



Through the Eyes of Another: Using a Narrative Lens to Navigate Complex Social-Ecological Systems and to Embrace Multiple Ways of Knowing

Julieta Vigliano Relva^{1*†} and Julia Jung^{2†}

¹ Marine Biology Research Group, Faculty of Sciences, Ghent University, Ghent, Belgium, ² Cobra Collective, Egham, United Kingdom

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*Correspondence:

Julieta Vigliano Relva
Julieta.vigliano@ugent.be

[†]These authors share first authorship

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Many social-ecological issues are characterised by a multiplicity of stakeholder voices with often fundamentally divergent values, beliefs or worldviews. Those differences in perspective can be also viewed as different narratives on individual, community and cultural scales that both express and reinforce people's identity, value system and manifested behaviours. Navigating between those narratives requires approaches that facilitate the co-existence of multiple ways of knowing. The currently dominant knowledge production system of Western scientific knowledge often fails to meet those challenges due to its positivist and reductionist tendencies. However, embracing a co-existence of knowledges isn't just necessary from a pragmatic perspective to adequately engage in those situations, but also represents an ethical imperative that includes acknowledging the colonial and oppressive history of Western scientific knowledge toward other knowledges, especially regarding Indigenous knowledge production systems. We propose adopting a narrative lens as a metaphor for embracing multiple ways of knowing and being as narratives play a key role for human cognition, communication and in shaping and expressing fundamental values at different levels. Using an example of contested narratives from a fisheries management conflict, we illustrate how narratives can help to develop a richer understanding of social-ecological conflicts. We also reflect on some narrative discourses commonly used in marine science that stem from the binary nature-culture divide prominent in Western scientific knowledge and discuss their implication for hindering sustainable ocean governance. Furthermore, we demonstrate how storytelling methods can be used to surface and share those narratives and to unravel the underlying values and fundamental beliefs and to re-shape them. The narrative lens we propose is suitable under multiple simultaneous disciplinary homes including Indigenous methodologies and systems thinking. They share the key features of having a holistic and relational approach that recognises the co-existence of multiple ways of knowing and being and use self-reflection as key for critical

engagement with the situation and to surface and acknowledge one's own internal narratives. This represents no exhaustive review of narrative inquiry, but a reflective journey illustrating how engaging with narratives can facilitate knowledge co-existence including different ways of relating to human and non-human beings.

Keywords: narratives, reflection, co-existence, knowledge production, marine socio-ecological systems

"We think we tell stories, but stories often tell us, tell us to love or hate, to see or be seen. Often, too often, stories saddle us, ride us, whip us onward, tell us what to do, and we do it without questioning. The task of learning to be free requires learning to hear them, to question them, to pause and hear silence, to name them, and then become a story-teller."

—Rebecca Solnit, *The Faraway Nearby*.

INTRODUCTION

Our current times are characterised by complexity, chaos and contradictions (Sardar, 2010). As the anthropocene progresses, the challenges lying ahead that are necessary to meet are becoming increasingly clear and urgent. These range from the need and potential to enable the recovery of marine populations and ecosystems by 2050 (Duarte et al., 2020), to the worrying state of the earth system overall and the recognition of planetary thresholds that need to be avoided in order to stabilise our earth system in a habitable state (Steffen et al., 2015). The paths to meet those challenges and even the question about the types of paths we should be looking for are highly contested. As we live in complex social-ecological systems that usually consist of many subsystems influenced by an array of variables, the need to find approaches that can embrace this uncertainty and complexity is crucial (Ostrom, 2009). This is especially important as many of the most pressuring questions and processes of our times, such as climate change and marine and coastal governance, are characterised by a high divergence of values, worldviews and perspectives between the relevant stakeholders (Moser, 2007; Xiang, 2013; Groeneveld, 2020). Those situations don't consist of one clearly defined problem that can be solved, but represent a mess of conflicting narratives, opinions and worldviews that are often fundamentally different. Here, truth and reality itself are often contested (Head, 2008; Groeneveld, 2020). Therefore, achieving a solution or total convergence of understanding is often neither realistic nor possible or, as we will argue throughout this review, desirable. In this sense, the predominant traditional Western scientific knowledge production system often not only struggles to find solutions or meaningful ways of engagement, but also often contributes to the problem by constituting an homogenising force that prevents the recognition of other ways of knowing (Trisos et al., 2021). Indeed, if there is one thing that appears certain among all the uncertainty, it's a recognition of the need for more collective action, approaches that allow different stakeholders to come together and especially that allow for a co-existence of worldviews and that embrace plural ways of knowing (Steffen et al., 2015; Escobar, 2016; Trisos et al., 2021).

To allow for these multiple ways of knowing, it is also crucial to acknowledge the colonial history that academic disciplines, such as ecology and biodiversity conservation, are embedded in, and to work toward more decolonial approaches (Grove, 1996; Green et al., 2015; Kean, 2019). Therefore, moving toward decolonising research and promoting the co-existence of other ways of knowing, such as Indigenous knowledge systems, is an ethical imperative. However, it is also an utter necessity to meet current challenges as not engaging diverse knowledge systems limits the potential impact of interventions and opportunity to find positive ways of moving forward through them (Green et al., 2015; Trisos et al., 2021).

At the core of conflicting worldviews and perspectives that different stakeholders have on certain social-ecological issues lie different conceptualisations of fundamental elements, like nature itself, and what that means (Escobar, 1998, 2016; Gudynas, 2014). For example, some Indigenous people experience close and affectionate relationships with the land, bestowing elements of the environment with rights and animosity (Boyd, 2017; O'Donnell and Macpherson, 2019). Those relationships are based on a sense of stewardship, care and reciprocity (Gudynas, 2014). In contrast, many Western conceptualisations of nature are traditionally more based on utilitarian perspectives that are focused on extracting certain goods or services (Turnhout et al., 2013). In a way, these different conceptualisations are all based on certain stories and narratives we have about nature and our place as humans in it. The way we might feel about a fish we catch or the river it comes from is all connected to the story we have about what the river or the fish mean to us. Is fishing perhaps a communal activity that we do with others and that binds us closer together by sharing this experience? Is fishing something we do alone to show our skill by taking what we can? Do we even go fishing or does it matter where our food comes from? However, we feel about the different elements in our life is closely linked to the internal story we have about them and those stories help us navigate our place in the world. Thinking about relationships in the social realm, stories and narratives are also important. For example, considering how narratives influence relationships between groups of people is crucial for marine governance and management as this hinges on the connection and co-existence of different actors, stakeholder groups and activities (Boucq, 2020). As such, stories and narratives exist and operate on multiple levels and serve different functions. They provide a form of thought, as a way of creating meaning and processing events in our external world, but also represent a form of discourse since stories and narratives are some of the main ways in which we communicate about our lives (Bruner, 1991). However, as evidenced in this review, distinguishing between

those forms is often difficult to communicate since the distinction between words and thoughts in itself is a difficult one to make and perceive (Zent, 2015). In terms of the different levels they operate at, we've roughly divided them for the purpose of this review into different categories: When referring to narratives that happen on a personal level related to the experience of one individual, we use the term "story." When referring to narratives that are shared among a close group of people, we use the term "community narrative." Narratives that are shared among larger groups of people, that do not necessarily belong to the same community, are described as "cultural narratives" (Rappaport, 1995).

