influenced by postmodernism, social theory is not typically taught in environmental science curricula or reflected in how environmental professionals discuss their work or their fields of study.

Humanists are often disillusioned when their environmental colleagues continue to uncritically employ and perpetuate major paradigms structuring modern society while unilaterally decrying all people and human activities as "anthropogenic threats" to nature rather than specifying the particular configurations of power, values, economic systems, and other social factors that perpetrate and perpetuate ecosystem decline.

Humanists, however, often conclude that it is within these major paradigms structuring modern society that we can find the fundamental causes of our ecological crisis. Humanists are often disillusioned when their environmental colleagues continue to uncritically employ and perpetuate these paradigms while unilaterally decrying all people and human activities as "anthropogenic threats" to nature rather than specifying the particular configurations of power, values, economic systems, and other social factors that perpetrate and perpetuate ecosystem decline. Such disillusionment can lead humanists to disengage from the environmental field and critique the environmental sciences for reinforcing the very frameworks deemed complicit in ecological disaster.

This is one of the major factors maintaining two separate, parallel conversations—scientific and humanistic—about the causes and potential pathways through our current crisis.

Another major factor keeping these conversations apart is epistemological chauvinism—on both sides—the notion that one's own way of producing knowledge is best and other ways are suspect. There are deep philosophical, methodological, pedagogical, and cultural differences, as well as inequities in funding and social status between scientists and humanists. These differences and inequities can lead to senses of superiority, dismissiveness, judgment, and lack of understanding. For example, from scientists we might hear assumptions that ecological data is more important than anthropological observations or poetic inquiry, or that writing cannot be assessed rigorously; from humanists we might hear assumptions that science is inherently damaging and necessarily a tool of the powerful. These divisions affect which kinds of knowledge, data, and analyses are valued, taught, supported with funding, prioritized for decision-making, or applied in policy.

THE PREMISE OF THIS THOUGHT PAPER AND THE WORK SUPPORTING IT IS THE CONVICTION THAT BOTH SCIENTIFIC AND HUMANISTIC INTERPRETATIONS OF THE ECOLOGICAL CRISIS ARE LEGITIMATE AND VALUABLE, AND THAT THEIR INTEGRATION IS ESSENTIAL TO ADDRESSING IT.

The premise of this thought paper and the work supporting it is the conviction that both scientific and humanistic interpretations of the ecological crisis are legitimate and valuable, and that their integration is essential to addressing it. A first step is to introduce the environmental humanities to the environmental science field—its distinct vocabulary, operating assumptions, and potential applications—so that environmental professionals have some common ground with which to connect with humanists to start a conversation.

WHAT CAN HUMANISTIC APPROACHES DO FOR ENVIRONMENTAL ISSUES?

Collectively, the theories and methods of the humanities, qualitative social sciences, and the arts enable rigorous inquiry into fundamental aspects of the human condition, which unlike

biophysical phenomena do not necessarily abide by natural laws, such as: history, language, culture, philosophy, ethics, emotion, relationships, story, and politics. Humanistic and artistic approaches can make these seemingly intangible and therefore unmeasurable things observable, analyzable, and legible. In doing so, they show how they are real, powerful, and changeable. These types of "humanistic dimensions" are fundamental parts of human-environment relationships.

For example, regarding an ongoing controversy over efforts to restore salmon habitat on farmland in the Skagit Valley of Washington State (Breslow 2014a; 2014b), the following aspects of the conflict could be considered "humanistic":

- All of the ways in which it is the product of history, including the consequences of colonialism, industrialization, governmental programs, and any other global, national, and local historical events and trends leading to the present.
- All of the ways in which it is the product of diverse cultural values, including divergent cultural identities, worldviews, philosophies, moralities, and spiritualities.
- All of the ways in which it is the product of meaningful relationships and "relationality" between people, people and nature (including specific places, or "senses of place"), people and things (including physical infrastructure), people and spiritual beings, and in the web of life and the supernatural.
- Many of the ways in which it is affected by social structures, politics, hierarchies, and different forms of power, including experiences and perceptions of unfairness, inequity, and injustice among communities in the valley.
- Many of the ways in which it engages emotion
- All of the ways in which it could be affected through a process of narrative inquiry, self-exploration, reflection, critique, and imagination, including journaling, dialogue, creative writing, art-making, and movement (e.g., Breslow 2015a).

Thinking like a humanist

Humanistic thinking addresses those aspects of human existence that are, if you will, "more-than-biophysical": history, culture, language, story, philosophy, ethics, and so on. Methods for generating humanistic knowledge have been developed and honed over thousands of years to specifically address such phenomena that are best understood through a process of narrative inquiry, interpretation of meaning, and observation of the role and power of these meanings within specific circumstances. Humanistic inquiry is in some ways a perfect complement to the scientific method: it is designed to address those aspects of social-ecological complexity that are intangible, qualitative, unmeasurable, non-generalizable, and contingent, and yet critical to understanding it – because humans are involved.

One way in which science is perhaps disadvantaged relative to the humanities is that it focuses on the biophysical world, whereas the humanities focus on the social world—including science as a social and cultural system. Humanists, therefore, arguably know more about the philosophy, history, and social consequences of science than scientists do: philosophers, for example, are adept at explaining the complementary ways in which scientific versus humanistic methods produce knowledge about different aspects of reality; a major area of study in the environmental humanities is the role of science and conservation as *social* forces; and anthropologists study scientists *in situ* – following them in their labs and field sites – showing how they, like all of us, are cultural.

A major area of study in the environmental humanities is the history and role of science and conservation as social forces.

It is important to add that humanists are also generative. Like scientists who produce new chemical combinations, invent new technologies, and re-create ecosystems, humanists and of course artists actively contribute to the social and cultural world that they study. Historians frame archival details into stories that support or challenge the identity of a nation, for example; philosophers, famously, produce blueprints for "logical" thinking; social theorists are as likely to propose new ways of being human as they are to

BEYOND GREATER SCIENTIFIC UNDERSTANDING AND TECHNOLOGICAL INNOVATION, THE ARTS AND HUMANITIES RE-IMAGINE HOW WE MIGHT FOSTER MORE NURTURING RELATIONSHIPS WITH THE ENVIRONMENT AND WITH EACH OTHER.

observe and critique existing ones. Beyond greater scientific understanding and technological innovation, the arts and humanities re-imagine how we might foster more nurturing relationships with the environment and each other through cultural change, by proposing alternative stories about ourselves, our pasts, and our futures.

