

**DUE TO OIL SPILL
THE WATER
IS CLOSED**



THANK YOU

6

MINING THE SEAS

Speculative Fictions and Futures

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The most valuable thing we extract from our oceans is our existence.

—Sylvia Earle¹

This chapter examines the recent oceanic turn in the humanities, particularly what French theorist Gaston Bachelard once termed the “depth imagination,” and argues that it has been reconstituted by a new era of extraction, in both material and imaginary terms.² In the epigraph to this chapter, marine biologist Sylvia Earle reminds us of the true value of extraction as the possibility of species being. Extraction is also about futurity, narrative, technology, and speculation. Here I stage an interdisciplinary conversation between recent scholarship about the speculative practices of deep-sea mining (“DSM”) and speculative fiction (“sf”) that imagine techno-utopian futures of human life under the sea. In doing so, I raise questions about the ways in which particular kinds of literary genres and reading practices produce an extractive imaginary, and examine the uncomfortable overlap between the concept of innovation as a driver of the blue economy as well as the blue humanities.

I’ll begin with an overview of what I’ve seen in the development of what is being called critical ocean studies or the blue humanities (which are different strands of scholarship) from the perspective of my training in postcolonial literary studies. I provide this critical background in order to make two provocative claims—first, that the turn to what is being called the “blue humanities,” while certainly driven by our environmental crisis and the ecological/multispecies turn in scholarship, is also the product of the neoliberalization of academia and the rebranding of humanities work in an era of intellectual and economic downsizing.³

FIGURE 6.1 Signs posted in Huntington Beach, California after amplify energy leaked 144,000 gallons of crude oil into the ocean in 2021. Credit: Kat Schuster/Patch.com.

Second, that while there is currently a scramble for mineral rights and access to the seabed by transnational mining conglomerates purportedly due to the global shift toward “green” technologies, the oceanic turn in capitalism and scholarship seems to fulfill a desire for a material and intellectual (blue) “spatial fix.” Consequently, this spatial fix is a critical current in the development of a contemporary depth imagination, a vision derived from both creative and extractive capital.

Critical ocean studies is an interdisciplinary method of thinking with, engaging, and submerging into the ontological, material, political, and cultural body of the largest part of our biosphere. Its ontological concerns might be illuminated by Gaston Bachelard’s claim that “space, vast space, is the friend of being.”⁴ In recent years, the field has challenged the surface-based readings of oceanic representation, has dived deeply into complex multispecies entanglements, and has focused more pointedly on the logic of capital and its flows as well as its concordant militarization, from nuclear testing to the ways in which US naval forces “secure the volume” for the transit of oil.⁵ Cold War politics have been critical to oceanic thinking; the oceanic turn in humanities scholarship was largely a response to the enclosure of the oceans through the Truman Proclamation of 1945 and the United Nations Convention on the Law of the Sea (UNCLOS), a global conversation and debate about 99 percent of the planet’s biosphere.⁶

An oceanic current emerged in the 1990s at the peak of the new fields of globalization and diaspora studies. The general approach from anglophone scholars in History, Anthropology, and Cultural Studies such as James Clifford, Marcus Rediker and Peter Linebaugh, and Paul Gilroy was to think in terms of the fluidity and flow of migrants, refugees, pirates, sailors, and cosmopolitans as a vital counter-narrative to the fixity of the ethnic absolutisms that are entrenched in the structural racism of the nation-state.⁷ While they focused on the concept of the ship as a chronotope and the flow of (heterosexual male) bodies across social and material borders, the metaphors of fluidity were not all together new. I argued in a book—which was very much a child of these discourses—that the ocean was a vital and ubiquitous trope of the flows and torrents of British expansion and trade in the 18th and 19th century, evident in British poetry as well as travel narratives.⁸ There is a critical link between transoceanic empire, the rise of capitalism, and the imaginative grammar of fluidity and flow. In an important book on H2O, Ivan Illich argued that the concept of the *circulation* of social fluids was imagined through images of blood, water, and commodities in 18th-century Europe. By 1750, the social came “to be imagined as a system of conduits,” where the “liquidity” of bodies, labor, ideas, raw materials, capital, and products arose as a “dominant metaphor.”⁹ In sum, transoceanic empire helped constitute a fluid grammar for what Edward LiPuma and Benjamin Lee call “circulatory capitalism.”¹⁰ This liquidity was also constitutive of the discourse of globalization, postmodernity, and what sociologist Zygmunt Bauman famously termed “liquid modernity.”¹¹

