

# 3

## IMAGINING JUSTICE WITH THE ABYSSAL OCEAN

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### The Abyssal Ocean

The abyssal ocean is entirely without light, except for the luminous signals emitted by the deep dwelling beings gifted with chemiluminescence.<sup>1</sup> Within abundant darkness lie cold, dark plains punctuated by seamounts, knolls, island arcs, and incised by trenches and valleys. Abyssal sonics bend and channel in correspondence with these topographies. Two known energy communities live here: the chemosynthetic ones that feed at the hydrothermal vents; and the detritivores, who are entirely dependent on pulses of nutrition from above. Food packages arrive in the form of carcasses, which take several days to sink through the water column before landing in a stir of sediment. Nutrition also falls in seasonal rains of detritus that comprise spent phytoplankton and zooplankton from the surface.<sup>2</sup> Falls of organic matter mix with other particulates to form sedimentary compositions of diatom and radiolarian oozes, sponge spicules, and clay that vary basin to basin. Beneath dense atmospheres of water, several kilometers deep, lives and lifeways move and transition epochally. Currents creep the abyssal plains, erosion is low, and sedimentation is slow. Some of the deep-sea fauna here have direct provenance to the Miocene era, 13 million years ago.<sup>3</sup> Little is understood of this watery archive of material relations and their near and far temporalities and indeterminant futures. Neither is it easy for humans to feel implicatedness in the conditions of the remote abyssal ocean.

By contrast, this deep realm experiences humans at intimate and planetary-wide material scales.<sup>4</sup> Slow old currents trace submarine cables, wrecks, and

**FIGURE 3.1** A gorgeous jellyfish (*hydromedusa*) seen in the Marianas Trench Marine National Monument at a depth of 3,700 meters (12,000 feet). Image courtesy of NOAA Office of Ocean Exploration and Research, 2016 Deepwater Exploration of the Marianas.

abandoned oil rigs, projecting their paths into waters above. Fossil fuel-related heat, carbon, and plastic wastes mix deep into the ocean’s heart; plastics knot cetacean bellies and settle in sediments. Human connectivity is there too in the fewer large carcasses that reach the seafloor because of over-fishing; or in the rust-encrusted drums of wartime and industrial toxic wastes. This is not to say that abyssal depths are immune to nonhuman ruptures. Amongst other forces, winter cooling and increases in salinity can trigger cascades of shelf water through the canyons and slopes to the abyssal depths.<sup>5</sup> Unlike such events though, anthropogenic impacts ripple multidimensionally and multi-temporally through the ocean’s interconnected ecosystems.<sup>6</sup>

One particularly significant impact will result from commercial deep seabed mining activities. The industry intends to mine the manganese nodule fields in a nine million km<sup>2</sup> region of the Eastern Pacific seafloor, known as the Clarion Clipperton Zone (CCZ). Some of earth’s most diverse ecosystems are associated with nodule fields,<sup>7</sup> such as those found in the CCZ. Deep-living beings of the CCZ are particularly vulnerable to disturbances due to their slow growth rates, maturation at a relatively old age, long life expectancies, and low or unpredictable recruitment.<sup>8</sup> The effects of 24/7 mining activities in this region would likely be severe and last well beyond human time scales. Civil society groups and conservation organizations are understandably concerned about the potential impacts of mining on these seabed ecologies. Historic and ongoing violences,

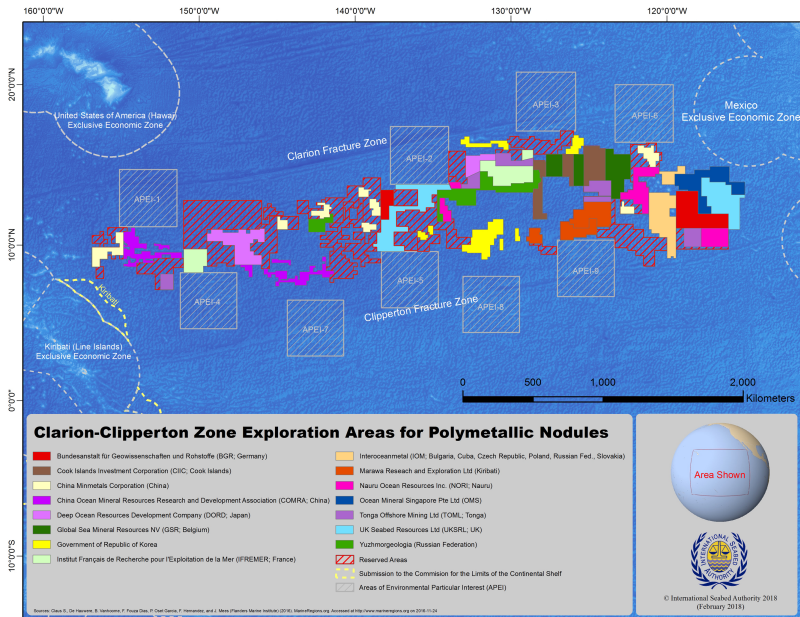


FIGURE 3.2 A map of the Clarion Clipperton Zone in the central Pacific Ocean. The colored areas are those licensed for mining and shaded squares are areas currently protected from mining. Image adapted from the International Seabed Authority, 2018.

inflicted by mining corporations on terrestrial environments, indicate that this concern is warranted.<sup>9</sup>

Deep seabed mining would be another assault on the ocean. Though seas are transitional by nature, the scale and cumulative effects of industrialization, such as heat and plastic pollution, manifest oceanic changes of an entirely different order and consequence for planetary habitability. Across the seas and into their depths, for example, anthropogenic climate change already affects circulation, hydrodynamics, temperature levels, and acidity. Humans are also vulnerable to the changes that industrialization forces on the abyssal ocean—what happens in this zone influences whether rains come, plants thrive, temperatures are liveable; or whether the ocean provides sufficient food or enough oxygen for humans and other terrestrial dwellers to breathe. Given human interdependence with the abyssal ocean, our relations with these worlds matter.

This chapter emphasizes relationships: the co-constitution of beings, lifeways, and materialities of the deep ocean as well as human interconnectivity with them such as the specter of deep seabed mining underscores. As well, it highlights how, by controlling the dominant human relation with the ocean, the United Nations Convention on the Law of the Sea (UNCLOS)<sup>10</sup> intervenes as an ecological force. It begins with an analysis of the seabed mining regime as the poster industry for blue capitalism; and how the regime's enabling structures privilege resource corporations. UNCLOS's representational strategies are then examined to understand how diverse seabed worlds and constituent materialities are appropriated into regimes of global capital. The ecological violences of mining are both cloaked within discursive legal strategies and justified on the grounds of economic accumulation. The effect of these strategies is to diminish recognition of both the ocean's agency and vulnerabilities, and prioritize commercial interests—key factors contributing to the deepening ocean crisis.

Legal and economic discourses of global extractivism obscure the nature of extraction as a form of "predation." Neither are the ontological dimensions of predation sufficiently factored within considerations of individual material consumption. Configuring extraction as a form of predation brings to the fore the agency and lifeworlds of that which is extracted and enables a fuller, albeit contingent, reckoning of what (if anything at all) constitutes a just need for their destruction and consumption. It is by dint of being materially embodied that humans are vulnerable to needing materials from the world, sourced through acts such as mining. I describe this as "material predation"—that is, killing animals and lifeways to obtain the minerals and other materials that feed the embodied prosthetics, such as communication equipment and technologies, through which we extend into and participate in the world. Acknowledging material predation as a dimension of ecological subjectivity is a key tenet within my concept of ocean justice, in which I reflexively consider human material vulnerabilities alongside relational approaches with more-than-human ocean worlds.