Finally, contemporary humanists are especially adept at reflecting on their own role as humans *in* the phenomena they observe—including the roles that their own fields have played in contributing to problematic social structures they are currently critiquing. For example, the discipline of anthropology is fraught with self-criticism over its role in supporting colonial expansion by reporting on local people. In one sense, the "positionality statements" that one might find in the introductions to academic papers in which the author describes their own identity, are, to put it in scientific terms, a way of calibrating the research instrument and accounting for "observer bias": the humanist acknowledges that such bias inevitably exists, and here it is. Acknowledging one's own cultural identity as a knower is also an important form of credentialing in Indigenous contexts. More broadly, humanists are asking all of us, including scientists, to do the same: to recognize that no matter how objective we believe ourselves and our instrumentation to be, we are all humans operating within a specific cultural context, that it is impossible to swim outside the water and look back in, that even the idea of objectivity itself is peculiarly human, a value that developed within a particular set of social circumstances.

Thinking like a humanist, therefore, entails, among other things:

Humanism: Acknowledging the reality, role, and power of humanistic phenomena, including emotion

Reflexivity: Being self-reflective and aware of influences and biases

Contextualization: Seeking explanation in specific historical and local contexts

Interpretation: Exploring the cultural and symbolic meanings of things

Critique: Critically analyzing major social paradigms and examining power dynamics

Imagination: Considering new possibilities

Storytelling: Sharing and creating meanings and realities through telling stories

Toward learning a new language and fostering collaboration

The humanities, qualitative social sciences, and the arts bring very different lenses to understanding environmental problems, with sometimes provocative implications for how we think about and address them. This thought paper outlines a selection of humanistic concepts and approaches that could help build awareness, challenge entrenched assumptions and biases, and catalyze shifts in how groups engage with each other and pursue their goals. The environmental humanities coalesced as a field only in the last decade, meaning current mid-career professionals have not necessarily been exposed to this important and emerging conversation (Rose et al. 2012). We offer this paper as a starting point for learning a new language, expanding thinking, and fostering conversation and collaboration among scientists and humanists who both seek a thriving world, albeit from different perspectives.

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12 HUMANISTIC CONCEPTS FOR ENVIRONMENTAL GOALS

Scholarship in the environmental humanities is proliferating, but the work of translating and applying its lessons in a pragmatic way to ecosystem recovery goals is still nascent. In this section we reflect on 12 humanistic concepts and how they may be applicable to the environmental field. Sprinkled throughout are some provocative quotes pulled from our conversations. Far from a comprehensive list or discussion, we offer these reflections to simply illustrate the type of thinking the environmental humanities can inspire—and pique your curiosity toward further reading and exploration.

1. HISTORY

Learning about the historical roots of environmental challenges can be extremely useful in making sense of them. History illuminates the temporal context of contemporary problems and reminds us that things always change over time. For example, understanding the histories of the tribal and agricultural communities in the Skagit Valley, the farming and fishing industries, federal natural resource policy, and the conservation, farmland preservation, and Indigenous rights social movements goes a long way toward explaining present circumstances that feel intractable. Such historical understanding can produce surprising insights. An historical analysis of natural resource policy, for example, suggests a large fraction of the current complexity and contestation in the Skagit Valley can be explained as the result of changing and conflicting governmental priorities and policies regarding land and water management over the last century (Breslow 2014b). Such a reframing suggests a critical management intervention could be to identify and address continuing conflicting mandates across government agencies.

In addition, by reframing current events within a larger timescale, history can be intellectually as well as emotionally transformative and enable better solutions. Students and professionals commonly experience the nexus of environmental problems, especially climate change, as a rapidly unfolding catastrophe. History shows us a

HISTORY SHOWS US A BROADER PERSPECTIVE: OUR CONTEMPORARY ECOLOGICAL CRISIS IS PART OF A RELATIVELY RECENT COLONIAL PRESENCE IN MUCH OLDER INDIGENOUS SPACES — A CATASTROPHE THAT HAS ALREADY HAPPENED TO INDIGENOUS PEOPLE.

broader perspective: our contemporary ecological crisis is part of a relatively recent colonial presence in much older Indigenous spaces—a catastrophe that has already happened to Indigenous people (Davis and Todd 2017; Whyte 2017). This reframing does not make the crisis less urgent but it can release the pressure of feeling like one must solve it immediately. A "sense of urgency" can turn a potentially good solution into a failure if time is not taken to consult local people and address their concerns. Rushing to a solution may be interpreted as intentional exclusion and can lead to its resistance. An urgent timeframe may preclude learning from people who have experienced similar crises (or are experiencing the current ones) differently and may have wisdom and knowledge to offer. And acting with urgency but without historical context can eclipse the complexity of decisions that led to the current crisis. Acknowledging the full timescale of a problem creates more space and flexibility to be thoughtful, critical, and ethical about solutions and avoid unwittingly exacerbating the problem.

For example, to understand the catastrophic flooding of the Nooksack River basin in 2021 entails not only climate and geophysical analyses, but also historical analyses of decisions made a century ago. For one, the decision to build a pump station to drain Sumas Lake and transform it into Sumas Prairie for farmland eliminated a crucial part of the floodplain and river system well-known to the Sumas people and other local Indigenous nations (Silver et al. 2020). The region has always been prone to flooding and Indigenous people knew to build their villages on higher ground (Morgan 2023). Meanwhile, the Canada-US border cuts through this river system, exacerbating an already complex environmental management challenge. Now, when rivers from both sides of the border swell, what is experienced as catastrophic flooding is, in part, the returning of Sumas Lake (Reimer 2018; Fraser Valley Current Staff 2021; Jefferies and Hager 2023; Morgan 2023; Olsen 2023).