At each of those levels, narratives are used to construct and process reality, but also shape identity and reinforce certain values or viewpoints (Bruner, 1991; Rappaport, 1995). However, concurrently, sharing and listening to narratives can surface different ways of knowing (Robertson et al., 2001). Being exposed to alternative narratives also harbors potential for changing your own values or to create empathy and understanding for others (Satterfield and Slovic, 2004; Chapman, 2005). Crucially, narratives provide the necessary context and richness for seeing situations more fully and for approaching social-ecological issues in a more holistic way (Robertson et al., 2001). For example, listening to various personal stories of local community members in a contested situation on environmental change can help to elicit different perspectives, but also to surface nuances of the social and historical context that might influence people's position and behaviour (Cronon, 1992; Harris, 2009; Paschen and Ison, 2014). To move forward, we need a more holistic perspective with an appreciation for the value-laden emotional elements as well as power-laden elements that influence social-ecological conflicts. Often, we find ourselves arguing about facts, when really it is our values, narratives at multiple scales and fundamental beliefs that are contrasting (Chapman, 2005). Instead of continuing the oppression that certain dominant cultural narratives have opposed in the past, or to aim and integrate certain knowledges into other knowledge systems, the future for engaging in social-ecological issues and associated management questions lies in co-existence (Reid et al., 2020). The listening exercise that comes from engaging with others' narratives can put in motion an internal process of self-reflection (Paschen and Ison, 2014). Simultaneously, surfacing our own internal stories and multiple narratives through self-reflection can help to recognise others and to acknowledge that there is no neutral or value-free position of engaging in the world, but that we are all influenced by a set of stories and narratives (Reynolds and Holwell, 2010). This is also a crucial step to decolonise your mind and fully embrace the reality of diverse knowledge systems and perspectives, which is necessary to allow co-existence (Triso et al., 2021).

In this review, we propose adopting a narrative lens in order to promote co-existence of different ways of knowing and being. We also argue that adopting such a lens to address social-ecological issues will enable questioning the current narratives underpinning certain values, conceptualisations and practices that have led to such issues, and can help to shape new ones to build more reciprocal relationships with nature. Because navigating narratives is not linear and can be confusing, in section "Narratives: shaping our values, identity, sense of place

and community" we first expand on the definitions and the different levels and ways in which narratives function. In section "Contested narratives from the sea", we illustrate what adopting a narrative lens means in terms of engaging in social-ecological conflicts by mapping out different stakeholder positionings and perspectives using an example from a marine system. In section "Narratives, ontologies, and knowledge production systems", we describe the relationship between dominant cultural narratives and the implications for knowledge production systems drawing from examples of specific narrative discourses that have shaped marine research practices. Section "Learning to listen: reflection, holism and interrelatedness" explicitly explains our proposition of using a narrative lens to allow co-existence of multiple ways of knowing and highlights different existing frameworks and approaches that can enable this. In this section we also point at self-reflection as a key exercise to become aware of our own stories and their influence and realise that our own story is just one among many. Therefore, we finish with a positionality statement in accordance with the self-reflection we advocate for, where we describe our backgrounds and motivations, as well as the tensions and learning processes involved in writing this review. We do this with the aim of showcasing what we are arguing for in this review – to highlight the importance of being transparent and reflective about one's background and value systems and the ways they shape our understanding and interpretation of the world.

NARRATIVES: SHAPING OUR VALUES, IDENTITY, SENSE OF PLACE, AND COMMUNITY

Individual and Community Narratives

What makes a good story? The features that we commonly use to describe good stories are having a purpose, coherence throughout and ending with closure and some form of evaluative consequence or providing meaning to the events that happened (Norris et al., 2005; Avraamidou and Osborne, 2009; Popova, 2015). For the individual, stories are crucial to make sense of what happens around them and to construct their sense of personal identity. This is done by constructing a life story that organises the past, present and future into meaningful patterns (Bruner, 1991; Baumeister and Wilson, 1996). Stories thereby also fulfill various functions as they represent a way to capture, share and process single events, but also to meet fundamental emotional needs (Corradi, 1991; Baumeister and Wilson, 1996; Baerger and McAdams, 1999). As such, stories provide a multitude of information for the listeners as they reveal the positionality of the storyteller in relation to the world. This includes the physical context of their experience, but also a way to mediate between the past and the future, that indicates how they have derived meaning from past experiences and are now relating this to their perceived future (Corradi, 1991).

Stories are not only a way to represent the world, but also a way to constitute the world and to empathise with others (Bruner, 1991; Czarniawska, 2004). That is why stories are central for

human communication and meaning making, and have been described as the ancestral form of human expression (Graesser and Ottati, 2014). By evoking emotions when sharing stories, they also have a crucial role in forming social bonds and can foster a sense of belonging with one's community or ancestors (Read and Miller, 1995; Sakakibara, 2008). Personal identity is shaped by stories about your home, your community or the place you grew up in (Rappaport, 1995). By creating and reinforcing a shared understanding of a place and community, stories also build a shared memory and a community narrative that plays a vital role in maintaining a group's social cohesion and order (Mistry et al., 2014). In a way, these narratives constitute a shared way of apprehending and feeling the world (Forsyth, 2003). Therefore, to rephrase the previous definition of community narrative it is also possible to define a community as a group of people with one or more shared narratives (Rappaport, 1995). This definition is quite fluid as people often belong to many communities at the same time. However, the strongly geographically localised community narratives we refer to here are most evident and illustrated by Indigenous cultures. Here, storytelling usually plays a central role for building a shared memory, installing moral values, passing down culturally built knowledge and for entertainment (Hodge et al., 2002; Lewis and Sheppard, 2005; De Groot and Zwaal, 2007; Archibald, 2008; Fernández-Llamazares and Cabeza, 2018).