Material vulnerability and predation implicate us all, in some way, with extractive industries. If, as material predators, humans do need to secure more

minerals and other materials needed to live well, how do we do this ethically? How, for example, do we extend hospitality to the worlds of our prey, as philosopher Jacques Derrida, whose politics of eating thesis is referenced later in this chapter, invokes us to do? I propose a figuration of ethical predation of ocean realms by thinking with, and extending Derrida's concept of eating well—or, more precisely, being a better predator.

## Blue Extractivism: Deep Seabed Mining Frictions

Having depleted most of the easy to extract terrestrial supplies of minerals, mining corporations are seeking more profitable sources, and turning their attention to the high grade of minerals at the deep seabed.<sup>11</sup> Though the mining industry has its sights on these “blue” riches, its frontier ambitions are meeting with resistance and concern from multiple directions.<sup>12</sup> Proponents claim that seabed mining would benefit countries of the economic south, framing their extractive development ambitions as within terms such as “blue economy” or “blue capital”<sup>13</sup>—as if “blue” makes seabed mining somehow benign.<sup>14</sup> Taking up blue capitalism's agenda, the International Seabed Authority (ISA), an organization responsible for overseeing seabed development,<sup>15</sup> asserts that seabed mining can expand the resource base for Pacific Island nations and enable growth of their “sustainable Blue Economy.”<sup>16</sup> Responding to the ISA's assertions, Pacific Island Association of Non-government Organisations, Deputy Executive Director, Emeline Ilohahia argues that, “If mining was the panacea to the economic issues of the Pacific, we'd have solved all our problems long ago. Instead the environmental and social impacts of mining have made our peoples poorer.”<sup>17</sup>

Mining proponents also argue that exploitation of the deep seabed is necessary to source minerals for humanity's renewable energy future.<sup>18</sup> However, a 2016 report from the Institute for Sustainable Futures challenges the view that current renewable energy markets rely on seabed minerals.<sup>19</sup> It finds that, even with the most ambitious energy scenarios and growth in demand, a transition to 100 percent renewables is possible without recourse to deep-sea mining.<sup>20</sup> Along these lines, and exploiting the growing public resistance against seabed mining, large corporations such as Google, BMW, and Volvo recently pledged not to use seabed minerals, and publicly distanced themselves from the industry.<sup>21</sup>

And yet the seabed mining regime appears to be pressing forward despite the concerns of marine scientists about how little is known of deep-ocean ecologies.<sup>22</sup> Avoiding losses from 24/7 deep-sea mining operating over 30 years is unlikely.<sup>23</sup> The ISA's Secretary General, Michael Lodge, acknowledges seabed mining will involve “the crushing of living organisms, the removal of substrate habitat and the creation of sediment plumes,” as well as the risk of “environmental damage through malfunctions in the riser and transportation system, hydraulic leaks, and noise and light pollution.”<sup>24</sup> Neither is remediation for seabed mining feasible given the likely material, temporal, and spatial scales of the losses.<sup>25</sup> Against this background, claims that seabed mining will save the planet are unconvincing. In

a recent interview, University of Hawaii oceanographer Jeff Drazen said: “We’re about to make one of the biggest transformations that humans have ever made to the surface of the planet. We’re going to strip-mine a massive habitat, and once it’s gone, it isn’t coming back.”<sup>26</sup> Asked about the potential environmental impacts of deep seabed mining, ISA’s Michael Lodge effectively gaslighted the widespread concern of marine biologists, conservationists, and concerned publics by responding: “I don’t believe people should worry that much.”<sup>27</sup>

## The Seabed Mining Regime and its Architecture of Exploitation

The seabed mining regime is a mode of extractivism in which economic accumulation is pursued through the maximum yield of profitable materials from the ocean’s seafloor.<sup>28</sup> It is facilitated through the legislative framework of UNCLOS.<sup>29</sup> In this section, I add to the growing body of literature that critiques UNCLOS’s extractive agenda,<sup>30</sup> with a perspective that emphasizes how UNCLOS, and broader ocean governance systems, form an architecture of exploitation that privileges corporations and economic accumulation to the detriment of the ocean. UNCLOS normalizes extractivist exploitation as the default human relation with the ocean and assumes to bind us all on these same terms. In the context of the deep seabed mining regime, UNCLOS instrumentalizes the seabed for the benefit of the global economic order. It ensures that marine protection and conservation provisions convey an impression of care for the deep ocean but in reality, exist to shore-up raw material supplies for present and future human users. This anthropocentric, supply-depot approach forecloses relations of ethical responsibility toward the oceans themselves, as well as the living and nonliving entities that depend on them.

Mining the seafloor entails violences that extend beyond “crushing living organisms”<sup>31</sup> to the extinguishment of networks of embodied relations and lifeways. These violences are accentuated by UNCLOS’s denial of human and more-than-human interconnectivities with deep-ocean worlds. Failure to recognize these relational factors can be attributed, in part, to the Enlightenment imaginary of mastery that operates within the undertow of law itself—and the particular Western concept of human that it envisages.<sup>32</sup> Insights from feminist legal scholars reveal that an imaginary of mastery imbues law’s ideal person with qualities that include disembodiment and autonomy, and a metaphysical detachment from nonhuman natures. As Naffine and Gear assert, these are qualities that only corporations can really achieve<sup>33</sup>—they are unattainable for materially embodied, ecologically interdependent beings.

The concept of human, around which law pivots, is a corporation—the paradigmatic legal person.<sup>34</sup> From this perspective it seems inevitable that corporate privileging flows from UNCLOS’s foundational imaginary of mastery into explicit provisions and regulations that favor economic accumulation and, further, enable “regulatory capture”<sup>35</sup> of institutions and implementation practices,

by powerful corporations. Through this architecture of exploitation, the seabed mining regime advances without adequate accounting for, or ethically responding to, the relational implications of its violences.

UNCLOS mandates oversight for the seabed mining regime in the international seabed jurisdiction (the Area) to the ISA.<sup>36</sup> It is a jurisdiction encompassing over 40 percent of the earth's surface. The ISA's explicit mandate to advance seabed mining<sup>37</sup> legitimates the industry's expansion and subjugates obligations to protect and conserve natural resources in the Area.<sup>38</sup> The privileging of economic interests continues through the regulatory capture of the ISA, by corporations. A recent investigation by Casson et al. documents cases where contractors finance and sit on the Authority's 30-member Legal and Technical Commission (LTC).<sup>39</sup> Additionally, representatives of the contractors are employed by the ISA.<sup>40</sup> Further, key decisions and discussions are conducted behind closed doors between only selected contractors and experts.<sup>41</sup> In these ways, corporations have the opportunity to influence commercial outcomes, favorable legal and policy formulations, and key decisions, and to minimize costs related to environmental obligations.<sup>42</sup> The absence of a strict regime of independent audit of mining exploration activities, or plans to implement this for exploitation activities,<sup>43</sup> adds further opacity to ISA operations and to the mining practices of contractors.