"It's a generational change. It took us 500 years to get into this mess, and it will take us a long time to get out."

The large and rich field of *environmental history* contributes essential knowledge about the intertwined social and biophysical dynamics leading to ecological crises now and in the past. One of the main contributions of environmental history to the larger discipline of history, and to the human-centered fields more generally, is in emphasizing the active role of non-humans in the human story—how plants, animals, weather, geological forces, and other natural processes have mutually influenced the activities and ideas of people (White 1980; Cronon 1983; Grove 1995). Importantly, environmental history also specializes in telling the stories of the rise of conservation movements and environmental science (e.g., Hays 1959; 1987; Spence 1999; Taylor 2016). In addition, research in the environmental social sciences such as anthropology, geography, and political ecology typically include rigorous analyses of how an interplay of historical forces—economic, political, cultural, and ecological—account for the contemporary conditions under study.

Environmental history is an ideal and accessible entry point for those seeking to learn more about the environmental humanities and how they can deepen, if not transform, one's understanding of environmental problems. An excellent example of environmental history in the Puget Sound region is historian Richard White's (1980) *Land Use, Environment, and Social Change: The Shaping of Island County, Washington*.

2. Culture

Culture is variously defined but can refer to all aspects of experience shared through learning, including language, values, beliefs, and customs. Culture and its variations across time and space—cultural diversity—is the major subject of the discipline of anthropology, and ethnography is the holistic method designed to study culture *in situ*. Just as one would strive to learn the local language if working in a foreign country, learning local cultural worldviews, norms, taboos, values, and languages of the communities one is working with goes a long way toward

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achieving one's environmental goals in those places. Learning these things means getting to know people in person and over time, going to their places and events, listening, and learning how to be respectful. Demarcations of cultural groups can be inferred based on who in general attends the same events, including festivals, conferences, and ceremonies, and who shares a common language, including different dialects of English and jargon (Breslow 2011).

Equally important is to learn about and be mindful of one's own culture. We are all always cultural, including environmental professionals, even when practicing science. Science is cultural in that it depends on a shared language (e.g., mathematics), values (e.g., objectivity and progress), beliefs (e.g., the existence of natural laws), and norms (e.g., markers of professional status and legitimacy). Environmental professionals are likewise cultural, and our own fast-held values can get in the way of workable solutions, say, if we prioritize romantic environmental ideals, such as restoring a site to a condition of "wildness", over pragmatic benefits, such as creating an accessible food forest with similar ecological functions. In addition, the culture of scientific professionalism is not necessarily conducive to building understanding with community members who may interpret the language and culture of science as arrogant, intentionally obfuscating, inaccessible, abstract, and insensitive to local values and realities—and therefore untrustworthy. Importantly, however, acknowledging science as cultural does not invalidate its results—culture and the "more-than-human" exist simultaneously—but it could encourage some humility and acceptance that environmental science is one of but multiple ways to produce culturally-inflected knowledge about our shared biophysical world, and that these multiple ways of knowing could be powerful complements if braided together (as beautifully illustrated by Kimmerer 2013).

"I find it very productive when folks have time to reflect on the values they have and why, and how they're bringing all of that into the work they do and decisions they're making."

While all of the environmental humanities are in the business of both understanding and influencing culture, the field of *environmental anthropology* specializes in the cultural diversity of the human-environment relationship worldwide, past and present (Basso 1996; Satterfield 2002; Kopnina and Shoreman-Ouimet 2016), while the field of *science and technology studies* specializes in the cultural aspects of scientific practice (e.g., Latour 1987; Haraway 1989; Harding 1991). Delving into these literatures can be theoretically challenging, but ultimately life changing in the way they re-frame assumptions about reality, illuminating the flowering of ways humans across time and space have imagined our world and our place in it.

3. Local context

Environmental professionals often strive to change the behavior of other people, particularly those directly using or affecting nature and natural resources. A common reaction of conservationists to locals' resistance to such proposed change is that they need to be better educated, suggesting a lack of scientific knowledge, ecological awareness, or logic. By learning about the local context – the history, cultural values, social hierarchies, and economic and political conditions – seemingly illogical views can become logical, or at least legible. Such an exercise helps one realize that one's own logic is similarly constructed within a particular set of principles and constraints, and that resource users often believe environmental professionals also lack relevant knowledge—about locals' lived experience. In the Skagit study, members of the farming, tribal, and environmental communities all suggested they wished others were more educated about their respective realities (Breslow 2011). Working well with local communities means mutual learning, entailing listening to and respecting each other's

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views and particular circumstances, with openness to the possibility that one's own views are not the only right ones.

The environmental humanities are especially equipped to identify and describe local contextual factors as important explanatory variables in environmental problems, and as pathways to solutions. In contrast to the primary objective of science to uncover generalizable patterns through statistical analysis, the humanities focus on understanding the meanings as well as trends of social and cultural phenomena through holistic case studies and interpretation. Conceptual and methodological approaches, such as the idea of cultural narratives, the techniques of ethnography, and the field of political ecology (Robbins 2004), have been honed to study how all of the concepts presented here, from history, to power, to emotion, and more, factor into what makes up the "local context": the convergence of physical and intangible influences explaining why people in any particular set of circumstances think, feel, and behave as they do. Ideally, this type of holistic, humanistic understanding would be paired with complementary scientific insight to achieve the most powerful and robust understanding of our social-ecological challenges.

4. Indigeneity, Colonization, and the Myth of Pristine Nature

Recently, humanistic literature has dived deeply into ideas of indigeneity, the consequences of colonialism, and what it means to de-colonize, including the relevance of these concepts to the environmental field (Smith 1999; Cajete 2000; Liboiron 2021). The Salish Sea is an Indigenous and a colonized place. After the last ice age, the native terrestrial ecosystem re-grew in the presence of Native people for at least ten thousand years, and Indigenous land managers were removed from most of this ecosystem relatively recently by European colonizers. Seen this way, the restoration of Indigenous sovereignty enables the restoration of native ecosystems. While the local environmental community is learning to recognize these relationships and center Indigenous land management practices, older environmentalist tropes persist. Most

Seen this way, the restoration of Indigenous sovereignty enables the restoration of native ecosystems.

prominently, the nature-culture dualism permeating Western philosophy perpetuates environmental rhetoric that idealizes "wild" over "managed" landscapes and prioritizes "natural" over "anthropogenic" forces, and obscures the nuances, contradictions, and hybridities within these forces (Cronon 1996; Kimmerer 2013; Voyles 2021).