Cultural Narratives

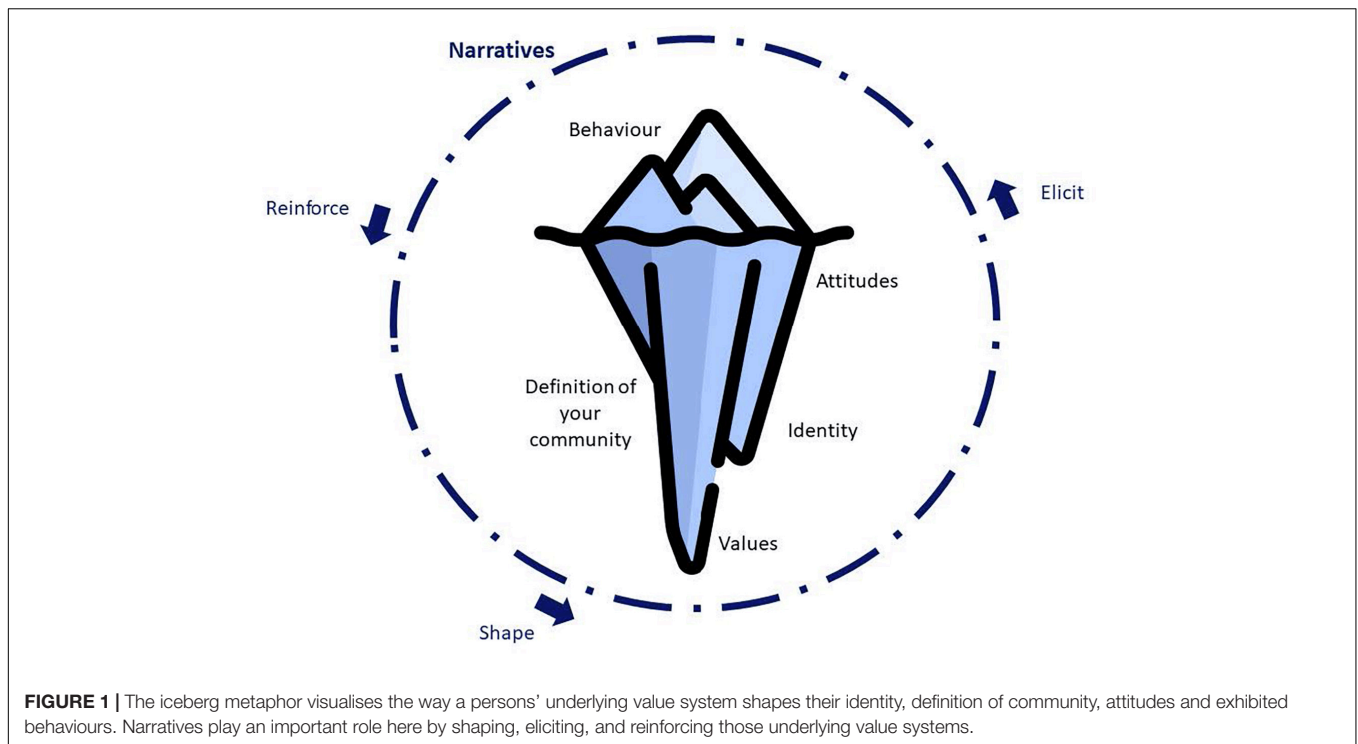
On a broader societal scale, we refer to cultural narratives as those shared among larger groups of people that do not necessarily belong to the same community. Those narratives are crucial as a culture or society is defined by its foundational stories that explain and order the world for human experience, and create specific value systems (Bruner, 1991; Rappaport, 1995; Paschen and Ison, 2012). Even on this scale, there is a strong linkage between people's individual stories and cultural narratives, as illustrated by the iceberg metaphor (**Figure 1**). Cultural narratives shape and reinforce peoples' values and internal story (and vice versa), which are in turn crucial for building your own identity and defining your community. Ultimately, these values also determine the attitudes and behaviours exhibited by individuals. Even though values can be understood and expressed intellectually, the way narratives shape values happens on an emotional level (Satterfield and Slovic, 2004). Narratives become internalised by directly evoking emotions in the listener or observer, which cements the internalisation and adoption of the relevant narrative (Satterfield and Slovic, 2004; Chapman, 2005).

Although there are many different cultural narratives, there is an asymmetry in how far and how loud some cultural narratives are echoed. Cultural narratives that overshadow others can be referred to as dominant cultural narratives (Rappaport, 1995; Chapman, 2005). They are what we might think of as the stereotypical tropes or beliefs embedded in everyday life. Dominant cultural narratives are usually communicated and reinforced through mass media or social institutions that touch the lives of most people, such as television, newspapers, public schools, churches, or social network gossip (Rappaport, 1995). Most people in a given society will know those cultural narratives

and they often embody a range of values or important morals about how life is supposed to work. In a way, they provide the background setting in a given place, which will also be enriched by more localised community narratives and personal stories (Rappaport, 1995; Chapman, 2005). One prominent example of such a narrative is the "American Dream," which includes the core idea of equality of opportunity and that upward social mobility can be achieved by anyone if you work hard and are disciplined (Cullen, 2004). However, this narrative tends to silence the struggles of, for example, Black Americans and the influences of systemic racism or the importance of generational wealth and resulting inequality of opportunity present in the US contrasting the vision promoted by the "American Dream" (Putnam, 2015). In a specific situation, this dissonance can turn into contested narratives, where different narratives experienced and expressed by different groups or individuals are in direct conflict. Through a mechanism of silencing certain experiences, conflicts between different stakeholders, communities and interest groups can often be traced back to power asymmetries between cultural narratives. The impacts of this are far reaching as existing power imbalances between cultural narratives and associated communities or marginalised people are maintained and enacted through institutions and legal instruments that often only legitimise values aligned with the dominant cultural narrative.

Navigating Complexity Through Narratives

The relevance of narratives for humans to create meaning of the world on multiple levels has resulted in a flourishing set of "Narrative approaches" originating from a wide array of disciplines including literary criticism, psychoanalysis, history, sociology, anthropology, education, and communication science (Turner, 1976; White, 1990; Bruner, 1991; Freud, 1997; Avraamidou and Osborne, 2009; Kusmanoff et al., 2020). More recently, narrative approaches have also been developed and used in fields like political ecology (Chambers et al., 2017; Boucquey, 2020), climate change adaptation research (Paschen and Ison, 2014) and environmental studies (Robertson et al., 2001). Such narrative approaches can take many forms but they are all interested in the discourses included in narratives that communicate symbols, images, and social practices of individuals but also from communities and cultures (Fisher, 1984; White, 1990; Czarniawska, 2004; Herrmann et al., 2013). By analysing the elements that are included or excluded from stories, the framing of such elements and their relation to the storyteller, the conceptualisation of this elements as well as the positionality of the teller within their context can be revealed. In order to surface this, various narrative research and storytelling methods have been developed that are appropriate for different contexts and situations, which we will describe in more detail in section "Learning to listen: reflection, holism, and interrelatedness" (Robertson et al., 2001; Chapman, 2005; Harris, 2009; Paschen and Ison, 2012; Paschen and Ison, 2014). At the heart of all of those approaches, however, lies the same core idea of listening intently to someone's story



and how it relates to their experiences and social context. In this narrative inquiry, knowledge emerges from the wider social context and interactions (Paschen and Ison, 2012; Paschen and Ison, 2014).

CONTESTED NARRATIVES FROM THE SEA

In marine sciences, examples of contested narratives situations abound. This is especially the case in the context of ocean conservation and governance, where allocation of resources such as fish and space are disputed by groups with different narratives (King, 2005; Boucquey, 2020; Reid et al., 2020). Fishers, scientists, policy makers and managers maintain different narratives that express and reinforce different constructs of what terms such as “ocean,” “fish,” “biodiversity” or “sustainability” mean. Boucquey (2020) illustrates this clearly in her narrative analysis of a conflict in North Carolina between recreational fishers, commercial fishers and managers. This conflict was triggered by a ban on gill net fishing, which was allegedly due to the impact this fishing method had on turtle by-catch. Boucquey demonstrates how knowledge claims, interwoven with stories about the state of marine resources, can surface the ways in which different groups of fishers understand “nature” and use their narratives for political purposes. In this example, the recreational fishers story claimed that commercial fishers and their gear were damaging fish stocks and sea turtles, and that fisheries managers were failing to implement stricter regulations due to commercial interest. In this narrative, recreational fishers were portraying marine resources as the “victims” of barbaric commercial practices,

and corrupt management and themselves as potential “heroes” battling more powerful interests. The commercial fishers, on the other hand, questioned the science underlying the ban on gill nets. They argued that sea turtles were becoming entangled in nets because of their increasing abundance and that fish stock declines were related to external factors, such as pollution and environmental degradation, instead of gill net fishing. In addition, commercial fishers referred to recreational fisher as “masking themselves as ‘conservation groups’ who want nothing more than to do away with commercial fishing” (p. 171). The analysis of these narratives reveals that the experiential contexts in which these realities occur differ and crystallise in narratives that demonise or valorise certain engagements with the ocean (King, 2005). Therefore, examining the ways in which people talk about “nature,” “sea” or “fish stock” reveals something about the values and assumptions of the people defining the words (Cronon, 1992; Herrmann et al., 2013; Boucquey, 2020). In addition, the analyses of the contested narratives highlighted that these weren’t different perspectives on a common issue but also different definitions of what the problem at hand was and how each group uses a diverse set of experiences to frame such problems. Problem framing in narratives has important material consequences, as the framing that resonates with dominant power structures will be the one that influences the most the outcomes in terms of management and policy as we will describe in detail later on (Fabinyi et al., 2015; Chambers et al., 2017; Boucquey, 2020).