This architecture of exploitation potentially undermines the Authority's ability and willingness to adequately prevent harm to the marine environment, or to ensure that the harms resulting from mining activities are attended to thoroughly and ethically. It continues with the regime's economic focus that monetizes and constrains environmental protection measures. For example, the Draft Regulations on Exploitation of Mineral Resources in the Area (herein, the Draft Seabed Regulations) provide for the establishment of an Environmental Compensation Fund (ECF) that will finance measures to "prevent, limit or remediate damage" to the seabed, "the costs of which cannot be recovered from a Contractor or sponsoring State."<sup>44</sup> To consider a financial remedy an adequate response to the extinguishment of seabed lives is consistent with an extractivist imaginary that perceives nonhuman natures as fungible. However, even before exploitation activities commence the regulations appear to anticipate that corporations will not be required to fully finance measures to prevent or remediate environmental harms associated with their commercial mining activities. In the case of remediation, the ECF's obligations will also only finance such activity where it is "economically feasible" and supported by "Best Available Scientific Evidence."<sup>45</sup> This scientific evidence too is capped by "economic constraints."<sup>46</sup> While conveying the look of concern for the long-range damage associated with seabed mining, the seabed mining regime only tolerates its environmental responsibilities provided they do not interfere with profits.

Although states have primary responsibility for the implementation of UNCLOS,<sup>47</sup> corporations are the key actors of the regime at the seabed. The heavily reinforced machinery of extractive corporations will operate in remote, sunless lease areas kilometers below the surface, removing the seafloor and their

multiplicities of unknowable life-forms, relations, and materialities over the terms of potentially multi-decadal licenses. This has particular implications for deep-ocean worlds, for example: sediment plumes arising from mining activity and returned waste water will deny detritivore communities of critical nutritional falls and deplete oxygen resources from already oxygen-poor zones; and the sonic pollution of mining machinery will impact deep-ocean dwellers for whom sound is vital to communication and orientation in the absence of light. As well, abyssal beings are dependent on depth for habitable conditions of pressure and temperature, which narrows their options for escaping the miners. The remoteness of depth also advantages corporations by veiling how and what they do at the seafloor under cubic kilometers of seawater. Corporations will conduct their commercial business extracting seabed materials and worlds relatively free of scrutiny by independent auditors or general publics, in closed ISA meetings, and quite literally out of sight in the hinterseas.

Despite structurally and operationally privileging corporations, UNCLOS claims to represent the interests of “all peoples of the world.”<sup>48</sup> Such assertions fail to acknowledge UNCLOS’s exclusion of diverse other human relations of stewardship and kinship with the ocean, including those practiced by Indigenous communities of the Pacific for millennia.<sup>49</sup> Mandated as the institutional manager to oversee UNCLOS’s international seabed development goals, the ISA also claims to act on behalf of all of us.<sup>50</sup> However, given the ISA’s current regulatory, law-making, and institutional privileging of economic and corporate interests, this is structurally impossible. UNCLOS further deems that the common heritage of mankind (CHM) principle applies to the international seabed jurisdiction, the Area,<sup>51</sup> and that the principle applies to us all.<sup>52</sup> Specifically, it declares that exploiting any solid, liquid, or gaseous mineral resources in this zone must be carried out for the “benefit of mankind as a whole.”<sup>53</sup> If it is accepted that humans are materially embodied, ecologically interconnected, and reliant on the ocean for wellbeing, how could the environmental violences that result from multi-decadal commercial seabed mining activity benefit humanity “as a whole”?

### **The Area: More-than-Seabed, More-than-Metal**

Though described as the “constitution *for* the ocean,”<sup>54</sup> UNCLOS utterly misrepresents the dynamic, embodied lifeways and relations of the seas and their seabeds.<sup>55</sup> Guided by imaginaries of mastery and with a discursive sleight of hand, UNCLOS represents the biologically and geologically diverse seabed realm that lies beyond national jurisdiction as “The Area.”<sup>56</sup> By so doing, it discursively empties and generalizes 57 percent of the total area of the earth’s ocean,<sup>57</sup> severs the connection of the surface to the water column, and through its abstractions, UNCLOS renders this deep-living realm as a quarry. This is the familiar biopolitical force that operates within environmental law in particular, whereby human and more-than-human natures are bifurcated and the nonhuman ones are represented in ways that suit the interests of global economic systems.<sup>58</sup>

Similar strategies are deployed by corporations, such as DeepGreen, with their pro-mining videos depicting the ocean as an empty, featureless space into which industrial machinery seamlessly conducts its extractive operations without any discernible ecological impacts.<sup>59</sup>

These fictions deny the agency of the more-than-human lives in which we are all connected, obscure mining's immediate and processual violences to deep-sea ecologies and relations, and distract from the ecological force of law itself.<sup>60</sup> That is, the power of the law, through the exploitative relations that it prescribes and legitimates, to intervene in human and more-than-human worlds in ways that destroy, or render more vulnerable, the material and social relations and lifeways that create the possibility of liveable worlds. Through its redactions, UNCLOS has already written-off the deep seabed ecological relations as collateral to economic growth. Once the Draft Seabed Regulations are finalized, exploitation licenses may be approved for mining lease areas of up to 75,000 kilometers<sup>2</sup> in size.<sup>61</sup> But these leases refer to UNCLOS's quarry realms—abstracted zones of non-agentic, biological matter—not the actual seabed that will bear the brunt of multi-decadal mining activity.

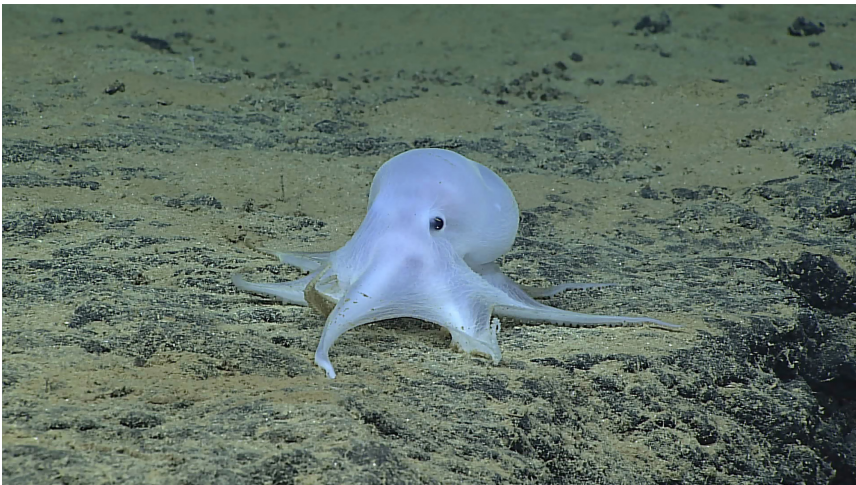
Under the seabed mining regime of the Area, realms that are continually mixing and mingling are denied their interconnectivity due to the jurisdictional partition between the seabed and the water column above.<sup>62</sup> Provisions further identify “mineral resources” as those that are “*in situ* ... at or beneath the seabed.”<sup>63</sup> This broad/vague definition serves to assimilate mineral resources, such as nodules, into extractive regimes of value.<sup>64</sup> In reality, the mineralized nodules resting on the seabed are formed through mineral kinships and accretion of materials circulating in the water column and cycled through sediments. Partitioning happens as well under the Draft Seabed Regulations, where polymetallic nodules are defined as “any deposit or accretion of nodules, on or below the surface of the deep seabed, which contain metals.”<sup>65</sup> Nodules are identified exclusively by the value of their constituent minerals—the multiplicity of other materials and living communities with which they are co-constituted having been bracketed out.