THE RECOGNITION THAT PEOPLE WERE ALWAYS IN RELATIONSHIP WITH THE LANDSCAPE — AND THAT WE CONTINUE TO BE — SHIFTS THE RESTORATION QUESTION FROM, "WHAT IS NATURE WITHOUT PEOPLE?" TO, "WHAT KINDS OF RELATIONSHIPS WITH NATURE ENABLE BOTH PEOPLE AND NATURE TO THRIVE?"

The environmental humanities are particularly helpful in understanding the history, meaning, and consequences of such tropes. For example, a humanistic analysis helps explain how racism and ecosystem restoration are related, in that racist assumptions underpinned the colonial transformation of the landscape and the removal of Native people from it. Restoring native ecosystems without native land management perpetuates the myth of pristine nature. Acknowledging that Native people co-created the Native ecosystem helps destabilize a persistent but constraining dichotomy in the environmental field that separates nature and people. The recognition that people were always in relationship with the landscape—and that we continue to be—shifts the restoration question from, "What is nature without people?" to, "What kinds of relationships with nature enable both people and nature to thrive?"

5. Senses of Place and Human-Nature Relationships

Senses of place refers to the meanings that people derive through their physical, cultural, and emotional relationships with particular geographies, including with the plants and animals as well as spiritual beings who may live there (Feld and Basso 1996; Stewart 1996; Poe, Donatuto, and Satterfield 2016). These may be tangible relationships, or fictive—places known or created through story (Basso 1996).

In the Skagit Valley, farmers and tribal fishermen alike explained how their identities were intimately linked to their activities in the land and water, such that losing a particular place by being displaced, or by losing its main feature such as salmon or farmland,

LOSING A PARTICULAR PLACE BY BEING DISPLACED, OR BY LOSING ITS MAIN FEATURE SUCH AS SALMON OR FARMLAND, FELT LIKE LOSING ONE'S IDENTITY.

felt like losing one's identity. With several generations of community history in the valley, a farmer expressed feeling ungrateful to his ancestors in letting farmland go to housing or restoration. With origin stories dating to the ice age, a Tribal member felt the spirit of the valley withdrawing in the face of development and ecological change. In contrast, environmental professionals did not typically locate their origin stories, community identities, or even childhood memories in the valley, and their livelihoods were not directly dependent on its natural resources. Rather, restorationists expressed more abstract, scientific reasons for caring about the valley as an important piece of a larger ecological whole. These different senses of place supported different landscape philosophies: different moral ideas for how the valley should be managed and by whom—whether by farmers, tribal land managers, or by nature itself in the form of an unleashed river (Breslow 2014a).

Considering how 'the environment' is composed of specific places that are simultaneously material and cultural illuminates a pathway to making sense of the overwhelming multitude of biophysical and social issues complicating environmental management. As one of us remarked during our conversations, "A way to do this is to connect all those things through place. This takes things that seem like they shouldn't sit together and puts them together, because they're literally in the same place." Furthermore, local communities who disagree on how the landscape is managed nevertheless share in caring deeply about the place, and in doing so are already in relationship with each other. Often, these relationships and contestations are shaped by unequal power, and therefore there are uneven benefits and risks associated with management decisions. Focusing on local communities' holistic, identity-defining relationships to the same place can provide a common language and become a powerful tool for mutual understanding.

"We're already entangled with each other, so how do we move forward?"

The ideas of senses of place and human-nature relationships are concepts that have long been developed in the environmental humanities (Saxena et al. 2018) and are increasingly discussed in the social-ecological and sustainability literatures (K. M. Chan, Gould, and Pascual 2018). Exploring the scholarship on these topics illustrates how humanistic ideas have been translated, altered, and applied as they enter the environmental field. The way that senses of place and associated ideas such as relationality and relational values have traveled across disciplines suggest they are intuitive topics that can bridge conversations between humanists and scientists, as well as between resource users and environmental managers, and serve as a starting point for exploring commonalities and differences in how each of us relates to nature, place, and each other.

6. Knowledge

How do we know what we know? Science is often held up as the official source of "facts" but there are many other ways of knowing what we know, including other types of scholarship, journalism, stories, relationships, direct and embodied experience, even emotion (Milton 2002). No one person can know everything; our respective areas of knowledge are necessarily circumscribed depending on our needs, experience, interests, worldviews, and teachings. These differences can often appear like disagreement: viewed from adjacent sides, a cylinder is both a circle and a rectangle. Similarly, in the Skagit case, a comparison of the different scopes, scales, and criteria for credible knowledge among local communities explained much of their disagreement: at a basic level, they were focused on knowing different things about different parts of the valley in different ways and at different times. Farmers developed knowledge that enabled optimum agricultural production on their own land; they used trial and error and a neighboring farmer's advice as much as agricultural science, if it got the job done. Restorationists developed knowledge that supported salmon recovery at the watershed scale,

Differences can often appear like disagreement: viewed from adjacent sides, a cylinder is both a circle and a rectangle.

prioritizing the scientific credibility needed to gain grant funding and network with other technical experts (Breslow 2011).

Local resource users' knowledge of specific places in a landscape stems from *in situ* experiences during different seasons and different parts of their life – a melding of physical, historical, cultural, and ecological knowledge supporting their livelihoods and senses of place. In contrast, the technical knowledge of outsider professionals striving to implement science-based environmental goals expressed in maps, graphs, and numbers can feel jarring to local people, eclipsing local meanings, emotions, and memories.

THE TECHNICAL KNOWLEDGE OF OUTSIDER PROFESSIONALS EXPRESSED IN MAPS, GRAPHS, AND NUMBERS CAN FEEL JARRING TO LOCAL PEOPLE, ECLIPSING LOCAL MEANINGS, EMOTIONS, AND MEMORIES.