Considering how narratives influence those relationships between groups of people is important as marine governance and management hinges on the connection and co-existence of different actors, stakeholder groups and activities. In this

context, examining narratives can also help to surface the power dynamics underlying disputes in the marine realm. For example, paying close attention to who the “heroes” and “victims” of a particular narrative are and who is considered to have the means or responsibility to make certain changes can reveal the power dynamics about the local situation perceived by the storyteller (Chambers et al., 2017; Boucquey, 2020). In addition, the specific ways in which each group talks about “marine resources” or “turtles” not only reinforces their personal and community identity, but also distances them behaviourally, conceptually, geographically, and morally from others (King, 2005). Using this process of mapping individual stories about social-ecological conflicts, especially between people belonging to different stakeholder groups, can show where the resonances and tensions between different narratives lie (Harris, 2009; Paschen and Ison, 2012; Paschen and Ison, 2014; Boucquey, 2020). Approaching stories and narratives from this perspective can help to use them as tools for building understanding and even to communicate between those groups to generate more empathy for other’s perspectives. The knowledge that emerges from this type of narrative research represents a felt experience of the world that is inherently valid even if not all presented facts can be verified. Therefore, this approach shifts the focus from the veracity of individual stories to gaining a deep and rich understanding of the situation (Harris, 2009). This can help to develop a feeling for what potential local responses or mitigation and adaptation strategies might be and to develop desirable future scenarios for this context (Harris, 2009; Paschen and Ison, 2012; Paschen and Ison, 2014; Boucquey, 2020).

NARRATIVES, ONTOLOGIES AND KNOWLEDGE PRODUCTION SYSTEMS

As stressed before, narratives are not only a way to make sense of the world, but they also shape different realities with specific cultural narratives feeding into specific ontologies¹ (Bruner, 1991). When reinforced through power differences, cultural narratives can become hegemonic, overshadowing and silencing other narratives and associated experiences of different groups or communities. This process of the development and persistence of one or more dominant cultural narratives over others, feeds into what John Law (2011) referred to as a “one-world world” (OWW). This refers to a world allegedly made up of a single conceptual world. In this OWW, the ontology of modernity, which is a Eurocentric ontology that started with the colonisation of the Americas and conceives Europe as the pinnacle of civilisation (Dussel et al., 2000), has arrogated for itself the right to be “the” world, subjecting all other worlds to its own terms or, worse, to non-existence (Escobar, 2016). Described through a narrative lens, this is a world where all experiences and perspectives are forced to be reduced to or integrated into the terms of a single narrative. When reduction

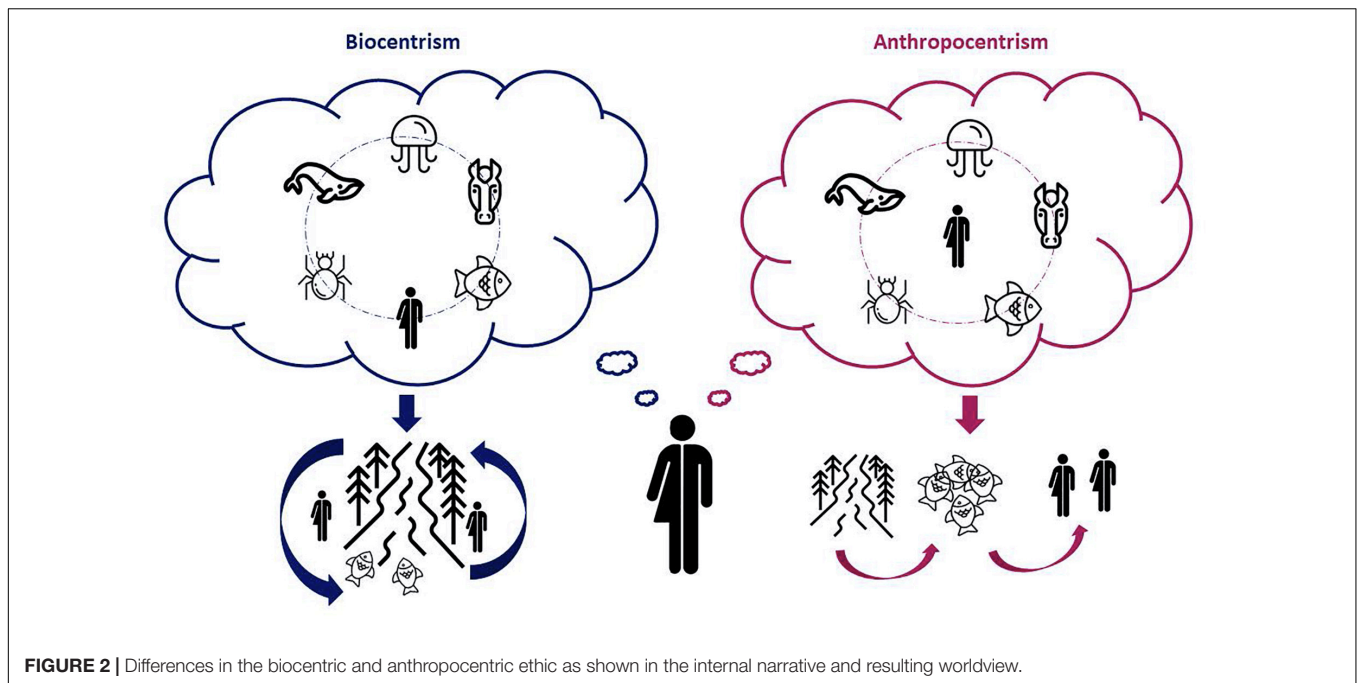
happens in practice, it can also lead to so-called *Ontological conflicts* (Blaser, 2013). These conflicts are not reducible to different beliefs about what should be done or different opinions, but about fundamentally different realities and answers to the question “what is there,” meaning different ontologies (Blaser, 2013). Being aware of this distinction and the implications in power-charged settings again determines whose reality will be validated and acknowledged. An important implication of ontological conflicts is that, as there is no single all-encompassing reality, there is also no neutral perspective that one can take to mediate between them (Law, 2011). Therefore, instead of attempting to find ways to integrate worldviews into one another, which will lead to the reduction of ontologies following the OWW, we should ask which practices and frameworks facilitate a co-existence of multiple worlds, a pluriverse (Law, 2011; Escobar, 2016). In the following section we will first further describe the values and nature ethics underpinning WSK that have shaped scientific discourses and practices and illustrate with examples from marine conservation and governance.

