Ocean Acidification as a Hyperobject: Mediating Acidic Milieus in the Anthropocene

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Abstract

Through the usage of Timothy Morton's hyperobjects (2013) as a heuristic, this essay aims to portray how Ocean Acidification can be read as a hyperobject affecting tropical seawaters and beyond. Furthermore, it illustrates how the arts and humanities, through their hermeneutical gaze, might help us grasp Ocean Acidification as a hyperobject and the wide array of other objects that act upon each other in such acidic oceanic waters. In this task, the article will close-read the *Underwater Woman* set of pictures by Christine Ren (2018) understanding the interpretation of art as a tool to reconnect cognition and emotion to move from the understanding of a crisis to the feeling of such crisis. Finally, it aims to shed light upon the implications arising from considering Ocean Acidification as a hyperobject. By connecting the theoretical, visual and political in the same narrative, this essay highlights the transformative potential of interpretation and thinking through hyperobjects. With this, the challenges of the Anthropocene are put at the forefront, situating specific events and problematics in a planetary scale.

Keywords: Anthropocene, hyperobjects, ocean acidification, new materialism, environmental humanities.

Resumen

A través de la teoría de los Hiperobjetos de Timothy Morton (2013) como herramienta de análisis, este ensayo trata de ilustrar cómo la acidificación oceánica se ha convertido en un hiperobjecto, afectando las aguas más allá de los trópicos. Con esto en consideración, el ensayo busca analizar la manera en la cual las artes y las humanidades, a través de su mirada hermenéutica, pueden ayudarnos a comprender estos hiperobjectos junto con los diferentes objectos que actúan sobre ellos mismos en un entorno ácido. En esta tarea, analiza el set de fotografías *Underwater Woman* de Christine Ren (2018), comprendiendo la interpretación del arte como una herramienta para reconectar cognición con emoción, moviendo el sujeto des de la comprensión hasta la experiencia sensorial de la actual crisis. Finalmente, el artículo trata, de manera muy ambiciosa, de arrojar luz sobre las implicaciones que tiene discernir la acidificación oceánica como un hiperobjeto interconectado con otros agentes. Comprendiendo lo teórico, lo visual y lo político en una sola narrativa y sumergiéndola en un medio subacuático ácido, este ensayo destaca el potencial transformativo que tienen la interpretación y el razonar a través de hiperobjetos a la hora de entender los retos de la época actual situando los problemas y eventos específicos del Antropoceno en el centro de la cuestión en una escala planetaria.

Palabras clave: Antropoceno, hiperobjetos, acidificación oceánica, nuevo materialismo, humanidades ambientales.

In her work called *The Underwater Woman* (2018), Christine Ren presents the audience with different sets of images that trigger the viewers to recast and reconsider different problems and crises that are happening below the sea surface. In a storytelling manner and with an eclectic set of skills and disciplines that mixes photography, apnea, performance, dance and marine science, Ren dives deep into the issues that are threatening the seawaters of the Earth in a local and global sense. From jellyfish blooms due to the unbalance of ecosystems due to climate change to trawling nets and overfishing, the evocative and performative media Ren creates, allows the viewers to immerse themselves underwater and expand their understandings of the imagery common to the current anthropocentric view of Western rationalist ideology. In this sense, the conjunction between the performative arts and biology become one in order to broaden the perspectives of the viewers, unifying disciplines that have been separated in their discourses for many decades.

Figure 1: Underwater Woman by Christine Ren, 2018

This essay aims to utilize an Environmental Humanities and New Materialism lens in order to demonstrate how Ocean Acidification (OA) can be read as a hyperobject, immersing the analysis in an underwater milieu that challenges terrestrial Western ontological and phenomenological structures. Thinking through hyperobjects means that the different problems that OA causes in the tropics need to be situated in a planetary scale in the Anthropocene. As the Planetary Boundaries have shown[1], OA, species extinction and global warming are part of the same problem and should be understood as interrelated.

[1] The Planetary Boundaries frame the safe operating space for humanity in the Anthropocene, proposing nine processes that regulate the stability and resilience of the Earth system. Crossing one of them is thought to have non-linear catastrophic planetary consequences. These are: stratospheric ozone depletion, loss of biosphere integrity, chemical pollution and the release of novel entities, climate change, ocean acidification, freshwater consumption and the global hydrological cycle, land system change, nitrogen and phosphorus flows into the biosphere and oceans, atmospheric aerosol loading (Rockström et al., n.p.).

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Furthermore, the essay seeks to portray how the arts and humanities, through their hermeneutical gaze, might help us grasp OA as a hyperobject in relation to the different objects that act upon each other in acidic waters. By close-reading the *Underwater Woman* pictures by Christine Ren that deal with OA, this article thus argues that artistic representations can be crucial for generating awareness in people unacquainted with current climate science. This process reconnects cognition and formal knowledge with the world of emotions. Finally, it ambitiously aims to shed light upon the different implications coming to terms with OA as a hyperobject interconnected with other agents. As such, the ocean becomes an element that helps us theorize the materiality of history, placing itself as a space of narratives that can challenge anthropocentrism and the given stories of human history.