While very little is known or understood of the deep ocean, the scientific and cultural material that is available is selectively harvested by UNCLOS. Applying a transdisciplinary approach that I conceive as “seatruthing,” I read and imagine this material back into the text of UNCLOS to reveal the injustice of its legal fictions and exclusions. Seatruthing makes no claims for singular, rarefied notions of truth but rather is concerned with noticing and interrogating what particular speech acts, words, and representations of the ocean do when they are brought into relation with actual ocean milieu.<sup>66</sup> Such encounters can create potentially generative “conceptual displacements” that highlight the unseeing of different beings and material relations that can arise from different biases or opportunities for perspectival changes.<sup>67</sup> For example, the little that we know of deep-living beings, such as octopuses, is enough to trouble the jurisdictional boundaries between the regimes of the Area and the high seas or the very narrow concept

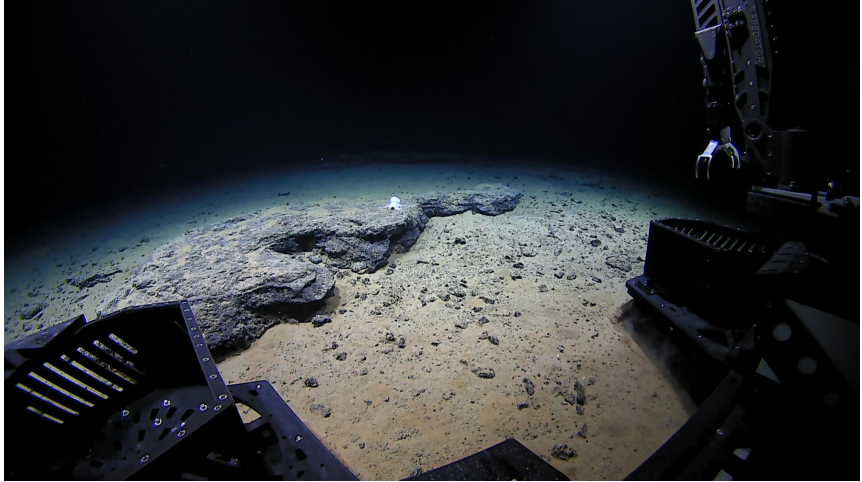
of mineral resources. How octopuses live in the ocean challenges the legal view that beings “belong to the maritime area in which they live.”<sup>68</sup> Octopuses have been recorded, at depths of four kilometers adhering their eggs to the stem of micro-sponges that, in turn, are fixed to the hard substrate of manganese nodules.<sup>69</sup> The octopuses stay nearby guarding the eggs and foraging in surrounding sediments. Given their intimate connection with the seabed, it is evident that octopuses do not belong entirely to the legal regime of the high seas where they also spend significant periods of their life. Additionally, far from being just a manganese resource, the nodules form a vital role within the ecosystem.

The denial of deep-ocean materialities and social relations continues within the CHM regime where representations of nodule assemblages as “mineral resource”<sup>70</sup> or a “deposit or accretion” containing metal<sup>71</sup> exclude multiplicities of seabed kinships. These descriptions omit any sense of nodule fields’ diverse ecosystems; or that the communities of these realms are in lively relations with one another and with the materials and nodules that they co-become with. Octopuses are a part of the seabed and nodule fields by virtue of their eggs fixed to seabed substrate; and whereby the seabed and nodules provide a vital crèche, feeding place, and end of life location. Neither is the seafloor sediment, which is slated for mining, a heterogeneous or inert substance. They have agency and are alive with material relations, providing nurturing ooze for the eggs and larvae of deep-living beings and affording conditions of livability for free-swimming adults.

Seatruthing insists that the seafloor, sediments, and nodules be acknowledged as “more-than” worlds that exceed their appropriation into UNCLOS’s extractivist regime of value. The Area is more than a seabed jurisdiction for the extraction of minerals. In this sense, “mineral resources” too can be



**FIGURE 3.3** Ghost octopus, among the 90 percent of unknown/yet to be described marine beings, is found at 4,290 meters depth. Image courtesy of the NOAA Office of Ocean Exploration and Research, Hohonu Moana, 2016.



**FIGURE 3.4** A ghost octopus, possibly spooked by the approach of a massive hard-shelled, multi-tentacular alien (aka the ROV Deep Discoverer). Image courtesy of the NOAA Office of Ocean Exploration and Research, Hohonu Moana, 2016.

recognized as more-than-mineral and in diverse kinship relations across the seabed. Xenophyophores, brittle stars, crustaceans, mollusks, and the “hedgehog-skinned” echinoderms, live in these worlds, in relation to one another and the materialities of the abyssal depths. Starfish and sea cumpers feed on different ectomorphs of Xenophyophores that are abundant on the abyssal plains—most as epifauna living atop the seabed but some known to be infaunal, buried deep into the sediment.<sup>72</sup>

Xenophyophores come into lumpy and decorative being by drawing on their mineralized surroundings to create delicate exoskeletons.<sup>73</sup> Their reticulated, heavily folded or fan-shaped forms can also function as nurseries for snailfish.<sup>74</sup> Nodule assemblages also either host or enable marine beings with which they share mineral kinships. For example, the Xenophyophores come into being through the same mineralized solution of deep-ocean waters relied on by manganese nodules. In this sense, both complicate the boundaries delineating minerality with that of biological being. Their mineral kinship blurs distinctions between what could reasonably be understood as nonliving or living resources for the purposes of the CHM principle.<sup>75</sup> Foregrounding these kinships reminds us that the manganese, copper, and lithium that constitute batteries, household wiring, and computers all come to us with their worlds.

Thinking with the entangled relations of seabed sediments, water column, manganese nodules, and other beings, such as the Xenophyophores, reveals just how inalienable they are from their constituent minerals. The formation and material relations of nodules exceed their extractivist representations as inanimate, potato-shaped rocks and fungible units rich in mineral wealth.<sup>76</sup> Nodules are lifeways in progress in the deep time of abyssal worlds. They are indivisible

from the sediments on which they rest and the watery atmosphere of the ocean through which their materiality slowly layers into being. Most nodules form through precipitations of different minerals gathered both from sediment pore waters (diagenetic) and cold seawaters (hydrogenetic), growing around ten millimeters per million years. Defying the pressure from several kilometers of watery atmosphere above, the yielding ooze below, and their incredibly slow formation, mysteriously the nodules remain at the sediment surface. Nodules intimately and materially connect with the lifeways and beings of their ecological communities—as their abundance diminishes so too does ecological diversity.

### **Re-Imagining the Lively Matter and Relations of Extraction**

The extractive regime of seabed mining doesn't just abstract the ocean into artificial zones, it also performs the same disappearing act on the material and social substances that are extracted. Seatruthing reveals the multiple lives and kinships that are bracketed out in order to appropriate minerals resources into discourses and commodity regimes of value. Animating the term “mineral resource” to reconnect minerals with biological life and networks of lifeways brings into view their potential extinguishment by mining activities, and that the act of mining is better understood as material predation. The visceral nature of this act entails stripping ancient and agentic sediment from the earth's surface along with unknowable multiplicities and tatters of crab, fish, worms, and others who haven't been able to escape. I evoke this unknowable, unseen biological material through the figurations “flesh waste,” rubbled “bio-ore,” and “kin-waste water.” It is rubbled bio-ore and flesh waste that will be sucked up riser pipes to processing vessels at the surface, before being dumped back into the water column in plumes of “kin-waste water.” These more proximate representations evoke what mining proponents and legal frameworks omit—which is that extractivism takes from the ocean not just minerals but more-than-human lives, lifeways, and relations, rendering them “waste.”