Dominant Narratives in Marine Science

Considering the role of knowledge production systems is especially important here as we enact “reality” in the act of knowing (Bruner, 1991; Forsyth, 2003). The dominant knowledge production system ultimately determines what “counts” as knowledge reinforcing, reproducing and validating specific narratives inscribed in certain ontologies (Forsyth, 2003; Escobar, 2016; Trisos et al., 2021). As described by Foucault and Gordon (1980), dominant cultural narratives become discourses of truth that are exercised through power. In this sense science, similar to religion and tradition, has previously been described as a “meta-narrative,” which is inscribed in the prevailing ontology of modernity (Lyotard, 1979). At the core of the consolidation of WSK is the ontological binary divide between nature and culture. Such conceptualisation sees one as the opposite of the other: Non-human spaces, entities and dynamics are natural, while on the contrary, all human processes and constructions are socio-cultural (Gudynas, 2014; Zent, 2015). This conceptualisation is also asymmetrical in its power relations and holds an anthropocentric ethic of nature: nature is there to be appropriated for human needs and desires and has to be controlled for those purposes (Boyd, 2012; Kernohan, 2012; Gudynas, 2014). As illustrated in **Figure 2**, this anthropocentric ethic of nature sees humans as distinct from the environment and is in contrast with biocentrism, which emphasises the multiple relations between various human and non-human actors (Gudynas, 2009, 2010).

Biocentric ethics of nature are associated with relational ontologies of many Indigenous people, whose ontologies emphasise the multiple relations between various human and non-human actors (Gudynas, 2014). People are part of the environment and the environment is understood to comprehend physical, biological as well as social elements (Inglis, 1993; Reid et al., 2020). Instead of creating divides between human and natural elements, the concept of community is expanded here beyond humans to incorporate, for example, mountains, rivers, animals and plants. Therefore, the knowledge that emerges from this close contact with the land is a highly contextual form of

¹The understanding or belief of what constitutes reality, what exists and what does not. Shared cultural ontologies result in a framework of ideas and beliefs through which a cultural group interprets the world (i.e., worldview) (Fernández-Llamazares and Cabeza, 2018).



knowledge about local ecosystems and ecological relationships (Nadasdy, 1999; Wilson, 2001; Simpson, 2004; Berkes, 2018). The reductionism and binary divide of WSK instead views the world as a machine where knowledge about the processes is obtained by breaking down and analysing the constituent parts separately (Jackson, 2003; Bosch et al., 2007; Flood, 2010). Scientists in this paradigm are viewed as neutral objective observers to analyse and report on their relevant parts of the system (Rosendahl et al., 2015). The Western conceptualisation of nature, and the reductionist and positivist paradigms of WSK are structural to the limitations encountered when trying to give space to different knowledges such as Indigenous knowledge (Nadasdy, 1999; Simpson, 2004; Carter, 2008; Weiss et al., 2013; Reid et al., 2020). Reductionism tends to divorce socio-political-historical dimensions from ecological ones, hindering the capacity to move toward decolonial research practices and in turn, to knowledge co-existence (Ford et al., 2016; Trisos et al., 2021). In addition, it also undermines the possibility to address social-ecological issues in a holistic way and with a diverse set of tools (Reid et al., 2020).

The values and ethics of nature underpinning WSK have constructed specific narrative discourses in science that have important consequences for how research is done and are mirrored in how Western societies engage with and behave toward the environment (Gudynas, 2009, 2014; Weiss et al., 2013; Abu et al., 2020; Trisos et al., 2021). One of the most tangible examples is the embodiment of the nature/culture divide in the compartmentalisation of the natural sciences and the humanities. Even though the need to overcome such divisions and engage in more inter- and transdisciplinary science has now widely been recognised, such collaborations are still commonly fraught in practice (Satterfield et al., 2013). This evidences the ontological roots of this issue and shows the deliberate efforts necessary to overcome those resulting challenges (Norris, 2016).

Similarly, the predominantly extrinsic valuation of nature under modernity is also strongly mirrored in WSK and found in the form of narrative discourses about natural capital or payment for ecosystem services (Kosoy and Corbera, 2010; Jones et al., 2020; Kaiser et al., 2021). By relating nature with concepts drawn from economics, these valuations favor the accelerated development of market-based strategies to promote biodiversity conservation or to ensure protection and maintenance of certain ecosystem services. While most of the early payments for ecosystem service (Bekessy et al., 2018) schemes focused on reforestation or other land-based activities, there has also been increasing interest in coastal and marine initiatives aimed especially at flood protection and so-called “blue carbon storage,” the ability of marine and coastal ecosystems to sequester carbon (Mohammed, 2012; Lau, 2013). The increased expansion of human interest and activities in the ocean is titled the “blue acceleration” (Jouffray et al., 2020). Its discourse in relation to the sustainable use and development of marine spaces is often expressed as “blue growth” or “blue economy,” indicating a strong imperative for economic growth especially for industries like fishing and ocean transport. However, this narrative of “perceived endless expansion” can be problematic as it can often be related to reallocation of marine spaces and privatisation processes that change resource usage regimes in detriment of local communities in a phenomenon known as “ocean grabbing” (Bennett et al., 2015). In addition, specific tropes found in scientific narrative discourses such as “sustainability” legitimise certain imaginaries of marine spaces (King, 2005; Tam, 2019). In marine protected areas (MPAs) for example, sustainability can sometimes be measured as the trade-off between conservation outcomes (quantitatively assessed in biological parameters) and economic development. This can leave out the experiences and knowledge of local people, who are recognised as economic actors or cultural assets for ecotourism,

but denied as subjects with knowledge (Tam, 2019). Examples of the prevalence of such extrinsic valuations of nature and the nature vs. culture divide can also be found in fisheries management, which was originally developed in the service of single-stock, large-scale and commodity-oriented fisheries in Northern temperate parts of the world (Reid et al., 2020). Following this, many management schemes continue to separate scientific decisions from those that are political in nature. This means, for example, setting catch limits based purely on species biology, stock assessments and the maximum sustainable yield without considering the socio-political elements of allocation of catches among groups of fishers (Loring, 2017). However, there have been recent efforts and progress in sustainable fisheries management that include for example the role of local ecological knowledge held by communities and the importance of considering socio-political dimensions (Chuenpagdee and Jentoft, 2019; Reid et al., 2020).

Still following the nature – culture divide yet in direct opposition to the extrinsic valuation described before, there is also a common sentiment and cultural narrative that promotes a vision of marine spaces as somewhat pure “human-free” spaces that should be contemplated on from afar. Following this narrative that also views humans as separate from the environment, fishers would be perceived as transgressing on the “natural” boundary between humans and the environment (King, 2005). This pristine imaginary of the oceans, where humans may only engage aesthetically, is highly problematic as succinctly expressed by King (2005): “models of the world in which humans can choose not to engage with ‘nature’ will always be disrupted by the reality of living in a world that incorporates ‘nature’. Perspectives that idealise the contemplation of the ocean limit the role of humans in the environment to that of destructive agents.” Additionally, it comes from a highly privileged perspective that disregards the crucial role of the ocean in providing livelihood for coastal communities (Fleming et al., 2019; Hicks et al., 2019). It also disregards the opportunity of viewing nature from a more relational perspective found in many coastal communities that allows people to use the goods and services provided by a certain ecosystem, but where the action of engagement is rooted in a sense of stewardship, care and connection, not pure extraction (Chan et al., 2016). The recently popular Netflix documentary *Seaspiracy* was, for example, strongly critiqued by the scientific community for promoting such a binary human vs. nature-narrative² (Belhabib, 2021). Here, the protagonist arrived at the conclusion that the only way to save the ocean was to leave it alone and for humans to return to purely aesthetic engagement from afar, since he did not deem it possible to sustainably harvest food from the ocean. The multiple responses from the fisheries-scientific community, science communicators and activists is a promising one in the discussion of dominant narratives because it shows that different stories are being visualised and echoed even under the eyes of the dominant WSK system. With this we want to point out that

even if there are fundamental values and nature ethics that shape the narratives prominent in science, these are also fluid and there is a possibility of re-shaping them. The exercise of becoming aware of narratives itself creates an opportunity to reflect on them and can be the starting point of a process to carve out space to tell alternative stories and enable their co-existence. In this process, personal stories as well as community narratives can be transformative.