In the turmoil of the vast number of global ecological crises currently ongoing, this essay focuses on the set of Ren's images that deal with Ocean Acidification. It is not a random choice but, in fact, one quite helpful for making clear that certain crises flowing invisibly with uneven temporal and spatial frames can be rendered visible in art. The artworks mediate these crises in ways accessible to the human eye by enacting a union between the rational findings of factual sciences and the hermeneutic and cathartic nature of certain artistic disciplines. In other words, by connecting the theoretical, visual and political in the same narrative complementing each other, this essay illustrates the transformative potential of interpretation and thinking through hyperobjects with the help of OA and Ren's work. Such a study reveals that Western rationality and the anthropocentrism of the current epoch might not be the best practice for coming to terms with events that happen in temporalities and spaces that human rationality itself cannot fully experience. Hence, mediations and a unity between the sciences and the performative arts might break the outdated division between them in a crisis that calls for cooperation, attentiveness, and care in a non-anthropocentric way.

With this, the challenges of the Anthropocene are put at the forefront, situating specific events and problematics in a planetary scale. That is, this article aims to contribute to the dismantling of the problematic "rationalism" by immersing analysis in an underwater and acidic milieu that will expand and reshape ontology, phenomenology and epistemology. By doing this, the rationalist and anthropocentric view that has dominated hegemonic capitalist human culture is challenged, arguing that the arts and the humanities together with scientific findings can steer the viewer towards a better and more egalitarian comprehension of the ecological crisis, weirding the coherence of the rational world as we know it.

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Acidic Waters

Since the Industrial Revolution, the pH value of the oceans has fallen from 8.2 to -8.1. With a logarithmic nature, this drop in the pH of seawater represents an average of a 30% increase in acidity over the past two centuries as the ocean acts similar to a sponge to capture and store CO2 released into the atmosphere, making us go back 55 million years so as to find a similar process in terms of Ocean Acidification (OA) (Hayes 3). OA

occurs when CO2 is absorbed into seawater at a high rate. When this absorption takes place, chemical reactions happen. CO2 reacts with water molecules (H2O) to form carbonic acid (H2CO3). This, in turn, breaks down into a hydrogen ion (H+) and bicarbonate (HCO3-) generating, with the presence of all these hydrogen ions, a decline in the pH of the water or, in other words, acidifying seawater (NOAA n.p.).[2] These reactions "reduce the seawater pH, carbonate ion concentration and saturation states of biological important calcium carbonate minerals" (NOAA n.p.). In areas that are bountiful in terms of sea life, seawater tends to be supersaturated with calcium carbonate minerals. Calcium carbonate minerals are the foundation of skeletons and shells of a wide array of marine lifeforms. Thus, ongoing acidification is de-saturating many oceanic ecosystems to become undersaturated with calcium carbonate minerals, affecting the ability of some organisms to produce and maintain shells (NOAA n.p.). To put it another way, and although fully portraying this goes beyond the scope of this article, there is a historical-materialist connection between the history of capitalism and OA, and how capitalism has generated the unbalanced and multispecies/multiobject nature of the Anthropocene that, sooner or later, will have a global presence due to the transgression of the Planetary Boundaries.

Yet, acid oceans can only be perceived through mediation. This means that bodies need to be submerged over a notable period of time to start sensing these chemical changes in the environment. Unlike other events such as coral bleaching, it is not visually spectacular and, unlike human-generated debris at sea, it is more difficult to conceptualize and isolate as an event (Hayes 3). OA is then rather-invisible and less immediate in terms of aggressiveness due to its chemical nature compared to other stressors such as sea-surface temperature rises, trawling or seafloor mining. Yet, in such an acidic milieu, bodies are undone, put at stake and recast in their uncanny surroundings.

Here it is pivotal to acknowledge the obvious yet oft denied fact that human culture is always inherently connected with the physical world, despite claims that humanity has disentangled itself from the world through technology. Recalling our entanglements now, in the Anthropocene, requires new ways of perceiving ecology such as theoretical and mediative modes of understanding that describe the current epoch as constituted by infinite flows and forces (Alaimo 16). In this light, the ocean is no longer the *aqua nullius*[3] realm. Human intervention and capitalist accumulation have affected in one way or another most of the Earth's oceans and seas. These seas and oceans are now "understood in terms of its agency, its anthropogenic pollution and acidity, and its interspecies ontologies— all of which suggest that climate change is shaping new oceanic imaginaries" (DeLoughrey 34). In other words, it allows human beings to reconsider their existence and challenge established beliefs as meaning itself is put into question. Therefore, thinking ecologically here makes us situate the thinking body in a specific ecological field, understanding the roles that the different materialities play and how they constitute the

[2] Formula: CO2 + H2O → (H+) + (HCO3-)

[3] Paraphrasing *Terra Nullius* as the land of none, concept appropriated during colonization processes, *Aqua Nullius* was the last stage of the oceans and seas before being absorbed by the omnipresence of humankind (DeLoughrey 34).

exceptional relations between the body and its environment in the Anthropocene (Hayes 21).