Through seatruthing, the implications of the economic motivation of seabed mining can be more closely recognized. The CHM principle subjects vast, planet-spanning seabed worlds to exploitation by private and state corporations and sustains this extractive relationship doctrinally for economic gains. The regime's promissory offer to share these economic benefits is used as a key justificatory tool to advance seabed mining.<sup>77</sup> In other words, the ecological extinguishments, flesh waste, and rubbled bio-ore, rendered as background collateral, are justified for the trophy of profit, without either acknowledging the worlds from which these profits were derived or ensuring that they can endure.

### **Material Embodiment, Vulnerability, and Predation**

The previous section explored how international ocean governance facilitates mining corporations and the global regime of extractive capitalism in their

expansions to the deep seabed. Ruder and Sanniti describe the motivating drive of these regimes as arising from a “predatory ontology,”<sup>78</sup> which they characterize as an extreme pursuit of economic accumulation achieved through the externalization of environmental harms. Relatedly, the market strategies of extractive capitalism dematerialize the connections between the material and ecological origins of the computers, cars, and other prosthetics—as if these materials arrive through some form of “spontaneous genesis.”<sup>79</sup> Just as processes of dematerialization obscure material connections between commodity goods and more-than-human worlds, so too the relations of violence associated with material provisioning are also obscured. Whether through ignorance, denial, or ontological oversight, the violences associated with material extraction (which I explore in the context of predation in the next section) are out of sight, out of mind.

Given the sheer scale of biodiversity loss, and plastic and heat wastes caused by ocean industrialization, criticism of the exploitations of resource corporations are justified. However, blaming declining oceanic conditions exclusively on corporations and extractive regimes risks a “politics of purity”<sup>80</sup> that neglects to account for our individual implicatedness. There are many ways, for example, that material embodiment implicates us in ecological harms. Being embodied necessitates everyday predation on other worlds to ensure that we are biologically fueled, informed, sheltered, and techno-socially creative and connected with close and distant human communities.<sup>81</sup> Embodiment also tethers us to other bodies and lifeways through inalienable relations of violence.<sup>82</sup> These relations are not often brought into light because their ontological darkness seems as unfathomable as the ocean. Outsourcing our individual material provisioning to mining corporations doesn’t diminish individual accountability for our predator interventions into lively worlds, it merely commissions corporations as our proxies.

Extending feminist inquiries about *who* we think we are<sup>83</sup> to also ask *how* we think we are affords a way of fathoming material predation as a dimension of ecological subjectivity. Thinking ecologically through both inquiries reveals multiple ways that humans come to be co-constituted materially and relationally with other worlds and “wes.” Humans come into continual being through food, minerals, and other materials without which we risk heightened vulnerability. Our material vulnerabilities extend to needing minerals for the everyday “prosthetics,” as Haraway envisages them, that connect embodied subjects to their worlds.<sup>84</sup> Prosthetics enjoin us to other worlds and, whether battery, household wiring, or train carriage, they are constituted in some way by bio-ore and kin waste from uncounted multiplicities of lively beings and the worlds from which they were taken.

Just as animality requires biologically derived food, prosthetics also need food, such as metal. Each of us “eats” metal, in the metaphoric sense that Derrida (whose work is invoked later in this chapter) used the term “eat” to refer to the assimilation of physical worlds and relations.<sup>85</sup> Provisioning kills other beings. With similar bluntness, Shotwell declares that “living our lives

relies on the suffering and death of others.”<sup>86</sup> This is the case. By acknowledging that relations of violence are inherent to shoring up our material exposures and livability needs, we might at least be more sensible to the character and scale of our violences and predations and the depth of ethical responses they require.<sup>87</sup>

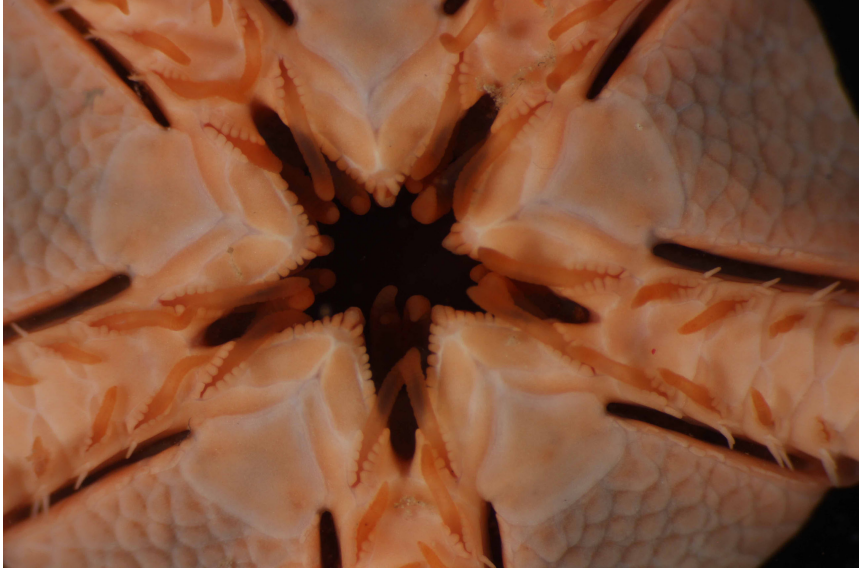
The condition of material embodiment reminds us how much our being is contingent on multiple other bodies. Reflecting on our collectivity with microbial communities, for example, Haraway offers that “to be one is always to *become with* many.”<sup>88</sup> As we multiply so we also extend into the world and, thinking with Haraway again, do not “end at [our] skin,”<sup>89</sup> or scales or feathers or jellies or shells. Neimanis writes further that we are always all “becoming in webs of mutual implication.”<sup>90</sup> Human bodies extend into the world via biological dependencies and prosthetics that keep our heart beating, allow us to work and communicate in certain ways, or provide mobility and transport. The prosthetics that enjoin us in these ways are constituted by bio-ore and kin waste and the worlds from which they were taken. Our being, therefore, is contingent on these multiple other bodies and sutured materially with their worlds.

Given these mutual implications, how we qualify and justly exercise the ontological need to materially predate within shared worlds are matters of profound dimensions. Scale is a significant factor—it is hard to imagine how much damage will be wreaked on the abyssal seabed within mining leases that are collectively the size of small countries, and where, once the lights and machinery get going, they will not be switched off for potentially 30 years. Further to scale, other factors significant to understanding the nature of material predation and its implications, include the context of an indeterminately changing ocean; the shifting material relations and needs of near and future human and more-than-human communities; and the need for continual revisioning of what ethical obligations toward the worlds of our prey ought to entail.

## Extractive Development: Predation and the Ethics of Hospitality

In this section, I draw on Derrida’s “how to eat well” to conceptualize an ocean justice approach that responds to the conflict inherent in material predation on worlds that we care about and urgently need to protect. As well, offering a way of approaching ethical practices of care and reciprocity toward the worlds of those we kill and harm, Derrida’s thesis gestures to a way of understanding material predation and its violences.