For a related reason the principle of best available science (BAS), which forms the basis for federal natural resource management including ESA listings, forces environmental debates into scientific terms, often in ways that are unhelpful when trying to work with local communities who need to see their place-based identities, memories, stories, histories, and meanings, as well as resource-based livelihoods, acknowledged as part of the conversation and included in management goals and decisions (Lamb et al. 2023).

It is possible –and important– to generate humanistic knowledge using rigorous criteria so it can legitimately contribute to decision-making alongside scientific knowledge (Charnley et al. 2017). Similarly, there are increasing examples of braiding Indigenous knowledge with western science in environmental research and management (Hatch et al. 2023; Mervis 2023) Learning about and respecting the value and legitimacy of local, Indigenous, and humanistic knowledge enables one to engage it in a complementary way with scientific knowledge to achieve environmental goals that can only be reached by working with local people and through social systems.

"It is an interesting dialogue working with scientists… There is little sense about what a poet even does… there is a sense of, not dismissal, but that my work of observing is considered below the data collection.

There is this 'conquering-ness' that I didn't notice about science before."

7. Power

Power has been a major focus of humanistic study for decades: what power is, what forms it takes, how it operates, how it is sustained, and its effects on human societies, communities, and individuals, as well as ecosystems (see for example Scott 1998). At a base level, power is the ability to meet one's own needs and express one's own ways of doing things, as well as control or shape how others access their needs and express their ways of being.

Power can operate between individuals as well as within and between collective entities, such as governments or communities. Systems of power reproduce and reinforce social hierarchies. Terms like racism and sexism can refer to interpersonal power dynamics but more often in the environmental humanities they refer to institutional, structural, and systemic power. Indeed, most studies in the environmental humanities include an analysis of power, whether implicitly or explicitly, drawing from foundational social theory. In particular, the fields of environmental justice, political ecology, and critical environmental studies, as well as those focused on politics and governance underscore the vital importance of learning about the nature and role of power in environmental crises.

There are different types of power, and examining how power operates in relation to cultural difference and social hierarchy is valuable in working among local communities. A common understanding of power is that some communities have power and others do not, or that power operates "over" rather than also "within." Instead, a more nuanced understanding of power enables consideration of how individuals may have more or less power in different social contexts and how an exercise of power can have social ripple effects, sometimes unintended.

In the Skagit Valley, as an example, local communities have pursued different sources of power to achieve their respective goals, prioritizing those they are best able to access: the Tribes build

on the legal power of the treaties, as well as on the authority of their Indigenous identity; farmers harness the cultural and political power associated with American agriculture; and restoration ecologists largely rely on the power of scientific legitimacy. The pursuit of these different types of power incurred social side effects, effectively driving wedges between communities. For example, the Tribes' pursuit of legal power was experienced as a regulatory threat to farmers' livelihoods; the farmers' insistence that they risked losing their multigenerational cultural heritage was experienced as painfully insulting by the Tribes; and restorationists' exclusive use of technical scientific arguments was experienced as arrogant and insulting by farmers (Breslow 2011). While often successful, the pursuit of power to protect specific interests may also erode the trust necessary to collaborate on collective goals and possibilities.

WHILE OFTEN SUCCESSFUL, THE PURSUIT OF POWER TO PROTECT SPECIFIC INTERESTS MAY ALSO ERODE THE TRUST NECESSARY TO COLLABORATE ON COLLECTIVE GOALS AND POSSIBILITIES.

Furthermore, in a context of unequal power, local resource-based communities as well as environmentalists may distrust invitations to collaborate with more powerful entities, assuming they are disingenuous, viewing collaboration inevitably as compromise, and fearing loss of resources and control. For example, some Skagit Valley farmers assumed restorationists just wanted control over the valley and did not trust their ecological goals were genuine, while Tribal members are known to feel the same way about farmers. In inequitable relationships, collaboration as compromise effectively does shift power toward the more powerful party: if both parties are asked to give up the same amount, it is a proportionally greater sacrifice for the less powerful party. In our dominant competition-based economic paradigm, mutually influential relationships are often seen as adversarial, or zero sum: I gain, you lose, and there is no mutual gain. A question is how to break through this framing and find mutually beneficial solutions.

"The fear is that you will lose power if you let go a little bit… Since we were small in school we have learned there are winners and losers. But if you're looking at it through relationality, this framing of the

world lends itself to seeing how your gain can be my gain. This is more an Indigenous perspective."

8. Justice

Embedded in the environmental sciences are the normative ideas that biological diversity is good, ecological integrity is desirable, and we should apply our knowledge toward planetary sustainability. Similarly, at the heart of the social sciences and humanities are aspirations for healthy and meaningful human conditions, ethical relationships, and social justice. The human-centered fields are where one can find rigorous thinking about diversity, equity, and inclusion—even though we have not fulfilled those goals ourselves. There are many ways to understand problems of inequity and injustice: quantitative sociological studies, for example, are important to identifying broad trends, while humanistic approaches evoke lived experiences of disparity and disempowerment.

THE HUMAN-CENTERED FIELDS ARE WHERE ONE CAN FIND RIGOROUS THINKING ABOUT DIVERSITY, EQUITY, AND INCLUSION — EVEN THOUGH WE HAVE NOT FULFILLED THOUGH GOALS OURSELVES.

Within the environmental sector, humanistic approaches can contribute to inclusion by foregrounding diverse personal experiences with particular environments and environmental issues, making them more relatable to diverse audiences and helping people see themselves in the narrative and the place (e.g., Breslow 2011; Dietrich 2010; Satterfield 2002). In the field of environmental justice, humanistic studies illustrate inequity and injustice by bringing to life individual and communities' day to day experience with structural injustice, such as redlining and the inequitable siting of toxic industries, resulting in higher environmental risk and lower economic opportunity (Taylor 2014; Voyles 2015; e.g., Malin, Ryder, and Lyra 2019). A key application of the environmental humanities to environmental management is identifying ways to increase capacity and improve governance so that management is more inclusive of the full society's collective values and relationships to place.