As Timothy Morton (2018) pointed out, ecological awareness is a "detailed and increasing sense, in science and outside of it, of the innumerable relationships among lifeforms and between life and non-life" (*Being Ecological* 128). Therefore, theoretically speaking, the task of the Environmental Humanities is not just coming to terms with this statement, but also to figure out what this interconnection means in the realms of sensing and acting. Thus, here Morton's concept of *hyperobject* (2013) becomes of noteworthy relevance. Hyperobjects are "things that are massively distributed in time and space relative to humans" (*Hyperobjects* 1), which can be human-made and non-human entities, and share some common traits: all of them are viscous, molten, nonlocal, phased and interobjective. Hyperobjects are entities that exceed human apprehension due to their vastness, yet we can sense them in specific local manifestations. Therefore, hyperobject theory poses challenges to the ideas of nation, state, border, individualism, ecology, culture, ontology, anthropocentrism and capitalism. In fact, thinking through hyperobjects questions if a multispecies and multi-object knowledge is possible and how current narratives can be challenged. Furterhmore, this approach might help us adopt a theory of a structured natural necessity or nature of being in relation to how beings are modified in time and space, and how these changes can be philosophically understood in their milieus. In other words, approaching elements from this lens allows us to grasp the incongruences of time and space when it comes to non-anthropocentric agents and how relationships are not linear or balanced since most of the relationships between human and non-human entities need to be understood in a time and space different from our own.

Ocean Acidification as a Hyperobject

Ocean Acidification can be perceived as a hyperobject as it seems to meet, *a priori*, the five features of hyperobjects. OA is *viscous,* as it adheres and affects the different living and non-living agents touched by it. It portrays an ecological interconnectedness that cannot be untied. Thus, thinking through and coexisting with OA leads us to the logical and material discernment that, as a hyperobject, the more you try to get rid of OA, the more you realize it is there. To put it another way, all lifeforms immersed in acidic waters are, in one way or another, affected by OA. Shells dissolve, coral reefs perish, and ecosystems as a whole become victims of this acidification. This viscosity sheds light upon the different simultaneous and contradictory temporalities and "the breakdown and (re)formation of new multitemporal relations" (Bastian and van Dooren 7).

In turn, OA is also *molten*[4]. Like climate change, OA is molten in terms of time and space in the sense that it stretches and reshapes to such vast extent that, even though it might be part of most of the seas and oceans in the world, humans are not able to logically

[4] Although Morton used the term "temporal undulation" in *Hyperobjects* (2013), this essay aligns with the concept of "molten" proposed by Morton in *The Ecological Thought* (2010).

grasp its limitations, making OA an uncanny realization. In other words, humans are "faced with the task of thinking at temporal and spatial scales that are unfamiliar, even monstrously gigantic" (*Dark Ecology* 25). Thus, the naked eye and human linear consciousness are unable to grasp the different, uneven, multiple time-spaces and realities in the current planetary epoch. OA is therefore an entity that lets us know that it exists, but we become accustomed to its existence without being able to perceive it as a whole. This is because humans have a logic based on a terrestrial milieu.[5] That is why, when we observe OA by an underwater lens and regard ontology, one can actually understand the fact that non-acidic oceans have become strange and acidic oceans have become the norm. In order to come to terms with such trait, artificial mediation is needed to enable humans to fully grasp the molten existence of OA.

Furthermore, OA is nonlocal and phased. Its nonlocality is defined regarding the fact that hyperobjects are never experienced directly, since the immediate appearance of a hyperobject in the physical world does not correspond to its reality. To put it another way, as Morton (2013) postulated, "nonlocality means just that – there is no such thing, at a deep level, as the local. Locality is an abstraction" (47). It would take a lot of time for a human to perceive OA as it is without being immersed for a large period of time underwater, but we can in turn perceive it through the causes OA has in direct or indirect terms: ecosystem degradation, species extinction, scarcity of resources for local fisheries, just to name a few. In terms of phased agency, OA seems to be a parallax that comes and goes between and through different objects in three-dimensional space. However, if provided with another multidimensional lens, this would appear to be very different. In this light, climate change, fine dust, the biosphere or black holes are all hyperobjects if we consider the ideas of nonlocality and phasing (Eperjesi 238).