Given that we need to eat, writes Derrida, it matters not what or how we “eat this and not that, the living or the non-living, man or animal”; the key question is how to eat well.<sup>91</sup> This is the implied politics of food that underlies the question of how to eat.<sup>92</sup> I reformulate Derrida’s concept as a potential politics and ontology of predation. As embodied beings we need to predate on other worlds for material provisioning, the key question is, *how to be a more ethical predator*. As a



**FIGURE 3.5** How to eat well: a close-up image of the mouth of a brittle star from APEI 7. Image courtesy of DeepCCZ Partners: University of Hawaii (US), Natural History Museum (UK) and University of Gothenburg (Sweden).

synecdoche of material predation, eating well, in the context of seabed mining, could entail not eating other beings whose communities are already extremely vulnerable due to overhunting or for whom too little is known of their life worlds and vulnerabilities. The point here is not to itemize potential solutions but rather to widen the conceptual aperture for imagining what being a good predator might entail, practically, ontologically, politically, and ethically in the context of the diminishing worlds of our prey.

Here I turn to philosopher Kelly Oliver's close analysis of Derrida's "limi-trophy" project in which Derrida proposes that the etymological associations of trophy are instructive to approaching how to eat well (both figuratively and literally):<sup>93</sup>

In the semantics of *trepho*, *trophe*, or *trophos*, we should be able to find everything we need to speak about what we should be speaking about . . . : feeding, food, nursing, breeding, offspring, education, care and keeping of animals, training, upbringing, culture, living, and allowing to live by giving to live, be fed, grown.<sup>94</sup>

Picking up on the double meaning of *trophe*/trophy, Oliver examines its potential use in distinguishing "eating well or good eating from devouring the other in poor taste."<sup>95</sup> On a very literal level, the distinction can be understood as killing animals for food and nutrition (*trophe*) versus killing animals for

sport and photo opportunities (trophy). Can the distinctions between (metaphorically) eating for nutrition or trophy help to calibrate an ethics of material predation?

How might we distinguish between the violences necessarily inflicted in order to source the constituent metals needed to make prosthetic devices for communicating, knowledge making, and medical aids (trophe), versus doing the same thing but for economic accumulation (trophy)? Thinking with Derrida's conception of limitrophy as that which is "cultivated on the edges of a limit,"<sup>96</sup> what ethics emerge at the intersections of needing to protect the deep ocean and needing to enact violences upon it in order to source minerals? What life worlds are foreclosed at the edges of UNCLOS's interventions between mineral commodities and more-than-human mineralized kinships? One way to approach the ethical nature of predation is by interrogating the possible motivations for extraction (eating others, metaphorically speaking) either as nourishment or trophy (noting that the distinction between these is not always clear).

Following Derrida, the invocation to *eat well* can be understood to mean that whatever and whichever one eats "must be nourishing."<sup>97</sup> Oliver provides a compelling explication of Derrida's intention that eating be understood as both the literal ingestion of food and the metonymical act of taking in or assimilating others in all their forms and relations: family, ocean, friends, community, language, symbols, mountains, social codes, rivers.<sup>98</sup> In other words, eating the other entails taking in, at least partially, the worlds that constitute them. The ethical obligation that Derrida emphasizes is that by eating the other we ought to notice and extend hospitality to their world. Or to invoke Haraway again, "nothing comes without its world."<sup>99</sup> Seatruthing the unknowable and unseen "prey" of seabed mining as bio-ore, and flesh and kin waste, for example, brings these relations to the fore to remind us that the cobalt, magnesium, and other metals extracted for assimilation into prosthetics, or for the accumulations of private wealth, are more-than minerals—that come with multiple, mutually implicated others.

Derrida hinges the concept of nourishment to obligations of "infinite hospitality" to the other,<sup>100</sup> to which Oliver adds, "even those whom one ingests."<sup>101</sup> Accepting that, as material predators, we extinguish certain beings and relations in the pursuit of necessary materials, how can we still ensure the conditions of possibility for life-world continuance? In the context of material predations of the seabed and deep ocean, some of the conditions that ought to be factored include how such activity is imbricated within cumulative anthropogenic impacts that are already changing the ocean; whether the physical extent of violence and its temporal continuance afford sufficient refuge and pause for lifeways to endure or recover; and whether enough is known of ocean realms to competently gauge the potential impacts of predation.<sup>102</sup> Seabed mining that doesn't take these conditions into account would amount to rapacious hunting that forgets its relations to the worlds of its prey—aligning with Derrida's notion of "trophy."

The seabed mining regime that is emerging within the legal framework of UNCLOS also aligns with “trophy”—with its emphasis on a model of profit-driven material predation in which responsibilities for environmental harms are monetized and capped by economic limits. The trophy validated within the CHM principle is the pursuit of seabed minerals in order to attain economic benefits principally for (corporate) humanity. If the concept of “humankind” envisaged by the CHM principle were to be re-imagined as embodied, materially vulnerable beings, who are interdependent with the ocean, then neither economic gain for corporations or the ecological harms resulting from mining, would guarantee them much benefit, or amount to nourishment or eating well.

## Closing Notes

Obligations of hospitality call us to interrogate and modify the scale and motivations of our material predations if we are to co-occupy a transitioning futurity with the ocean. The predatory ontology sedimented within UNCLOS’s legislative framework is already changing ocean worlds and the conditions of livability for our prey.<sup>103</sup> Its ecological force augurs still more by legitimating economically driven seabed mining on a planet already ravaged by extractive capital and in deep-ocean worlds thoroughly unprepared for corporate humanity. The material predations of seabed mining threaten to bring about what environmental philosopher Deborah Bird Rose saliently described as “double death,” that is, an “amplification of death, so that the balance between life and death is overrun.”<sup>104</sup>

This chapter has introduced elements of my approach to ocean justice in which material embodiment and vulnerability are situated at the seafloor. It has swung a spotlight beam outward to the midnight realm of the abyssal ocean and glimpsed the multiplicities of wondrous lives enfolded in multiple mineral and chemical kinships. Were seabed mining to extract too much from these relations it would risk what Rose describes as an “irreparable loss not only of the living but of the multiplicity of forms of life and of the capacity of evolutionary processes to regenerate life.”<sup>105</sup> The chapter has also cast its beam inward to recognize, with equal compassion, the inalienable violence hinged to human material vulnerability and the realization that our status as exceptional predators comes with exceptional responsibilities of care.