This fluid turn was not necessarily engaged in the ontology of “wet matter,” to borrow from geographers Philip Steinberg and Kimberley Peters.¹² In other

words, the oceans were spaces to be traversed by (heteronormative) male agents, not necessarily to immerse or submerge in a dynamic relation to nonhuman matter (water) and more-than-human species as we see in more scholarship today.¹³ The oceanic turn in scholarship after the 1990s was not just driven by the changing mobilities of human activity but also by the largest remapping of the planet since the Truman Proclamation which declared the length of a coastal “cannon-shot” (200 miles) as sovereign national territory. This created what Maltese Ambassador Arvind Pardo famously labeled a global “scramble for the seas” which was based on the expectation of new technologies for extracting strategic seabed minerals like manganese. This eventually led to the United Nations Convention on the Law of the Sea which, when ratified by over 165 states in 1994, enclosed the oceanic global commons.¹⁴ Because this remapping includes the sea, subsea, and airspace, this is the largest juridical and cartographic change to the globe in human history. Just as 18th-century discourse adopted a lexicon reflecting the fluidity of empire, our 21st-century discourse is entangled with the aquatic flows of neoliberal extraction and “circulatory capitalism.” Critical ocean studies is attentive to how the enclosure of the seas has discursive effects. In other words, aquatic space shapes our language just as we are shaped by the ocean, materially and ontologically. Consequently, in this shift to the “blue economy” it’s not surprising that global regime changes are reflected in the maritime grammars we use to communicate about everything from fluidity to the “blue humanities.”¹⁵

There is precedent to this argument that geopolitical and juridical changes impact academic disciplines as well as discourse. For example, the late capitalist era of globalization that characterized the 1990s “Asia Pacific pivot” led literature scholars such as Christopher Connery to theorize the utopian discourse of the Pacific Rim in relation to the increased visibility of transnational capital. Connery located the emergence of Pacific Rim studies as an academic reflection of US imperialism as it continues to fulfill its “manifest destiny” by expanding across the Pacific toward Asian capital, reflecting a similar teleology to that which led the US to overthrow the sovereign territory of Hawai`i in 1893.¹⁶ Building on the work of David Harvey, Connery argued that:

The concept of region, arising as it does within a binary logic of difference, is a semiotic utopia, a “spatial fix” for those faced with analyzing the always differentiating but always concealing logic of capital. The region, less encumbered by the various ideological or mythical mystifications that pervade the state, will be where history and analysis takes place.¹⁷

The ocean and its disciplinary reframings and investments also reflect a similar fixing of desire. This is a conceptual, spatial, and neoliberal fix, as I will explain. To Harvey, the problems of capital’s excess are resolved (temporarily) through space: “the absorption of excess capital and labor (is achieved through)

geographical expansion. This spatial fix ... entails the production of new spaces within which capitalist production can proceed."¹⁸ Here we see capitalism's use of the oceanic body as an accumulation strategy or fix. Having exhausted terrestrial markets, capitalism co-creates and adapts technologies to turn to outer space and the so-called inner space of the oceanic realm. Yet this new era of unfixed capital, derivatives, and speculative futures raises new formal and conceptual questions about the oceanic turn.