Thinking through non-locality might allow theoreticians to expand the time-space framework in which ecological agents, objects and events unfold and intertwine with one another. In light of this, when we see that OA is affecting in the most severe way the South-Pacific Ocean and the Tropic of Capricorn (Earth Institute n.p.), thinking through the non-locality of OA makes us go beyond the framed region itself, acknowledging that a) OA is uneven in a planetary scale and b) the causes of OA are not found in the framed region per se. To put it differently, and although it is beyond the scope of this work to develop a full cause-effect narrative between globalized extractive capitalism perpetrated by the global north and OA, it is pivotal to understand that this causality is a fact as postulated by the Planetary Boundaries theory.

Going back to the tropics, Australia is the world's largest exporter of coal, iron ore, bauxite or alumina amongst other mining assets. The extraction of these goods by far exceeds its domestic consumption (Granwal n.p.). As one of the countries that will be affected the most by the transgression of the Planetary Boundaries, Australia is

[5] Human knowledge is terrestrial in the sense that the milieu in which humans coexist and interrelate with human and non-human entities is based on solid ground. As Melody Jue (2020) considered, when we are put in a milieu that is not terrestrial (for instance, when scuba-diving) the conceptions and feelings of time, space, mobility or breathing, for instance, are put at stake and brought to a new realm. Thus, it might be interesting to try to veer towards this kind of non-terrestrial thinking when approaching coexistence, multispecies interactions and ecological thought.

nevertheless not addressing the problem seriously. Many areas, especially the Whitsundays/Cairns areas, solely rely on an ecosystem that is dying due to the transgression of the Planetary Boundaries and the eco-tourism that takes place there: the Great Barrier Reef. However, although it would be relatively easy to blame Australia due to its proximity, industrial and mining force and their consequent emissions of pollutants over other countries such as Papua New Guinea, Fiji or the FSM in the South-Pacific Ocean, in terms of the generation of OA, as a non-local hyperobject, OA allows us to stretch the causes to the world-ecology system. That is, for instance, one should not turn a blind eye to the fact that currently China is probably the major polluter in the world (Lu et al. 1423). Nonetheless, this is also an event of non-locality. The main reason why China is a major polluter, and—hypocritically—pinpointed by other countries as such, is because companies from all over the world, have moved their production to China and Southeast Asia. They have done so to reduce labor costs, have easier access to cheap labor in general, and get away with fewer environmental regulations (Eperjesi 240). Pollution generated there is a symptom of a transboundary generation of pollution in the production-accumulation system in order to satisfy the demand of goods in the global north. However, this phasing moves even further away from mainland China and Australia, to put OA in a planetary scale as a consequence of coal-burning, mass-accumulation or transportation worldwide.

OA is thus viscous, molten, non-local and phased. The sense of time-space in which OA flows makes it, as already aforementioned, very difficult for the human eye and consciousness to grasp. Hyperobjects that flow in such time-spaces are like an "ultra-slow-motion nuclear bomb" (*Hyperobjects* 125), as their effects are almost invisible until, in this case, entire ecosystems perish.

Finally, OA is interobjective as it is formed through and has effects on the relationships it generates with other objects. OA, in this sense, gets enmeshed in the strange interconnectedness in which almost all entities exist. Understanding such a vast mesh of relationships and agencies can lead one to understand the signification of thinking through hyperobjects. Namely, OA generates meshy relationships with full marine ecosystems, from plankton to sharks, from coral reefs to whales. In a multispecies and multi-object world, thinking about OA as a hyperobject, makes even clearer the meshy relationship that exists between human and non-human living beings, and beyond-human agents. As Bastian and van Dooren (2017) highlighted, "in these and other fundamental ways, this is a period in which relationships between life and death, creation and decay, have become uncanny; no longer entailing what was once taken for granted" (2). Then, as stated in the introduction of the text, realizing the existence of this mesh of different relationships makes us rethink the temporalities, spaces and synchronizations of the different lifeforms and forms of life that play part, in one way or another, within the mesh.

This interobjectivity, in turn, puts front and center the force of capitalism in the Anthropocene. Human activities based on the grounds of capitalist accumulation and the consequences it entails have infused non-human ecosystems with new substances that are alien to them. The different narratives of hyperobjects highlight the fact that "the battle against the capitalist production of climate change must be waged at several levels

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simultaneously" (Hartley 165). As a consequence, new meanings, relationships and (de)synchronizations between human, non-human and beyond-human entities have been generated. To put it another way, thinking through interobjectiveness in the mesh of the hyperobject that OA seems to be, allows us to discern harmful alien agents that should not be in a given ecosystem, and yet that enter a synchronized system, desynchronizing and, in most of the cases, destroying the ecosystem itself.

Hyperobjects in Morton's formulation seem, however, to embed some proliferating contradictions in our coexistence with other objects. They confront us with the strangeness of the world and an anti-romantic view of nature itself while, at the same time, generating a greater feeling of knowing and intimacy with the entities that surround us (Heise, 2014). Nonetheless, and considering these critiques and weaknesses, if we understand that the Earth is not just a non-living entity but a living one in the biological sense sustained by the different knots of life and complex physiological and ecological processes, hyperobjects allow us to move well beyond the traditional view of ecology. That is, reason as an element coming from the Enlightenment is put into question and the idea of humanity as the center of life crumbles down because it starts to make no sense if we are to understand such vast and non-even processes. In addition, and as discussed below in this text, the recognition of hyperobjects might mean the end of modernity and reason as we know them in our multi-entity world similar to Gaia.