We must also attend to inequities closer to home. As an author team, we are keenly aware that there are differences among the disciplines in subject matter and methods, as well as in social status, with related imbalances in racial, ethnic, gender, and class compositions, as reflected in our own identities. Within those disciplinary differences there are hierarchies, inequities, judgements, and stereotypes. There is still a noticeably gendered aspect to who disproportionately discusses these humanistic issues and does the labor of translating it for the environmental field, in comparison to our 'audience' of environmental scientists. Humanistic, communications, and justice work is labor, and while things are improving, it is still under-acknowledged and under-paid, construed as auxiliary to the work of ecosystem science and resource management.

"I am feeling very aware of that labor across disciplines."

9. Emotion

Those of us with professional backgrounds in the natural sciences observed a paradox in becoming a scientist: we entered the field with a sense of wonder and curiosity about the natural world, but felt we were asked to set aside those feelings in order to approach the subject objectively and reductively, and to professionalize. For some of us, those demands drove us back out as we found the language of science too narrow to capture the full meaning of nature and our relationship to it.

"It's almost like you had to give up your original personal reasons for going into science, in order to do science."

Humanists, particularly philosophers, artists, and writers, as well as media and communications scholars, are helpful here in thinking in a more nuanced way about emotions and facts, how both are real, how both might exist in complement to the other, and how each are usefully deployed in different contexts, with different audiences, to achieve different ends. The urgency of climate change, for example, has underscored for the scientific community the limitations of science as a language for communication,

advocacy, and social change, and the need to engage emotion. Conservation and ecosystem restoration requires not only technical facts, but also communication with resource users and the general public.

How can we acknowledge our own feelings about an ecosystem as a way to acknowledge others'? As a way to recognize and account for our own biases? And as a way to build relationships of trust? *Writing the Land* is a project that pairs poets with conservation sites across the country for about a year at a time, encouraging work that "emphasizes the importance of individual connection to land and place" and honors both "nature and our relationship with it" (NatureCulture LLC 2024). The project is focusing on Washington State in 2025. A question will be what do to with the poems and anthologies that result. Ideally, the writing will spur land managers to venture just a bit out of their comfort zones and host workshops, readings, and discussions that explore the emotional nature of their work. (For more ecopoetry see Fisher-Wirth, Street, and Hass 2013; Keller 2017; Bogard 2023)

…The ecologist, grabbing my arm,
falls as I fall. As I pull her down with me, I remember seaweed
resembles intestines. My body becomes gloopy mud.
The children shyly giggle and the two marshified mothers
grasp for something solid. A stick, a rock,
a small, clammy, out-stretched hand.

-- EXCERPT FROM "THE ECOLOGIST," BY JESSICA GIGOT

10. Language

Of all the concepts presented here, language is perhaps most foundational: through a particular inheritance and choice of language we express these ideas, leading the reader to infer certain meanings, whether intended or not. The language we use constructs our sense of reality, what is possible, and our plans for action. Language can have real consequences, such as in legal contexts and blueprints, but also simply in conversation. It can inspire change—and constrain it. Language is real, and powerful. This thought paper is written in English, the dominant language of science, government, and business, and the fact that it is not written in Lushootseed already speaks volumes about this place, its history, its social structure, and the influence we are seeking in writing it.

THE LANGUAGE WE USE CONSTRUCTS OUR SENSE OF REALITY, WHAT IS POSSIBLE, AND OUR PLANS FOR ACTION.

Language is never not cultural, not symbolic. Scholars in science and technology studies (STS) illustrate that in striving to maintain objectivity and neutrality in studying the natural world, the language of science still constructs meaning. Ironically, the technical "instrumentalist" language of science, including environmental science, risks constructing nature as a machine – and therefore exploitable and replaceable. Even our use of "nature" in this sentence privileges a western worldview over one that does not separate nature from culture (Cruikshank 2005). For example, the popular framing of nature's benefits to people as "ecosystem services" makes an effective case for conserving nature in decision-making contexts where economic cost-benefit considerations dominate. But the term has traveled beyond those contexts, taking on a life of its own with potentially damaging consequences. As qualitative social scientists have pointed out, "ecosystem services" is a metaphor that constructs nature as a commercial entity participating in a capitalist economy of goods and services. In this way it maddeningly perpetuates one of the dominant paradigms—capitalist exploitation—that humanists believe are cause for nature's destruction (Chan, Satterfield, and Goldstein 2012; Breslow 2015b; Chan et al. 2016).

USING NEW LANGUAGE CAN CHANGE HOW WE DO THINGS AND OPEN PATHWAYS TOWARDS NEW OR EXPANDED GOALS. LEARNING AND USING HUMANISTIC LANGUAGE ENABLES CONSIDERATION OF THE HUMANISTIC ASPECTS OF ENVIRONMENTAL WORK.

Using new language can change how we do things and open pathways towards new or expanded goals. Learning and using humanistic language enables consideration of the humanistic aspects of environmental work. For this reason, to accommodate the full "human dimensions" of environmental complexity, the language of the environmental field will need to expand. Similarly, new language is needed to accommodate multiple ways of knowing beyond 'western' science, such as Indigenous knowledge. In short, environmental professionals will need to learn a new language in order to engage the concepts we have presented here.

Like science and math, the humanities are a language that facilitates a certain way of perceiving the world, illuminating major aspects of human—and more-than-human—existence. This language, including its structure and words, are very different from those of the STEM fields, but this does not mean it is easier to learn or less rigorous. It is equally rich and varied and nuanced—and obfuscating. Like learning a foreign language, it helps to start with the basics (such as the fundamental concepts presented here) and move toward higher vocabulary; it also helps to be open to and respectful of the differences in this new language and appreciate the new ideas and understanding it enables. Just as environmental scientists expect their collaborators to know technical concepts such as "eutrophication," humanists would like their environmental colleagues to learn their own terms of art, such as "neoliberalism." Eutrophication and neoliberalism describe, respectively, major ecological and social phenomena related to climate change and globalization. If we are to converse about the earth as a social-ecological system, we need both terms: we need an expanded language. We also need to learn to translate both of these technical languages into 'plain talk' for general audiences.