## Acknowledgments

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## Notes

- 1 A vast and biodiverse region up to 6,000 in depth that covers 83 percent of the total area of the ocean ([https://en.wikipedia.org/wiki/Abyssal\\_zone](https://en.wikipedia.org/wiki/Abyssal_zone)) and 58 percent of the earth's surface. "The Second World Ocean Assessment: Volume II," United Nations, 2021, <https://www.un.org/regularprocess/sites/www.un.org.regular-process/files/2011859-e-woa-ii-vol-ii.pdf>, 455.
- 2 For more details about vent communities see Maria C. Baker et al., "Biogeography, Ecology, and Vulnerability of Chemosynthetic Ecosystems in the Deep Sea," in *Life in the World's Oceans*, ed. Alasdair D. McIntyre (Oxford: Blackwell Publishing Ltd., 2010), 161–182; seabed detritivores: Craig R. Smith and Amy R. Baco, "Ecology of Whale Falls at the Deep-Sea Floor," *Oceanography and Marine Biology: An Annual Review* 41 (2003): 311–354; Nicholas D. Higgs et al., "Fish Food in the Deep Sea: Revisiting the Role of Large Food-Falls," *PLOS ONE* 9, no. 5 (2014): e96016; rains of detritus: Peter Herring, *The Biology of the Deep Ocean* (Oxford: Oxford University Press, 2002); Thomas Kiørboe, "Formation and Fate of Marine Snow: Small-Scale Processes with Large-Scale Implications," *Scietta Marina* 65, supp. 2 (2001): 57–61.
- 3 "The Second World Ocean Assessment: Volume 1," United Nations, 2021, <https://www.un.org/regularprocess/sites/www.un.org.regularprocess/files/2011859-e-woa-ii-vol-i.pdf>, 463.
- 4 For more on human impacts: Eva Ramirez-Llodra et al., "Man and the Last Great Wilderness: Human Impact on the Deep Sea," *PLOS ONE* 6, no. 8 (2011): e22588; and for Anthropocene seas: Stacy Alaimo, "The Anthropocene at Sea," in *The Routledge Companion to the Environmental Humanities* Routledge, eds. Ursula K. Heise et al. (London: Routledge, 2017), 153–161.
- 5 United Nations, "The Second World Ocean Assessment: Volume 1," 464.
- 6 For more on anthropogenic impacts: Elliott A. Norse et al., *Marine Conservation Biology: The Science of Maintaining the Sea's Biodiversity* (Washington: Island Press, 2005), 4, 59; United Nations, "The Second World Ocean Assessment: Volume 1"; United Nations, "The Second World Ocean Assessment: Volume II," United Nations, 2021, <https://www.un.org/regularprocess/sites/www.un.org.regular-process/files/2011859-e-woa-ii-vol-ii.pdf>; "Special Report on the Ocean and Cryosphere in a Changing Climate," IPCC, accessed September 24, 2021, <https://www.ipcc.ch/srocc/>.
- 7 Todd Woody, "Seabed Mining: The 30 People Who Could Decide the Fate of the Deep Ocean," *New Humanitarian*, September 6, 2017, <https://deeply.thenewhumanitarian.org/oceans/articles/2017/09/06/seabed-mining-the-24-people-who-could-decide-the-fate-of-the-deep-ocean>.
- 8 United Nations, "The Second World Ocean Assessment: Volume II," 279. For more about risk of species extinction: Lara Macheriotou et al., "Phylogenetic Clustering and Rarity Imply Risk of Local Species Extinction in Prospective Deep-Sea Mining Areas of the Clarion–Clipperton Fracture Zone," *Proceedings of the Royal Society B: Biological Sciences* 287 (2020): 20192666; slow recovery after human-made disturbance: Erik Simon-Lledó et al., "Biological Effects 26 Years after Simulated Deep-Sea Mining," *Scientific Reports* 9, no. 1 (2019): 8040.
- 9 For example, the impacts of mining in Bougainville: John C. Cannon, "Decades-Old Mine in Bougainville Exacts Devastating Human Toll: Report," *Mongabay Environmental News*, April 17, 2020, <https://news.mongabay.com/2020/04/decades-old-mine-in-bougainville-exacts-devastating-human-toll-report/>; "One of World's Worst Mine Disasters Gets Worse – BHP Admits Massive Environmental Damage at Ok Tedi Mine in Papua New Guinea, Says Mine Should Never Have Opened," *Mining Watch Canada*, Nov. 8, 1999, <https://miningwatch.ca/news/1999/8/11/one-worlds-worst-mine-disasters-gets-worse-bhp-admits-massive-environmental-damage-ok>.

- 10 United Nations Convention on the Law of the Sea, December 10, 1982, 1833 UNTS 397 (“UNCLOS”).
- 11 Wylie Spicer, “Legalising Seabed Access,” Deep Sea Mining Campaign, October 18, 2013. <http://www.deepseaminingoutofourdepth.org/legalising-seabed-access/>.
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- 16 ISA Secretary General Michael Lodge speaking at a 2017 workshop jointly hosted by the ISA and the UN Department of Economic and Social Affairs in Tonga, <https://www.isa.org/jm/vc/abyssal-initiative-blue-growth>. For more on resistance to blue capitalism by Pacific Island nations and communities, see also DAWNfeminist, “DAWN/PANG Blue Economy Panel Fiji.”
- 17 “Pacific Island Governments Cautioned About Seabed Mining Impacts,” PIANGO, 2019, <http://www.piango.org/our-news-events/latest-news/2019/pacific-island-governments-cautioned-about-seabed-mining-impacts/>. Growing public resistance to seabed mining from multiple sectors can be seen, for example, in the campaigns of Pacific Blue Line: <https://www.pacificblueline.org/>.
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- 27 Hylton, “History’s Largest Mining Operation.”
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- 34 Elena Blanco and Anna Gear, “Personhood, Jurisdiction and Injustice: Law, Colonialities and the Global Order,” *Journal of Human Rights and the Environment* 10, no. 1 (2019): 86–117.
- 35 “Regulatory capture” refers to when a regulatory agency created to further public interest, instead advances the commercial or political interests of the very entities it is mandated to regulate.
- 36 UNCLOS Article 157.
- 37 UNCLOS Article 150.
- 38 General obligations to protect and preserve the marine environment (Article 192); and in relation to the Area, the ISA’s obligation under Article 145 and the 1994 Implementing Agreement.
- 39 The LTC is responsible for developing the seabed mining regulations, also known as the Mining Code: ISA, The Mining Code, regularly updated at <https://www.isa.org.jm/mining-code>.
- 40 Louisa Casson, “Deep Trouble: The Murky World of the Deep Sea Mining Industry,” Greenpeace International, 2020, <https://www.greenpeace.org/static/planet4-international-stateless/c86ff110-pto-deep-trouble-report-final-1.pdf>.