Therefore, thinking through OA as a hyperobject demonstrates the fact that we are living in the Anthropocene, an epoch that does not affect all regions at the same level or at the same time. Nevertheless, this patchiness will start to become blurrier as effects of these transgressions will move from the local catastrophes to the planetary scale. Finally, this realization also acknowledges the risk that not coming to terms with these hyperobjects that are gigantic and imperceptible without being mediated, can generate the transgression of the thresholds established by the Planetary Boundaries.

The effects of OA are not directly perceived by humans due to their slow-motion nature, invisibility and non-locality when seen through a three-dimensional lens. Thus, coming to terms with OA and its hyperobjectic nature calls for a rejection of human rationality extrapolated to natural ecosystems from a Cartesian, Spinozian or Leibnizian tradition. This rejection is necessary because these modes of reflection lead to an understanding of the physical world from anthropocentric models based on a terrestrial milieu as a starting point of analysis. Therefore, this postulation allows us to acknowledge that environmental ecology benefits from being discerned as an epistemological system based on an understanding of nonlinear systems and causality, including human, non-human and beyond-human agents in the mesh. Namely, it calls for a perception that rejects anthropocentric linear understandings, as linearity deprives them from the ability to unfold or unpack their agency in theoretical terms (Guattari 45; Bastian 99).

With that said, according to mainstream concepts, rationality presupposes that by knowing a subject from the outside, it can be grasped completely, whereas a hyperobject cannot be grasped in this way. It calls for the aforementioned deviation from traditional reason towards an ontology that discerns the planetary ecology as a world in which living and non-living agents coexist and interact with each other on their own individual and

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collective terms, and that get intertwined in the knots of life that shape ecology itself. Therefore, thinking through hyperobjects from a new materialist lens allows us to question anthropocentrism and the Anthropocene itself, as human culture as a product of the material world must be understood and analyzed as part of ecology and nature, not as its antithesis.

Mediating Hyperobjects: The Case of the Underwater Woman

Thus, to mediate OA in order to understand it, one needs to go beyond the 'natural' or the 'rational' to put it in a timescale understandable for the human three-dimensional perception at first sight. Here it might be interesting to think through Santiago Zabala's (2017) assumptions on art and emergency. For Zabala (2017), in the current age of globalized late-capitalism, every socioeconomic, cultural, political and ecological phenomenon is put at stake through an objective analysis. Only what is confined in the rationality of calculability is seen as the real, while the rest is obliterated from the discourse. Therefore, even though OA can, be calculated through scientific reason in a way, it is very difficult to generate a discourse that allows the current rationality of the system to frame all the dangers it entails from a multispecies and multi-object perspective.

For Zabala (2017), the biggest emergency of all is the *lack of emergency*. In other words, although the media apparatuses are bombarding societies with emergencies, the current hegemonic conception in industrialized countries is that nothing new happens. Thus, reality seems fixed and secured, framed within ideology and seen through an invisible infrastructure (Zabala 7). In light of this, it is no surprise that the transgression of four of the nine Planetary Boundaries and the fact that planet Earth is facing no-return thresholds in the near future is in fact "an indication that the emergency they entail for our lives is hidden, absent" (*Why Only Art Can Save Us* 94).

According to Zabala (2017), as a hermeneutics philosopher, "the truth of art no longer rests in representations of reality but rather in an existential project of transformation" (10). Interpretation becomes an event that adds vitality to artistic representations, mobilizing our internal self. The shock produced by an artistic representation puts at stake the established and rational truths, calling for a consideration of the Other, such as the non-human agents. This process aids the viewing subject to recast and refine their political and cultural ideas with each situation so as to avoid falling into the capitalist realism surrounding us. To put it another way, interpretation becomes crucial in order to avoid clinging to the ideological principles that are inherent in capitalism in an automatic manner. As Zabala (2017) illustrates, artistic representations might inform us of the emergency at hand and also make us participate in a hermeneutical exercise to "call into question our comfortable existences" (122).

