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Underwater

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Figure 1. Underwater: the view looking up toward the surface from a coral reef.

Humans attach diverse meanings, values, and practices to water and associated environments. Yet, as with the underground (*sensu* Hawkins 2020; Melo Zurita 2019), human encounters with aquatic environments tend to be at the surface or gazing upwards: a river spring’s resurgence, shadows cast by a fringing coral reef, or the beauty of river water falling over a vertical drop. Hidden below the surface, water percolates through soils, fills voids in bedrock, moves debris along riverbeds, and supports diverse species uniquely adapted to live under pressure (Figure 1). Through this essay, we bring attention to underwater “shadow places” (physical sites forgotten, repressed, unseen, and often damaged or harmed; see Plumwood 2008). These have, for example been used to sustain human lives and livelihoods and to dispose of human waste but have not been given sustained scholarly attention beyond focuses on ecology and biology, and extractive industries such as mining and fishing. Expanding on earlier work about human imaginings of oceans (e.g. De Loughry 2017; Hemrich 2014; Probyn 2016) as well as vertical and volumetric spaces (Melo Zurita 2019; Steinberg and Peters 2015; Straughan 2012; Eden and Bear 2011), we focus this essay on scales and experiential differences of being underwater, both human and non-human. Our goal is to inspire others to develop different ways of looking at, as well as witnessing and learning about, underwater places.

We begin with what it means to be underwater. While most might think of underwater as beneath the surface of rivers, lakes, oceans, or swimming pools, this is a limited perspective of

underwater, both spatially and temporally. Being underwater can happen in diverse ways, with varying effects, shaped by the size and location of the water as well as who or what is submerged. From a more-than-human perspective, insects such as ants or beetles might experience underwater within drops from a rainstorm. Similarly, void spaces in bedrock can become submerged underwater and rocks (such as limestone) can dissolve and form voids, filled as water infiltrates from above. These processes often occur at spatial and temporal scales outside common day-to-day experiences. Consequently, groundwaters have been shadowed in water use planning around the globe because of their invisibility and complexity (Linke et al., 2019; McLean et al., 2018). We wonder what it would mean for more humans to experience and interact with underwater and underground processes.

In thinking further about the temporalities of underwater, we see a need and an opportunity for creative approaches that engage with different ways of *being* underwater and their multiple spatialities. There is a need and opportunity for creative approaches to engage with being underwater at different spatial and temporal scales. Despite some discussion of human perspectives about the temporality of flooding, and what it means to be underwater in this situation (Walker et al., 2011), the temporalities of being underwater both from human and more-than-human perspectives remain underappreciated. For instance, research might further explore how relative hydrological permanence or ephemerality affects engagement and experience of being underwater. Transdisciplinary research and engagement are creating new possibilities through technology like Photofish (Garcia-Melo et al., 2019), which is often used by scientists to photograph underwater species, but such tools could be used to create new ways of encountering underwater worlds that are otherwise inaccessible.

We also see the need for broader recognition and consideration of experiential differences of being underwater. While scholars have written about experiences and encounters of the underwater, both in (e.g., Straughan 2012) and out (e.g., Eden and Bear 2011) of water, there remains a need to broaden our understanding of what ‘being underwater’ is or could be in relation to different people and environments. Humans can be underwater both in a bathtub or swimming pool - confined and structured spaces – compared to underwater in a lake, river, or ocean with more chances for unexpected encounters with other organisms and features (e.g., currents, thermoclines etc.). Equally, people from various cultures could experience being underwater differently. Further, we might question whether ‘being underwater’ require us to be physically submerged. For instance, Eden and Bear (2011) noted that fishers’ ‘encounters’ with fish were often from outside the water, on land, based on their observations of fish behavior through the waters’ surface, and their sensing and imagining of underwater environments through a combination of feeling, touch, and technologies. In this way, fishers sensed and constructed underwater environments, as both a challenge and pleasure. But how do these fishers’ out-of-water experiences of ‘being underwater’ compare with experiences of fishers underwater? In many tropical and sub-tropical aquatic environments, fishing occurs underwater (Johannes 1981), with fishers spending extended periods below the water’s surface observing, following, and catching fish and other species (Wagner and Jacka 2018).

Being underwater affords varied experiences and perspectives that could extend our understanding of human-animal relations from within the water. We ask: what is different between in and out-of-water human-nonhuman relations and experiences? Do people experience a different relationship with species from underwater than they do from above or alongside? What effect could these varied experiences have on more-than-human interactions, if any? Such comparative questions remain un-investigated, and we see a need for these to be extended to methodologies beyond use-based lenses (such as fishing) to expand our experiences underwater.