LEARNING TO LISTEN: REFLECTION, HOLISM AND INTERRELATEDNESS

The Western understanding of the world not only has limited answers to the problems it has largely created but constitute as well part of the problem (Santos, 2014; Escobar, 2016). To address complex social-ecological conflicts, it is thus necessary to move from the epistemic theories that WSK provides to more inclusive approaches that allow to even redefine the issues at hand. This need for a new nature ethic and practices that allow co-existence of worlds have also been acknowledged by Western and indigenous scholars (Gudynas, 2010; Escobar, 2016; Ogar et al., 2020). To carve space for a multiplicity of knowledges also means creating space for a multiplicity of worlds, echoing Escobar and the Zapatistas, to allow for co-existence and the creation of a pluriverse, a world where many worlds fit. In this pluriverse, multiple knowledges that hold relational values with the land and non-human beings and therefore for whom local context is an essential part of knowledge, will allow social transformation and a healthier and more balanced co-existence with other species and our environment (Santos, 2014; Chan et al., 2016; Escobar, 2016). In the previous section we explored some of the dominant narrative discourses that are part of WSK, the values underlying them and some of the material implications of it. In the following section we will expand on how a narrative lens can facilitate knowledge co-existence, to surface the presence of those other worlds, highlighting relational concepts of nature and ways of relating with the environment.

When we refer to a narrative lens here, this expression can be interpreted in several different ways. One interpretation, as we have shown in section “Contested narratives from the sea” is analysing stories as a way to address social-ecological conflicts and map their complexities and positionings (Harris, 2009; Paschen and Ison, 2012, 2014; Boucquey, 2020). Additionally, and apart from this specific methodology, we refer to a narrative lens as a metaphor to evidence the multiple levels in which our reality is shaped by narratives, either defining our singular identities, our community and cultural identities or shaping knowledge systems and ontologies. We also argue that there are a number of frameworks, methodologies and paradigms that have been developed both within WSK and IK that are in line with a narrative lens as they stress the importance of considering context. They also stress the importance of self-reflection and continuous iterative engagement in any situation as they recognise the importance of surfacing your own internal story as a researcher, participant or facilitator constituting a continuous learning cycle. These approaches hold space for

²<https://www.vox.com/2021/4/13/22380637/seaspiracy-netflix-fact-check-fishing-ocean-plastic-veganism-vegetarianism> and <https://www.hakaimagazine.com/article-short/seaspiracy-harms-more-than-it-educates/>

a multiplicity of narratives, stakeholder perspectives, ways of knowing and in turn enable the co-existence of multiple worlds.

Storytelling

As narratives are a basic form of human cognition and in turn, easy to share and understand, they can be used as a simple method to represent and share worldviews or ontologies. White (1990) describes this beautifully and concisely: “We may not be able to fully comprehend specific thought patterns of another culture, but we have relatively less difficulty *understanding* a story coming from another culture, however, exotic that culture may appear to us” (White, 1990).

As a research method, storytelling approaches belong to the so-called eight movement of qualitative research that focus on community participation, capacity building and take social justice into consideration while trying to decolonialise the research process (Cunsolo Willox et al., 2013). Storytelling builds on the foundational understanding that qualitative research is highly value-laden and with a strong emphasis on how social experiences, including the research process, are created and give meaning (Corradi, 1991; Cunsolo Willox et al., 2013). Therefore, storytelling research approaches are more focused on the process of engagement instead of generating a set of facts as outcomes. Storytelling methods to engage in knowledge co-production and intercultural discussions have for instance been used to promote cultural diversity and for conservation purposes by focusing on Indigenous storytelling (Hodge et al., 2002; Fernández-Llamazares and Cabeza, 2018). These approaches have also been proposed as a mode to evidence other ontologies, values and ways of knowing (Herrmann et al., 2013; Fernández-Llamazares and Cabeza, 2018). Storytelling can help reconnecting people to changing environments as a way of processing environmental change and, promote ways of community engagement that are ethical and resonate with their worldviews (Robertson et al., 2001; Hodge et al., 2002; De Groot and Zwaal, 2007; Sakakibara, 2008; Cunsolo Willox et al., 2013; Fernández-Llamazares and Cabeza, 2018). They also provide a possible pathway for integrating community values into policy making processes (Chapman, 2005), and to surface local knowledges and support them through policy implementation in the context of climate change adaptation and governance (Paschen and Ison, 2014). These methods have also been proposed to foster empowerment and transformative social change more generally: through stories individuals can relate to collective narratives regarding for example environmental, political or human rights topics and then a reciprocal process occurs where these collective narratives are then sustained, maintained and amplified by individuals (Rappaport, 1995).

Using storytelling approaches goes beyond eliciting local knowledges, contexts, and positionings as the exchange between storyteller and researcher itself creates an important relationship that impacts the interaction (Paschen and Ison, 2012). This has been echoed by researchers coming from different disciplinary backgrounds, who also stress the dialogical situation that arises between researcher and participant (Corradi, 1991; Cunsolo Willox et al., 2013). Sharing a story is a special experience whereby listening the researcher becomes a learner and the

teller engages in reflection about past experiences and the very act of sharing those experiences might change the storyteller's perception of the past (Rappaport, 1995; Paschen and Ison, 2012).

The storytelling process can also contribute to strengthening the intergenerational knowledge transmission crucial for many indigenous peoples. Knowledge and language transmission are important for maintaining biocultural diversity: several studies point at the geographical overlap between high biodiversity and high cultural diversity measured for example in the diversity of languages or ethnical diversity (Maffi, 2004; Gorenflo et al., 2012). “Paying” attention to language structures and semantics “can reveal” symbols and conceptualisations under different worldviews in relation to wildlife, landscapes and human and non-human beings (Lewis and Sheppard, 2005; Fernández-Llamazares and Cabeza, 2018). The grammar and vocabulary of a particular language have been shown to influence the non-linguistic thought of the speaker (Björk, 2008). Thought, language and culture all depend on and influence each other in verbal and nonverbal communication processes. Therefore, our way of communication reflects the specific socio-cultural context of the communicator (Björk, 2008). For example, as pointed out before, for many Amerindian communities the two distinct spheres of life (nature and socio-cultural) are not conceivable, according to Zent (2015): “they do not have words equivalent or even approximate to our idea of nature, neither do they have words to label our corresponding socio-cultural sphere.” What we want to stress is that since different linguistic patterns and categories of conceptualisations of nature can produce different thought and behavioural patterns, being exposed to narratives from various cultures can expand what is possible to imagine, and prompt us to evaluate our internalised concepts and categories and even our feelings toward nature and non-human beings (Björk, 2008; Zent, 2015; Fernández-Llamazares and Cabeza, 2018; Trisos et al., 2021).