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Figure 2: Underwater Woman by Christine Ren, 2018

In this sense, images such as *The Underwater Woman* by Christine Ren (2018) help us approach the dangers of OA, its hyperobjectical traits and the emergencies it entails. The set of photographs portrays a woman entangled in different elements or events that are endangering the oceans (microplastic debris, trawling, overconsumption, coral bleaching and ocean acidification)[6]. This set, in turn, reveals the fact that humankind and its practices are directly linked to these ecological calls, and that we are directly enmeshed with them. These frames raise the question of emergence because they alter the notion of the mesh. That is, bearing Zabala in mind, they shed light upon emergencies in an alien milieu, quantified through rationality as individual emergencies but not connected with the different entities entangled in the mesh. Realizing this belonging and dependency to a holistic multispecies and multi-object mesh, renders subjects disoriented. What is crucial then is that the subject is positioned vis-à-vis its dis-reorientation, not asking questions on "who is lost or who is foreign, who is comfortable or who has colonized, who decides where maps stop and start, but rather what kind of relationality explains who feels dis- or re-oriented" (Martin and Rosello 1).

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[6] Although they are not presented in the visual material integrated in the text, the different representations and performances by Christine Ren can be accessed and viewed here: http://www.theunderwaterwoman.com/

Figure 3: Underwater Woman by Christine Ren, 2018

Interesting for this article is the set of images that represent OA in Christine Ren's work. In these images, the mermaid, who resembles Botticelli's Venus in *The Birth of Venus*, is blowing air underwater towards a nautilus shell, dissolving it in the process. Seemingly inspired by David Liittschwager's shell photographs for the NOAA PMEL Carbon Program (2017), the carbonated air the mermaid is blowing is in fact acidic and puts into question the agency of humankind and its modus vivendi. Through the different elements present (humankind, acidic water, the ocean) and absent (reminiscences of accumulation, pollution or globalization, for instance), this project enhances hermeneutic engagements and critical connections between the different agents that play part in OA. As briefly mentioned in the introduction of this essay, Ren challenges Western rationality and, with the union of different artistic and scientific disciplines, tries to modify and recast the narrative and the underwater imaginary that said rationality and anthropocentrism entail.

The choice of colors also appears as a very important element for Ren in order to create a coherent narrative and an illuminating experience for the viewer. The usage of very pale tone on the mermaid's skin contrasting with an almost pitch-black background with shades of dark blue reminds the viewer of the vast immensity of the ocean in opposition with the human. From a speculative lens, one could also say that the pale tone of the mermaid's skin, even though it is clearly inspired by Greek and Neoclassic sculpture, suggests the deathly agency humankind has acquired in terms of ecological degradation. The corpse-like tone and the inexpressive face of the mermaid, together with the carbonated air that the mermaid is blowing, can steer the viewer towards the realization that humankind is, in fact, dead inside. This realization can hardly be deemed coincidental, at least in terms of the motto and aims of Ren's work, since it has been this deathly anthropocentrism what has led the world towards an unparalleled ecological destruction and, in this case, the crisis that OA poses.

With that said, this set of images shows us how the hyperobjects theory makes sense with reagard to OA. As aforementioned, OA takes part in time and space frames that

are uncanny or, at least, complicated to understand through human rationality, and it also reflects the existence of humankind together with, and inseparable from, the living and non-living agents that coexist together among us. By putting together a shell, carbonated air and a mermaid (half woman, half fish), the existence of OA as a hyperobject is brought front and center in a way that the human eye can perceive. In other words, the acidic elements of the ocean and its interconnectedness between the different agents that play part in this mesh is illustrated in just one frame.

To sum up, this work falls into the paradigm of the globalization of art as it addresses and provides coherence both to our own humanity and to the necessity of finding meanings that the paradigm of the lack of emergencies is unable to provide (Danto xvi). Artistic expressions such as this one, due to their straightforward yet allegorical nature, may not appeal to the individual connoisseur or the elevated knowledge of their viewers. This piece is clear in the message and intention it has, and it is very well stated in all the sections of the website where viewers can access this work. They also leave some room for the viewers to engage with them and think through them, putting the different crises that the ocean is suffering at the center of the debate, whether the viewer is acquainted with the problem at hand or not. With that said, images such as these ones have the power of meaning and the possibility of truth that depends upon the interpretation that viewers bring into play (Danto 155). As Zabala (2017) pointed out with Heidegger and Gadamer in mind, "hermeneutics does not seek compromises but interpretations, reactions and, most of all, interventions" (24).

As largely allegorical photographs, they aim to reconnect ontologically humankind with otherness, unmaking and reconfiguring the ways the viewers embody the experience of living in a world with acidic oceans. Thus, submerging ontology and thought, even if it is just metaphorically-speaking, is of paramount importance to think with, interact with and reconnect with the seas and the different temporal strands that co-exist there. As Stacy Alaimo (2011) pointed out,

> Submersing ourselves, descending rather than transcending, is essential lest our tendencies toward Human exceptionalism prevent us from recognizing that, like our hermaphroditic, aquatic evolutionary ancestor, we dwell within and as part of a dynamic, intra-active, emergent, material world that demands new forms of ethical thought and practice [...] thinking with sea creatures may also provoke surprising affinities. (283)

Consequently, the pictures portraying OA in Ren's work, when put under a hermeneutical and underwater gaze, force us to think differently in a non-terrestrial medium. In other words, immersing analysis allows the viewer to get disentangled from terrestrial biases, recasting ideas on the political, the cultural and the ecological. Therefore, new multispecies and multi-object engagements challenge the anthropocentric terrestrial existence, epistemology and ontology.