Finally, we recognize that humans cannot persist underwater for prolonged periods, at least not without technologies. Access and comfort with the concept of being physically underwater is mediated by culture (see Torgersen 2018, p.174), and can be influenced by disease transmission, and dangerous animals (see Hviding 2018, p.43). Being submerged also requires specific skills such as swimming, which can limit access, but also provide an opportunity for learning and exploring experiences and engagement through discomfort and being 'other'. Similar can be said for experiences and engagement with technologies like SCUBA or underwater autonomous robots that both provide access to underwater environments. There are different ways 'to be underwater' and opportunities remain to engage, listen, and learn within these environments. We believe that, while there is considerable scope for further research on embodied human experiences of underwater spaces, it is important that these do not overshadow nonhuman ways of being. Research on underwater places should build on emerging more-than-human research methods (e.g. Bastian et al., 2016), experiencing and interacting with heterogeneous forms of underwater life and view these all-to-often shadowed places from new perspectives.

References

- Bastian, Michelle, Owain Jones, Niamh Moore, and Emma Roe. *Participatory research in more-than-human worlds*. Taylor & Francis, 2016.
- De Loughry, Elizabeth. "Submarine futures of the Anthropocene." *Comparative Literature Journal* 69 (2017): 32-44.
- Eden, Sally, and Chris Bear. "Reading the river through 'watercraft': environmental engagement through knowledge and practice in freshwater angling." *Cultural Geographies* 18 (2011): 297-314.
- Hawkins, Harriet. "Underground imaginations, environmental crisis and subterranean cultural geographies." *Cultural Geographies* 27 (2020): 3-22.
- Hviding, Edvard. "The River, the Water, and the Crocodile in Marovo Lagoon." In *Island Rivers Fresh Water and Place in Oceania*, edited by John R. Wagner and Jerry K. Jacka, 27-57. Acton, Australian Capital Territory: ANU Press, 2018.
- García Melo, Jorge E., Luís J. García-Melo, Jesús D. García-Melo, Diana K. Rojas-Briñez, Giovany Guevara, and Javier A. Maldonado-Ocampo. "Photafish system: an affordable device for fish photography in the wild." *Zootaxa* 8 (2019): 141-172.
- Johannes, Robert E. *Words of the Lagoon: Fishing and Marine Lore in the Palau District of Micronesia*. Oakland, California: University of California Press, 1981.

- Plumwood, Val. Shadow places and the politics of dwelling. *Australian Humanities Review* 44 (2008): 139-50.
- Probyn, Elspeth. *Eating the Ocean*. Durham, North Carolina: Duke University Press, 2016.
- Linke, Simon, Eren Turak, Maria Gulbrandsen Asmyhr, and Grant Hose. "3D conservation planning: Including aquifer protection in freshwater plans refines priorities without much additional effort." *Aquatic Conservation Marine and Freshwater Ecosystems* 29 (2019): 1063-1072.
- McLean, Jessica, Aleshia, Lonsdale, Laura Hammersley, Emily O’Gorman, and Fiona Miller. "Shadow waters: Making Australian water cultures visible." *Transactions of the Institute of British Geographers* 43 (2018): 615-629.
- Melo Zurita, Maria de Lourdes. "Holes, subterranean exploration and affect in the Yucatan Peninsula." *Emotion, Space and Society* 32 (2018): 100584.
- Steinberg, Phillip, and Kimberley Peters. "Wet ontologies, fluid spaces: Giving depth to volume through oceanic thinking." *Environment and Planning D: Society and Space* 33 (2015): 247-264.
- Straughan, Elizabeth R. "Touched by water: the body in scuba diving." *Emotion, Space and Society* 5 (2012): 19-26.
- Torgersen, Eilin Holtan. "Waters of Destruction: Mythical Creatures, Boiling Pots and Tourist Encounters at Wailuku River in Hilo, Hawai’i." In *Island Rivers Fresh Water and Place in Oceania*, edited by John R. Wagner and Jerry K. Jacka, 165-185. Acton, Australian Capital Territory: ANU Press, 2018.
- Wagner, John R, and Jerry K. Jacka. *Island Rivers Fresh Water and Place in Oceania*. Acton, Australian Capital Territory: ANU Press, 2018.
- Walker, Gordon, Rebecca Whittle, Will Medd, and Marion Walker. "Assembling the flood: producing spaces of bad water in the city of Hull." *Environment and Planning A* 43 (2011): 2304-2320.

Acknowledgements

We thank the Shadow Places editorial team and two anonymous reviewers for their valuable comments that helped to improve this essay. SRJ acknowledges funding from the Welsh European Funding Office and European Regional Development Fund under project number 80761-SU-140 (West).