Similarly, thinking in non-verbal categories altogether can also open up alternative ways of feeling and connecting with stories. This can be seen not only in adage's like “a picture is worth a thousand words,” but also the insurgence and focus on visual storytelling and communication that has been shown to surface and elicit underlying emotions and conflicts more easily than verbal communication (Bell and Morse, 2013; Polfus et al., 2017). Visual storytelling activities, such as photovoice, photostories and especially participatory video are also increasingly used with communities and especially with Indigenous or marginalised communities (e.g., Bignante, 2010; Bennett and Dearden, 2013; Polfus et al., 2017; Berardi et al., 2017; Spiegel, 2020). Those methods can serve as powerful and empowering tools as they can literally illustrate different ways of seeing by creating concrete visual representations of different stories and narratives (Berardi et al., 2017; Moore et al., 2019; Spiegel et al., 2020). Thus, the multiple formats storytelling can take, holds space for diverse representations of knowledge (Trisos et al., 2021).

A Narrative Lens for the Pluriverse

Narratives are highly contextual and situated (Satterfield and Slovic, 2004; Fernández-Llamazares and Cabeza, 2018). In this sense, using a narrative lens in our metaphor means addressing

context as an integral part of the engagement/research process. Such emphasis can aid to envision social-ecological issues in a more integrated and holistic way by evidencing social, political and cultural factors together with ecological ones in marine systems (Boucquey, 2020). This can help to move from the reductionist paradigm of WSK toward a more relational ontology that focuses more on the relationships between different elements in nature instead of isolating and breaking problems down. In addition, evidencing the narrative discourses of WSK helps to move away from the common understanding that WSK is “the way things are” and to describe everything else simply as “other.” In the practice of recognising WSK as part of a specific ontology with specific narratives embedded in it, other knowledge systems and ontologies can be made visible as well. We envision this process as a positive enhancing loop: on one side acknowledging the role of context (social-political-historical) in marine research can aid to reveal specific narrative discourses embedded in science. At the same time, explicitly talking about narratives in WSK can help to surface such context. Thereby, sharing and listening to narratives can be a way of bridging this gap and an approach that holds space for a multiplicity of narratives, stakeholder perspectives, ways of knowing and in turn enable the co-existence of multiple worlds.

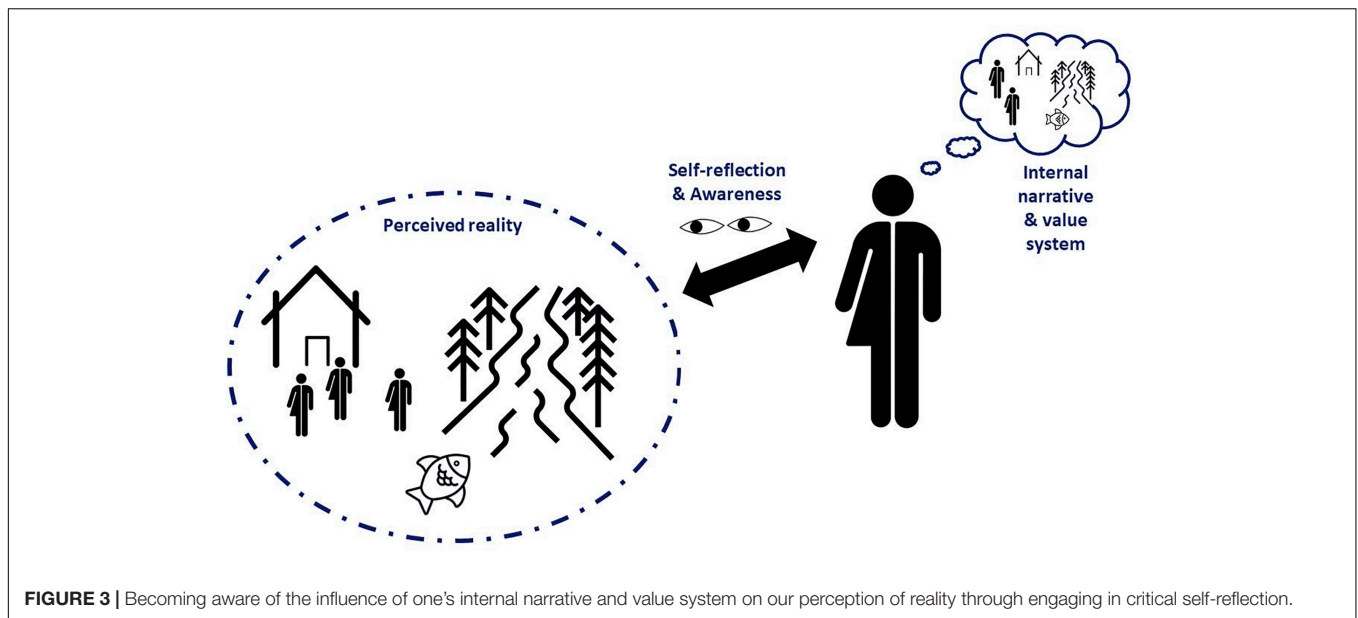
From a disciplinary and epistemological perspective, the narrative lens as we describe it has many simultaneous methodological homes. As such, we are not proposing or creating a new framework for engagement or a specific set of tools. Instead, we want to promote existing and well-established approaches that have been developed and to highlight their commonalities and applicabilities for different situations. There are a range of research approaches, frameworks and methodologies that can fall under what we describe as the narrative lens. The examples of such approaches that we would like to highlight are Indigenous methodologies and systems thinking. While IM was developed by Indigenous scholars focused on decolonising Indigenous methods and acknowledging Indigenous worldviews (Wilson, 2008), systems thinking developed within the WSK system in the 20th century as a paradigm to deal with messy and complex situations that cannot be addressed by establishing linear cause and effect relationships and using systematic tools (Reynolds and Holwell, 2010; Moon and Blackman, 2014). Despite the different contexts, they have been found to have many conceptual overlaps and have sometimes been used complementarily (Evans et al., 2009; Heke et al., 2019). Both approaches stress the importance of considering the wider context of an issue, to engage from a holistic perspective and to explicitly surface and create space for different perspectives, worldviews and stories. Relationality is at the center of IM and system thinking meaning that an object is not as important as the relationship one has with it and that exist between the elements in a system (Tuhiwai, 1999; Wilson, 2001, 2008). IM are inherently relational because, as previously mentioned, they stem from relational ontologies, in the words of Indigenous scholar Wilson: “reality is a set of relationships.” Even though there are many different systems thinking approaches, the key aim is to reveal the interconnected and emergent properties of a system, rather than focusing on analysing individual elements

or outcomes (de Lara, 2020). In addition, both sets of approaches highlight the importance of critical self-reflection as a crucial part of the research process and of adaptively engaging in a situation with a learning mindset. Instead of being driven by a step-by-step framework, IM are driven through critical self-reflection of the researcher (Kurtz, 2013), and the methodology must be developed considering how respect, responsibility and reciprocity relate to the relationship between researcher and the study subject and community (Wilson, 2001, 2008). At the same time, systems thinking stresses the importance of acknowledging the different worldviews that can be held by various stakeholders in a system and to explore the implications of co-existing plural worldviews (Reynolds and Holwell, 2010). Because at their core these frameworks emphasise relationality and holism, they can be fruitful and powerful to foster knowledge co-existence. A narrative lens and storytelling methods are suitable thus to be applied under any of these frameworks since their focus on context and relationality is fertile for the emergence of narratives.