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- 42 For a related critique see Deep Sea Mining Campaign et al., “Why the Rush?”
- 43 Aline Jaeckel, “An Environmental Management Strategy for the International Seabed Authority—The Legal Basis,” *International Journal of Marine and Coastal Law* 30, no. 1 (2015): 93–119; Aline Jaeckel, “Strategic Environmental Planning for Deep Seabed Mining in the Area,” *Marine Policy* 114 (2020): 103423.
- 44 Draft Regulations on Exploitation of Mineral Resources in the Area, ISA Doc. ISBA/25/C/WP.1 (March 25, 2019), 54 and 55(a) [hereinafter: Draft Exploitation Regulations].
- 45 Draft Exploitation Regulations, 55(e).
- 46 Draft Exploitation Regulations, Schedule: Use of Terms and Scope.
- 47 Aline Jaeckel et al., “Conserving the Common Heritage of Humankind—Options for the Deep-Seabed Mining Regime,” *Marine Policy* 78 (2017): 150–157.
- 48 For example, references to “all peoples of the world,” UNCLOS Preamble, First and Seventh Recitals; and “mankind as a whole,” UNCLOS Preamble, First Recital. These references also gesture to the constitutional-based approach to ocean governance developed by one of UNCLOS’s co-architects, Elisabeth Mann Borgese, and others. Betsy Baker, “Uncommon Heritage: Elisabeth Mann Borgese, Pacem in Maribus, the International Ocean Institute and Preparations for UNCLOS III,” *Ocean Yearbook Online* 26 (2011): 11–34.
- 49 In relation to ocean governance/stewardship see: M. Jackson, “Indigenous Law and the Sea,” in *Freedom for the Seas in the 21st Century: Ocean Governance and Environmental Harmony*, eds. Jon M. Van Dyke et al. (Washington, D.C.: Island Press, 1993), 41–48; Lara Taylor and Meg Parsons, “Why Indigenous Knowledge Should Be an Essential Part of How We Govern the World’s Oceans,” *The Conversation*, 2021, <http://theconversation.com/why-indigenous-knowledge-should-be-an-essential-part-of-how-we-govern-the-worlds-oceans-161649>; for discussion of the exclusion of Indigenous cultural, and ecological knowledge and ocean governance approaches: Marjo K. Vierros et al., “Considering Indigenous Peoples and Local Communities in Governance of the Global Ocean Commons,” *Marine Policy* 119 (2020): 104039, <https://doi.org/10.1016/j.marpol.2020.104039>.
- 50 UNCLOS Articles 137, 2.
- 51 The Area comprises the ocean floor beneath the high seas, beyond national jurisdiction.
- 52 Amongst other rules, the CHM prevents a state or legal person (i.e., corporation) from appropriating any parts or resources of the Area. UNCLOS, Article 137(1).
- 53 UNCLOS Article 136; Preamble, para 6. Note that this chapter uses the gender neutral “humankind” from here on.
- 54 Tullio Treves, “Introductory Note, United Nations Convention on the Law of the Sea,” United Nations, 2008, <https://legal.un.org/avl/ha/uncls/uncls.html> (emphasis added).
- 55 Acknowledging that UNCLOS was at a time when little was known about the deep ocean’s rich biodiversity. See also Elliot Norse et al., *Marine Conservation Biology: The Science of Maintaining the Sea’s Biodiversity* (Washington: Island Press, 2005): 415.
- 56 “Area” means the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction. UNCLOS Article 1(1).
- 57 See “About ISA,” International Seabed Authority, 2022, <https://www.isa.org.jm/about-isa>.
- 58 See, for example, Andreas Philippopoulos-Mihalopoulos, “Towards a Critical Environmental Law,” in *Law and Ecology, New Environmental Foundations*, ed. Andreas Philippopoulos-Mihalopoulos (New York: Routledge, 2011), 18–38.
- 59 The Metals Company, “DeepGreen: Metals for Our Future,” Vimeo, Aug. 27, 2018, video, 3:49, <https://vimeo.com/286936275> (in particular, from 2:24 until 2:43).

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- 61 Draft Exploitation Regulations, 15.3(b)(i).
- 62 UNCLOS Article 1(1), n. 35.
- 63 UNCLOS Article 133(a).
- 64 For related discussions in the context of the continental shelf regime and UNCLOS Article 77(4): Susan Reid, “Solwara 1 and the Sessile Ones,” in *Blue Legalities*, eds. Irus Braverman and Elizabeth R. Johnson (Durham: Duke University Press, 2020), 25–44; hydrothermal vents, Ranganathan, this volume; and marine genetic resources, Braverman, this volume.
- 65 Draft Exploitation Regulations, Schedule: Use of Terms and Scope.
- 66 Here I draw on the work of feminist philosopher of epistemology Linda Alcoff where she discusses the need to look at “where the speech goes and what it does there.” Linda Alcoff, “The Problem of Speaking for Others,” *Cultural Critique* no. 20 (1991): 5–32, 26.
- 67 Melody Jue, *Wild Blue Media: Thinking through Seawater* (Durham: Duke University Press, 2020), 4–6.
- 68 Frida Maria Armas Pfirter, “The Management of Seabed Living Resources in ‘The Area’ Under UNCLOS,” *Electronic Journal of International Studies*, no. 11 (2006): 21. [https://www.academia.edu/16461528/The\\_Management\\_of\\_Seabed\\_Living\\_Resources\\_in\\_The\\_Area\\_under UNCLOS](https://www.academia.edu/16461528/The_Management_of_Seabed_Living_Resources_in_The_Area_under UNCLOS).
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- 88 Donna J. Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), 4.
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- 93 Oliver, “Derrida and Eating,” 463.
- 94 Derrida, “The Animal,” 397.
- 95 Oliver, “Derrida and Eating,” 463.
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- 97 Derrida, “‘Eating Well,’” 115.
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- 99 Donna J. Haraway, *Modest\_Witness@Second\_Millennium.FemaleMan©\_Meets\_OncoMouse™* (New York: Routledge, 1997), 137.
- 100 Derrida, “‘Eating Well,’” 115.
- 101 Oliver, “Derrida and Eating,” 460.

- 102 In June 2021, despite scientific and community concerns about insufficient knowledge of deep ocean ecologies, Nauru triggered a legal mechanism under the 1994 Implementation Agreement, by notifying the ISA of its intention to commence mining in two years through NORI, a subsidiary of a Canadian firm, The Metals Company (previously known as DeepGreen): Jonathan Watts, “Race to the Bottom: The Disastrous, Blindfolded Rush to Mine the Deep Sea,” *The Guardian*, September 27, 2021, <https://www.theguardian.com/environment/2021/sep/27/race-to-the-bottom-the-disastrous-blindfolded-rush-to-mine-the-deep-sea>. See also “Nauru Requests the President of ISA Council to Complete the Adoption of Rules, Regulations and Procedures Necessary to Facilitate the Approval of Plans of Work for Exploitation in the Area,” International Seabed Authority, June 29, 2021, <https://isa.org/jm/news/nauru-requests-president-isa-council-complete-adoption-rules-regulations-and-procedures>; and for more, see Ranganathan, this volume.
- 103 For example, the predatory fisheries regime enabled by UNCLOS’s high seas provisions mandate the maximum sustainable yield measure to be used in fisheries management (Article 119(1)(a)), a measure exploited by Regional Fisheries Organisations that contributes to the decimation of fish populations and biodiversity as discussed by Telesca, for example, in relation to tuna fisheries: Jennifer E. Telesca, *Red Gold* (Minneapolis: Minnesota Press, 2020). For more on the diminishing fisheries see: Christensen Pauly et al., “Fishing Down Marine Food Webs,” *Science* 279, no. 5352 (1998): 860–863; Daniel Pauly, *Vanishing Fish: Shifting Baselines and the Future of Global Fisheries* (Vancouver: Greystone Books, 2019); Daniel Pauly, “Aquacalypse Now,” *New Republic*, Sept. 28, 2009, <https://newrepublic.com/article/69712/aquacalypse-now>; and relatedly: Elspeth Probyn, *Eating the Ocean* (Durham: Duke University Press, 2016); marine biodiversity: Boris Worm et al., “Impacts of Biodiversity Loss on Ocean Ecosystem Services,” *Science* 314, no. 5800 (2006): 787–790; and United Nations, “The Second World Ocean Assessment: Volume I”; United Nations, “The Second World Ocean Assessment: Volume II.”
- 104 Deborah Bird Rose, “What If the Angel of History Were a Dog? [Paper in: Art and Ecology],” *Cultural Studies Review* 12, no. 1 (2006): 67–78, 75.
- 105 Deborah Bird Rose, “Multispecies Knots of Ethical Time,” *Environmental Philosophy* 9, no. 1 (2012): 127–140, 128.