"If you want me to understand 'eutrophication' then you can understand 'neoliberalism' – it has a similar number of syllables."

11. Complexity

The land and seascapes that are the objects of environmental managers' attention are complex places. In the presence of humans, who are connected through social systems, they are arguably even more complex "social-ecological" places. All of the humanistic concepts we have discussed here, in addition to many other social factors such as economic and political systems and governmental programs and policies, as well as all of their biophysical complexity are entangled in each place. Such complexity is experienced all at once by locals for whom the place is their home, job, identity, and spirituality. However, our academic disciplines, professional sectors, and agencies are often focused on just one aspect of this world – whether fish biology, or affordable housing, or moral philosophy.

Such complexity is experienced all at once by locals for whom the place is their home, job, identity, and spirituality. However, our academic disciplines, professional sectors, and agencies are often focused on just one aspect of this world – whether fish biology, or affordable housing, or moral philosophy.

While science teaches reductionism, humanists like to "complicate" – meaning, we strive to reveal the layers of meanings, histories, and social forces constructing everyday presumptions – and complexity demands holistic thinking. A holistic, humanistic study can articulate big, moral questions like one an interviewee posed: "How do we live with each other?" Humanistic thinking can help us sit with paradox, when opposites feel true, when it seems the world is falling apart, knowing this is the long game *and* it is urgent, holding both without needing to reconcile them, keeping both in play.

Several Skagit locals expressed a desire for people involved in salmon recovery to take a step back and "look at the big picture" – including the collective challenges and goals of Tribes, farmers, and environmental advocates. Interviewees would express frustration with science that did not take the local, social-ecological complexity into consideration. No one program, or agency, could address the actual complexity unilaterally: we would need to work together, hence the increasing calls for multi-, inter- and transdisciplinarity. Yet we as environmental professionals still lack the skills and support for

translating our knowledge across silos to achieve our own multi-linguality and collaboration.

"Everyone comes to this work with a sense of wonder and curiosity because there is this seemingly incredible complexity and then you're trained to reduce that complexity! Unlearning this would be helpful."

12. Storytelling

We all know that storytelling is critical to communicating science and environmental challenges. Many environmental scientists and managers tell excellent, compelling stories with their data. Many also know they lack communications skills and therefore have difficulty communicating scientific results and environmental challenges to lay audiences. And some are wary of storytelling, fearing it could erode trust in the authority of science and fuel ideas that everyone is an expert and anyone's opinion is fair game.

One widespread *misconception* environmental professionals hold about humanists, artists, and social scientists, is that we will be especially useful in helping them communicate their science and environmental goals to the general public. This is not true for two major reasons: one, humanists as well as artists have their own, independent ideas and goals they are struggling to express; and two, humanistic researchers are not typically communications experts. Although we present our research in narrative form, we have the same problem with using too much jargon and not connecting well to our intended audiences. The humanities as well as the arts also maintain rigid disciplinary boundaries around what is acceptable: historians, for example, are not necessarily more open to poetry than are scientists.

HUMANISTS CAN HELP SCIENTISTS UNDERSTAND THE POWER OF STORYTELLING IN HUMAN SOCIETY.

What humanists *can* help scientists with is in understanding the power of storytelling in human society; the role of emotion, symbolism, and metaphor in stories; how to re-introduce human characters into environmental stories; how to re-insert themselves as the human scientist into these stories; and how to connect with or critique broader cultural narratives. Humanists can also help tease

out the truthfulness of intangible humanistic dimensions from conspiracy and opinion, while adding social facts and theoretical considerations.

"We need to tell stories with people in them. When it's just nature, a lot of readers tune out."

STORYTELLING DE-SILOS KNOWLEDGE, SHOWING HOW ENVIRONMENTAL PHENOMENA ARE 'ALL OF THE ABOVE', COMPOSED OF MYRIAD RELATIONSHIPS BETWEEN PEOPLE, LAND, WATER, PLANTS, AND ANIMALS.

Finally, storytelling – whether textual, visual, audio, or multi-media – is the creative power of the environmental humanities. (But, to reiterate, very different in its goals and style from marketing and communications). The narrative form is able to accommodate complexity and illustrate interconnections among all of the humanistic concepts presented here, along with environmental science. Storytelling de-silos knowledge, showing how environmental phenomena are 'all of the above', composed of myriad relationships between people, land, water, plants, and animals.

A beautiful example is The Waterlines Project Map, which illuminates the Indigenous geography of the Seattle area through a visual map, text, and interactive online media. Described as a form of "storytelling with the shapes of time" (Hayden 1997) it combines ethnographic and archival sources, cultural history, and environmental science with geospatial methodologies, public interpretation, artistic design, and informed imaginings to illustrate the social-spatial-ecological processes that have shaped the Seattle area since the mid-19th century, just prior to non-Indigenous settlement. It marks the locations of Coast Salish places with their Southern Lushootseed names, and depicts how ecosystems, waterbodies, and other features of the landscape have been drastically altered. The map is oriented according to Indigenous modes of wayfinding coinciding with hydrological regimes, with its top pointing east to the mountains and bottom to the saltwater. This simple shift from the north-south convention often dis-orients and surprises the viewer, exposing Western visual assumptions, and signaling that this map will enable different ways of knowing. Without an obvious 'beginning,' it invites multiple entry points,

drawing the viewer in via their initial interests, and then connecting them to other parts of the story, such as environmental science, urban planning, Indigenous history, and political power. By presenting intersecting narratives of place, the project aims to deepen our understanding of the Seattle region as a cultural landscape and contextualize contemporary urban development and environmental decision-making.

Storytelling is a form of knowledge that is universally accessible. Since time immemorial people have been telling stories that teach knowledge, values, and norms (Basso 1996; Cruikshank 2005). Well-told stories are at once educational and emotionally resonant, able to convey ideas and information with deep and long-lasting effect. Scientists and conservationists know this, of course, and tell stories about their research and work, their connections to places, curiosity about earth systems, appreciation for particular species or habitats, and more. Storytelling can be a very effective vehicle for community empowerment, mobilizing, and influencing decision making. By deliberately sharing and honoring stories, environmental professionals can open new lines of communication, relationships, and inquiry. Stories help us create connections, make meaning, and inspire change.