A Narrative Lens for Iterative Self-Reflection

Narratives are not only a product resulting from an exchange, but also a social process that is not only a method of “accessing and sharing” knowledge, but also a way to enact and create situated knowledge (Cortazzi, 2001; Paschen and Ison, 2012). Due to the potentially impactful nature of this experience, self-reflection for everyone involved in this process is crucial and is one of the core elements stressed by both, Indigenous methodologies and systems thinking. However, we stress this adoption of a narrative lens especially for researchers rooted in WSK as it has often been highlighted that Western scientists might be able to see the cultural context of IK, but are less likely to see the cultural context of their own knowledge (Forsyth, 2003). This is largely due to the currently dominant positivist and systematic paradigm, which is usually presented to be objective and value-free (Reynolds and Holwell, 2010). However, as previously described – no worldview is value-free but is always based upon sets of values that have developed in a particular context.

Self-reflection in this context includes examining relevant power dynamics in the moment, such as paying attention to who speaks and listens and the way the conversation is steered, as well as critically examining the social situatedness and power relationships of all involved in the exchange overall. Crucially, this means surfacing one’s internal stories and adopted community and cultural narratives and the way they might influence the research process. This has been described as the concept of “subject-object dualism” between the researcher and the storyteller (Bryman, 2012). It means recognising the importance of the influence the researcher itself will have on the process as they are the research instrument and who they are as an individual will influence the outcome of the storytelling process (Harding, 1993). Especially in the context of asking for and listening to stories about nature, there is no neutral position one can take since the way we think about nature is highly dependent on our values, internal stories and other narratives surrounding us (Cronon, 1992). Therefore, instead



of attempting to deny this impact, self-reflection can help to recognise and better understand the influence of one's identity in this process (Drapeau, 2002; Moon et al., 2019). Reflecting on our personal lives, culture and identity with a narrative lens that aims to identify the narratives occurring at those multiple levels can help to bring awareness to recognising the meta-narrative of our knowledge production system. This allows us to develop awareness of our positionality as researchers within it by reflecting upon specific elements such as our value system and the influence of one's academic background, training and disciplinary perspective (Andersson and Törnberg, 2018). We summarise this process of self-reflection in **Figure 3**. This process should be a continuous cycle of self-reflection as we are constantly changing, impacted by new experiences and narratives we encounter as demonstrated before. Therefore, ensuring this space for continuous reflection can also allow researchers to change their roles and better engage with evolving local circumstances (Mistry et al., 2009). Recognising this plasticity of our internal stories and acknowledging their importance also facilitate empathising with other worldviews. This can potentially lead to a more complex perception of reality in which different views are considered when taking action. We think this is a discussion that must be encouraged among environmental researchers and conservationists since a big part of the complexity we deal with in environmental issues derives from contrasting values and worldviews.

CONCLUSION

Most current social-ecological conflicts are characterised by having multiple contested narratives about issues that stem from differences in perception, values and even different “reals” and that often relate to different stories and narratives at personal, community or cultural level. Even though such complexity might appear messy at first, it is crucial for providing context to those

situations and for recognising larger social, political and cultural elements influencing a given situation. Understanding those elements is important not only to gain a richer understanding of the development of this situation, but also to identify points for engagement and potential future positive directions. Therefore, engaging in those situations requires methods that can surface conflicting narratives and the associated values and conceptualisations of the current situation. Western scientific knowledge is not sufficient to address many of these situations due to its reductionist and positivist paradigms. Additionally, the historical ways in which Western scientific knowledge has established itself as the predominant knowledge system, has contributed to the oppression and silencing of alternative knowledge production systems. Moving better toward the future requires approaches that enable co-existence and foster the engagement with multiple ways of knowing and being. For this, we propose using a narrative lens to appreciate different ontologies and ways of being and knowing. Such a “lens” does not represent a new methodological approach but a concept that can be put in practice under already existing frameworks, including Indigenous methodologies and systems thinking, that have been developed with similar core components. Those core components are acknowledging the importance of context for a given situation, having a holistic approach focused on the relationships between various elements in this situation and relying on iterative adaptive engagement and continuous self-reflection.

POSITIONALITY STATEMENT

Inspired by similar reflections by other authors and in accordance with the ethos of this review, we want to provide some context on the origin and development of this review. We especially want to acknowledge our perspective as two early-career researchers with a background in the natural sciences that have been moving

toward a more holistic and systemic understanding of social-ecological systems. We chose to focus on narratives because they felt like both, the core of much of the tension we've often felt during our scientific training, as well as a possible way of working through those tensions and connecting with others holding different perspectives. Similarly to the non-linear nature of narratives, our process of writing this review has been very non-linear. It does not represent a systematic meta-review, but instead reflects our journey through this topic given our own narratives and background. One of the early turning points for us was realizing that the discourse of integration itself keeps perpetuating the idea of Western science knowledge as the legitimate knowledge under which Indigenous knowledge has to prove its validity to. This reflects our background in the natural sciences, driven by a strong focus on the application of new knowledge for existing problems or challenges and a common striving for universal theories that can be built by integrating different sources of knowledge into one coherent narrative. We were drawn to aim for quick solutions that sounded fair and would result in more tangible and easily achieved outcomes. However, we now see how the narrative about "knowledge integration" perpetuates the oppression of Indigenous knowledge by Western scientific knowledge and addressing these inequalities and previous negligence requires fundamental changes in the way we think about knowledge production and cannot be solved with quick fixes. Related to this, we were also wondering about the appropriateness and possible contributions that we, as non-Indigenous researchers with a Western scientific background, could make writing about these topics. By highlighting the ubiquity of the influence of narratives, we hope that we can contribute to mainstreaming conversations around our positionality, acknowledging that there is no neutral ground to operate from. Even though we've heard many Western natural scientists reflect on these questions, they are usually reserved for informal off-hour conversations, instead of reflected upon as part of the research process. While we want to promote the use of approaches overlapping with our proposed narrative lens, we don't want to suggest using new methods without adequate training and insight, of course. Instead, we want to stress that a consideration of one's values and background

through self-reflection are crucial for any researcher (or anyone, really) and should be stated and acknowledged openly during the research process. As the problems regarding dominant cultural narratives and discourses we describe are also mirrored in us, we hope to write for people like us to promote self-reflection and collective learning. To echo what we stated before, if there's one thing that's certain among the current wealth of uncertainty, it's the need for collective action, which requires listening to each other's stories to develop empathy.

AUTHOR CONTRIBUTIONS

JV developed the first idea of the manuscript that was later reshaped together with JJ. JJ focused on Sections "Introduction" and "Narratives: Shaping Our Values, Identity, Sense of Place, and Community" and designed the figures. JV developed sections "Contested Narratives From the Sea" and "Narratives, Ontologies, and Knowledge Production Systems." Both authors developed Section "Learning to Listen: Reflection, Holism, and Interrelatedness," contributed to manuscript revision, read, and approved the submitted version.

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