In their work on *Financial Derivatives and the Globalization of Risk*, LiPuma and Lee claim that we are now in an era of "circulatory capitalism":

speculative capital, circulated through risk driven derivatives, is currently restructuring the relationship between production and circulation by accelerating and expanding the spatial reach of the reproduction of capital ... We are witnessing the rise of a transformed form or new phase of capitalism in which production is (and remains) a crucial, indispensable, but now encompassed moment of a globalizing system that is striving toward a different type of totality.¹⁹

Their metaphors of fluidity about "cultures of circulation" and "streams of capital" point toward the ways in which technologies help produce the overaccumulation of capital and thus by extension, will need a spatial fix.²⁰ That spatial fix, increasingly, has become the world ocean.

In their article "The Blue Fix," the authors Zoe Brent, Mads Barbesgaard, and Carsten Pedersen provide a compelling argument about the ways in which the UNCLOS enclosure created a spatial fix for capitalism, a new frontier for raw materials and consumption. The neoliberal discourse of "blue growth, blue economy, blue revolution" as well as blue investments and blue mining seek to entice state and corporate investment in ocean technologies and extractive industries without addressing the social and technological propensity for devastating ecological loss.²¹ This spatial fix is comprised of a "conservation fix" (ecosystems management), a "protein fix" (industrial fisheries), and an "energy/extractive fix" (offshore and deep-sea mining). Their particular concern is the commodification of the ocean and its resources and the ways in which states and corporate actors are working together to create a neoliberal blue economy. Turning briefly to an infographic from the World Bank, we see that the blue economy is defined as a "sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health" based on the management of renewable energy, fisheries, transportation, waste, and tourism.

The authors of "The Blue Fix" point out the International Seabed Authority (ISA) which manages what is called the "Area" beyond the exclusive economic zone ("EEZ")—nearly half the surface of the earth not to mention volume—distributes corporate mining rights through its Legal and Technical Commission (LTC) without transparency, even to its own member states.²² This question of imagining the "Area"—a space far beyond terrestrial vision—is precisely the

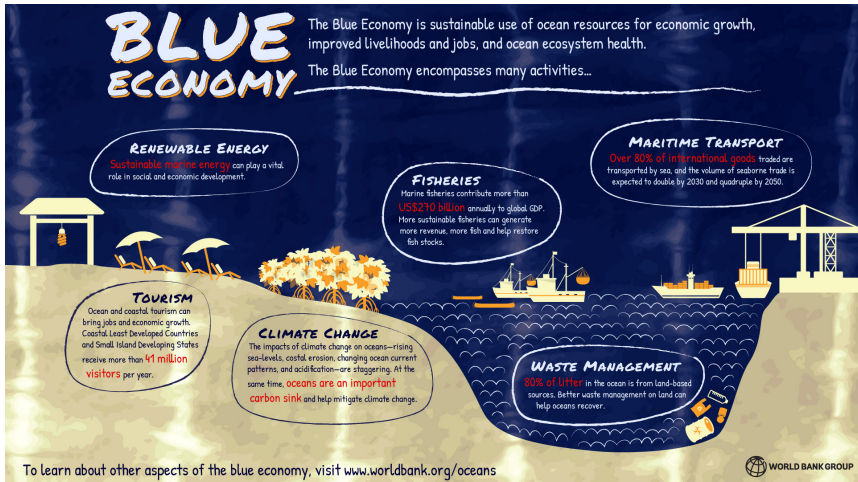


FIGURE 6.2 The Blue Economy, The World Bank. Used with permission.

concern of this chapter and apparently of the ISA itself, which hosted a visual arts competition for World Oceans Day in 2021 to represent the abyss.²³ This is a timely moment for exploring, imagining, and representing all things oceanic, which is increasingly branded as “blue.” Brent, Barbesgaard, and Pedersen note the dizzying accumulation of new “blue” concepts from finance to revolution. While they do not mention the “blue humanities,” certainly one must question the rebranding of disciplines during this unprecedented scramble for the minerals of the seabed and neoliberal downsizing of arts and humanities divisions and departments. Generally speaking, critical ocean studies foregrounds methodologies that examine the hydropower of militarism, empire, slavery, and extractivism to a greater extent than the scholarship engaged in the blue humanities, which has more literary and Eurocentric origins.²⁴ Here I will dive in a bit deeper into the extractive imaginary to engage its speculative futures.