"Storytelling… shows how it is all interconnected – and there is an 'aha' moment."

RECOMMENDATIONS FOR FOSTERING HUMANISTIC LEARNING IN THE ENVIRONMENTAL FIELD

Recommendations for environmental professionals

Learn about the humanities like you would learn a foreign language

- Assume this new language is as equally rich and useful as one's own.
- Start with the basics, such as the fundamental concepts presented here, and move toward higher vocabulary.
- Be open to, and respectful of, this new language's differences, including the different cultural norms and values it embodies, and learn to appreciate the new ideas and understanding it enables.
- Remember that being conversant in a new language does not necessarily make one an expert in it: be sure to collaborate with formally trained humanistic scholars if wanting to do humanistic research.
- Few people are conversant in both scientific and humanistic languages, making successful collaborations rare: consider seeking out or striving to become a "translator," someone who is bilingual in the environmental sciences and humanities and can facilitate mutual learning (see Hatch et al. 2023).

Learn more deeply about one's own discipline, and oneself

- Learn more deeply about the origins and social consequences of one's own discipline, such as environmental science, by reading about it through the lenses of the history, philosophy, and sociology of science.
- Strive to understand how humanists already perceive (and sometimes harshly judge) science and the environmental field by reading humanistic studies and placing oneself in humanistic spaces such as conferences and seminars. While this could feel maddening—like reading an anthropological study about one's

own culture, bound to get some things wrong—it may also be edifying and humbling and will better enable conversation and clarifications across the divide.

- Similarly, inquire about how the historical, social, and political aspects of one's own life have influenced one's current identities, values, goals, and assumptions, and what we do as knowledge producers (see Sensoy and DiAngelo 2011; Olmos-Vega et al. 2023; Seggern, Holst, and Singer-Brodowski 2023).

Read (including books)

- Simply googling "environmental humanities" will open up a world of potential reading, viewing, and listening. Relevant literature spans decades and it is helpful to familiarize oneself with the classics as well as more recent studies.
- A readily available and accessible way to start building a vocabulary and awareness of the environmental humanities is to start reading. Consider dipping into the References section of this paper as a ready-made reading list.
- Note that to learn deeply about the environmental humanities it will be necessary to read books: while there are plenty of relevant journal articles, most of the field's thinking is published only in books. Book-length narratives allow for nuanced discussion of qualitative evidence, historical and local context, and interconnections among complex factors. In addition, unlike in the STEM fields, books, not articles, are the currency of professional advancement in humanistic disciplines.
- The Association for the Study of Literature and Environment (asle.org)—which embraces much more than literature—is a great place to start to find books as well as journals and other resources such as syllabi and organizations focusing on the environmental humanities.

Immerse oneself in humanistic and artistic spaces

- Seek out and immerse oneself in humanistic and artistic spaces addressing environmental issues, such as conferences and gallery openings.

- Importantly, often the most creative and impactful work is not found in books but rather in multi-media, community-engaged initiatives at places such as museums, community centers, and parks.

For humanists: strive to reach our imagined audiences

- To start and maintain a conversation, humanists must reach equally across the divide. We must learn to meet our audiences where they are: connect with the problems that scientists and managers are already contending with, attend environmental science and management conferences, and publish in journals that environmental professionals read.
- We must translate humanistic concepts into the language of our audience: use terms, formats, metaphors, stories, and visuals that resonate with scientists and managers; avoid theoretical jargon; and when needed, teach new terms, illustrating their relevance with concrete examples.
- And finally, we must be careful with critique: there is no point in insulting an audience we want to educate and engage. We must lead with an understanding and appreciation for the brilliance and importance of scientific and management work.

Recommendations for agencies, organizations, and academic units

Host reading groups

- E.g., create reading lists for members of your organization. Choose and discuss one book every month or quarter. Consider inviting a writer, artist, or humanistic scholar to select the book and facilitate the discussions.
- Read and discuss creative works in natural settings.

Invite humanistic experts into your spaces

- E.g., invite guest speakers to local environmental conferences and symposia who can share examples of integrating humanistic approaches into environmental management and research, such as those compiled by the Writing the Land project (writingtheland.org).

Host workshops

- Focus workshops on, e.g., interdisciplinary, transdisciplinary, and knowledge translation skills.
- Explore professional and personal influences in a multidisciplinary team (consider using Theatre of the Oppressed techniques).
- Learning critical thinking, pedagogy, and methods from different fields.

Host a mailing list and social media sites

- E.g., share and summarize readings, resources, events, ideas that communicate relevant humanistic insights for environmental professionals; help "connect the dots."

Fund humanistic research

- Include humanistic priorities in requests for research proposals.
- Ensure contracting terms are appropriate for protecting human subjects and humanistic and artistic intellectual property.
- Supporting humanistic research is similar to supporting scientific research: personnel and computing costs will be comparable and, although not typically requiring expensive technical equipment, humanistic research often entails travel, lodging, and food costs; the costs of accessing archives and other research materials; and, importantly, the need to compensate research participants (interviewees) with honoraria or stipends at hourly rates matching that of the PI: both are considered experts.
- Work together to decide appropriate deliverables and timelines: e.g., a book has different benefits and requirements than a report or journal article.

Hire people with backgrounds in the environmental humanities

- See Table 1 to begin learning about the different types of expertise on offer.

Support academic programs in the environmental humanities

- E.g., work with funders, administrators, and policymakers to support new academic programs and units focusing on the environmental humanities, as well as initiatives that encourage scientists and humanists to work together.

Build capacity for the applied environmental humanities as a profession

- Encourage humanistic priorities in agenda-setting at major funding institutions such as federal agencies (EPA, NOAA).
- Invite environmental humanists, writers, and artists to join boards and other decision-making bodies (Kueffer, Lässer, and Hall 2017).
- Initiate or assist with a campaign to increase the visibility, relevance, and rigor, application of the environmental humanities, social sciences, and arts.

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