Furthermore, Ren's work also puts into question the instability of the Anthropocene. Referring back to Niall Martin and Mireille Rosello's disorientation (2016), with their connection between the human, the non-human animal and the non-human material, the photographs disorient the viewer. This disorientation, in turn, brings front and center some problematic aspects of humanity's agency and, thus, of the prefix

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Anthropos in the Anthropocene, shedding light upon its potential inadequacy in order to frame the current geological age. Namely, the set of images challenges the problematic that the Anthropocene poses by framing the planet as a holistic entity in a rather stable geological period. Even though one might think that the very idea of Anthropocene already puts the notion of stability into question, the idea of a period dominated by the geological agency of humankind leaves some blanks in the discourse that might steer the human perspective towards an acceptance of a domination of the Anthropos over the other entities. In this period, abnormalities become an accepted commonplace. And, although it is not the aim of this essay to fully develop on this matter, by abnormalities here one should understand, for instance, the idea of the physical and intellectual domination of humankind over the rest of the entities that co-exist on the planet. Therefore, the Anthropocene is, by no means, stable. The Anthropocene as an established term for the realist regime of geopower becomes central and alternative nomenclatures such as Capitalocene, Necrocene or Chthulucene arise in order to reject anthropocentrism itself. When new nomenclatures arise, theory, ontology and the environment are rethought and open new spaces for discussion, critique and engagement. At the same time, this debate becomes of paramount importance for original thinking regarding the agency of humankind, the power of mass-accumulation, the current state of emergency and justice from a multispecies and multi-object lens.

In addition, these pictures shed light upon the fact that what a priori seemed normal or a commonplace becomes suspicious as the set of pictures brings the abnormalities to the surface. To put it differently, the ocean is portrayed as an area in which humankind has become abnormal due to its extractivist and accumulative practices and that abnormality has become the norm in the Anthropocene. By scrutinizing the set of pictures on OA through hermeneutical interpretation, the viewer is able to recognize the abnormalities that are present both in OA and the Anthropocene while, at the same time, emotionally engaging with the ontological reparation of the different abnormalities. Namely, these pictures elude the historical ignorance about oceanic waters, at least their depths and living compositions; dedicating greater attention to the waters and their increasing acidity adds both to the fascination of the ocean and to the destruction of oceanic ecosystems due to human practices.

In light of this, it seems that the greatest challenge scientists have today is not to demonstrate, for instance, the fact that coral reefs are bleaching. What they are faced with is the unwillingness of governments to take real action as very few have put degrowth policies into the debate and the IPCCs and COPs have failed to bring real changes to societies. Moreover, although science has been extremely helpful in terms of explaining the causes of the current crisis, it has failed to connect with a wider, laymen-audience due to its complexity, desecrating the narrative and reconnecting with the lack of emergencies. Here, notwithstanding that visual media has been central in the conceptualization of the Anthropocene, this imagery has been left in a secondary position by scientific portrayals of the crisis. This, together with the overexploitation of certain topics in climate change media such as graphics portraying emissions, experts speaking or already classic images of glaciers melting, has led many to a feeling of exhaustion and

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detachment to what now seems mundane. Thus, there is the need to convey meaning with emotion. This necessity can be satisfied by the images presented by Christine Ren. They provide us with a connection between a scientific claim and an impactful representation that can appeal to an audience that is unacquainted with more formal knowledge of the crisis. The images originally connect the human and the non-human, making us think about the different relations that play a part, even if the viewer is not aware of what a theoretical hyperobject is. In other words, they allow the viewer to interpret the visual material from an underwater perspective, challenging Western rationality, reconnecting it with the realm of emotions. Consequently, the viewing process questioned and reframed in an alien underwater milieu.

As sociologist Peter Wagner (2016) put it, "the climate risk should have radically altered the human relation to nature, but it did not" (151). In this light, the inability to come to terms with hyperobjects such as OA calls for the sciences and humanities to join forces. This would allow these two broad disciplinary areas to reconsider what the "rational" is and to move beyond it towards a terrain of human significance and interpretation that steers beings towards an ontological intervention and the meaning of the emergencies. In other words, the arts and humanities, together with scientific data, can be important heuristics to illustrate the emergencies the world is facing because of their ability to create intensity and depth, difficult to find in other disciplines (Zabala 10). That is why, together with a rather hermeneutical approach, the arts and the humanities can be crucial to make the different emergencies of the contemporary world perceivable in the paradigm of the lack of emergencies but also to re-orientate the so-called "subject" itself. To put it more forcefully, and paraphrasing Jennifer Fay (2018), art and visual media help us observe and experience the current ecological crisis as an aesthetic practice that is both a risk and a necessity to come to terms with. Namely, as Lynn Badia, Marija Cetinic and Jeff Diamanti (2020) illustrated, thinking through and with OA in an interdisciplinary manner calls "for us to consider that what it means to be a human observer is to already veer toward and with an altered sense of meaning-making, detailing, and also weirding the coherence of the world" (6).

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Conclusion: Matter, Politics and Aesthetics in Acidic Waters

Objects, elements, or events such as Ocean Acidification exist in states that are impossible for the human eye to grasp fully and are hardly ever given full attention to their existence and interconnectedness with the other elements that surround them and interact with them. As Graham Harman (2012) pointed out, "entities such as chairs, floors, streets, bodily organs, and the grammatical rules of our native language, are generally ignored as long as they function smoothly. Usually it is only their malfunction that allows us to notice them at all" (15). Thus, the increase in levels of acidification and its unbalanced consequences can steer us materially and ontologically to clearer understandings of the different theoretical dimensions inherent to OA if perceived as a hyperobject. As Zabala (2017) highlighted, "we cannot simply observe, describe, and understand emergencies without being part of them" (112). Here, artistic representations

that trigger interpretation are of paramount importance. Hence immersing ourselves within an acidic milieu with the help of visual and artistic material makes us realize the materialism entailed in OA and its hyperobjectic traits without having to be experts in climate science.

Therefore, it is here where thinking through hyperobjects as a hermeneutical heuristic and, precisely, perceiving OA as a hyperobject can be very helpful to grasp the dissuasive agency of OA itself. As shown throughout this discussion, OA is not easily seen or perceived unless it is mediated somehow. Using the hyperobjects theory, together with the mediative tools that Christine Ren offers in her work, OA becomes something tangible for the human eye. Through subjective interpretation, the viewer can come to terms with the uneven and non-linear nature of such an event, the way in which it affects other entities and how it is an actual emergency in the current paradigm. Bearing this in mind, thinking through hyperobjects in the Anthropocene can help us understand that environmental law sometimes does not grasp the planetary emergency, centering itself instead on the role of states and the financial problematics embedded within them. Furthermore, it also allows us to come to terms with the fact that locality is an abstraction, and that abstraction is also necessary to frame factual policy and political activism in order to confront and portray the inconsistencies and recast the world-ecology.

The unbalanced nature and hyperobjectity OA represents in the current epoch, and the difficulties that reason has to come to terms with it, is a rather straightforward representation of the inadequacy of the established science, policy and economics approaches to understand the current ecological crisis (Sörlin 788). To put it differently, the belief that science alone can solve the situation in which the Earth and its living agents are at the moment is problematic since the central cause of this crisis is industrial, capitalist human practices that are claimed to be "rational." Hence, even though the current ecological crisis glides as an uncanny spectrum over human reason, it still remains ungraspable for many economically-rich populations. The dangers are believed to happen at a geological distance that cannot jeopardize the comfort of their lives. At the same time, and as proposed throughout this essay, these dangerous events occur in space-time scales that are too complicated to be perceived fully by most individuals unless mediated.

The arts, humanities and social sciences can potentially generate a shift that challenges established truths such as the paradigm in which domination is largely based on previous formal privileges, such as inherited capital and, thus, social class positioning. It is here where artistic representations that move beyond the connoisseur and the scientifically-aware public play an important part as they move beyond these previous formal privileges to generate both an internal and external dialogue in their viewers. To put it another way, pieces such as the *Underwater Woman*, break the boundaries of domination as they not only appeal to a well-educated viewer in the arts, but also more broadly. They reconnect cognition and emotion in a necessary way to overcome the current indifference and the feeling of routine most of the current climate change media poses. Nonetheless, in a world in which artistic, mediative and theoretical interventions and projects have been left aside, usually inaccessible for the less-wealthy or less-educated, the cultural, political and transformative dimension of art is undermined. Thus,

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one of the most important tasks that the arts, humanities and social sciences have is to bring this knowledge to a broader population while, at the same time, to give voice to the voiceless.

With that being said, the ocean presents itself as multispecies, multi-object space with profound and divergent modes of sensorial and phenomenal experience. This, together with the differences that terrestrial and oceanic milieus present, calls for analytic lenses that expand and include modes of embodied experience. The *Underwater Woman* set of images on OA allows the viewers to interpret and immerse their thoughts metaphorically in a manner that can recast and challenge the given reality and its ontological constructions. Consequently, it might open new spaces to generate connections with the nonhuman, understanding that scientific certainty and Western rational epistemology might need to be open to offer space for non-human interactions in a multispecies world. As a result, the unknown and the known are brought together to generate fruitful, egalitarian and multispecies/multi-object dialogues. When mediated, the ocean is presented as a space that is less alien. In turn, we experience it as more familiar and intertwined with human existence, calling for new ways of understanding it and relating with it, shedding light upon the emergencies and temporal compression of the Anthropocene.

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