There is critical new scholarship being produced about the enclosure of the ocean, “speculative capitalist futures,”²⁵ and the oceanic “techno-frontier” which is “always open and expanding.”²⁶ Under the guise of neoliberal extractive regimes, the ocean has become a new space of the blue economy, a new commodity frontier in the scramble for rare earth elements and so-called green energy supplies, leading to new vocabularies and practices of deep-sea oil exploration, subsea carbon dioxide capture (CCS), and ocean carbon sequestration.²⁷ This has produced a new body of interdisciplinary scholarship with a critical eye on DSM. Of particular concern is the public-private alliance of transnational extractive industries with nation-states (that is, for drilling within the EEZ) or with the International Seabed Authority (ISA), when mining takes place in the “Area.”²⁸ DSM is understood to be a range of practices in the seabed, water column, as well as processing on land and thus the scholarship presses against the industry’s claims that this supposedly remote drilling will cause no social or

ecological effects. The creation of this “blue frontier” and commodification of the ocean’s minerals is speculative because the technologies are, as yet, untested outside of one project off the coast of Okinawa.²⁹ Nevertheless, an unprecedented number of exploratory permits have been granted by the ISA, and in the next year mining will commence in the Clarion Clipperton Zone, an abyssal plain of the Pacific that is 1.7 million square miles large, which is the width of the continental United States.³⁰

The Canadian-based mining conglomerate Nautilus attempted to mine in the territorial waters of Papua New Guinea, naming themselves after the ship in the Jules Verne 1870 adventure novel, *20,000 Leagues Under the Sea*, presumably as a way to frame extraction as adventure. In the scholarship on the rhetoric of extractive industries, scholars have pointed out that DSM poses challenges to what is called the “social license to operate” from the local community, because the mining itself takes place far offshore.³¹ Thus the usual corporate social technologies that manufacture consent in extraction zones are challenged in an effort to create a “deep-sea community.” As Carver, Childs, and Steinberg et al. argue, these companies trade in the discourse of nautical adventure and the blue economy through “blue growth discourse that (re)opens the ocean to imaginations of adventure, wherein new opportunities can be harnessed, and potential capital accumulated.”³² This new extractive imaginary³³ of a blue frontier is not only produced through the industries themselves. It is also evident in a 2019 sf (science or speculative fiction) ocean anthology commissioned by XPRIZE, an organization funded by Royal Dutch Shell PLC (Shell), entitled *Current Futures: A Sci-Fi Ocean Anthology*, which demonstrates the suturing of the extractive imaginary to the genre of sf itself.³⁴ Taken as a whole, the online short story collection and accompanying art gives us an altogether neoliberal vision of the “depth imagination” as it merges petrocapiatist extraction narratives with speculative fiction.³⁵ My claim is that because DSM and other forms of oceanic extraction take place outside of coastal vision, XPRIZE has funded an international group of speculative fiction authors and artists—from all seven continents—to help give them a “social license to operate.”³⁶

In watching their introductory and celebratory video, “We are XPRIZE,” one is struck by its global, totalizing visual scope; the way in which it frames competition and its financial rewards as the way to incentivize technology and the future; the focus on “big” and “grand challenges”; the narrative that capitalism is something that “solves” problems but industry is lagging and thus needs a technological fix (as they claim—“problems that the markets have failed to solve”). Like the invocation of the *Nautilus*, XPRIZE employs a narrative of adventure on a journey to the future as well as to the deep oceans and outer space; and their film emphasizes going “deep into the *imagination*,” to extract ideas and transform them into a techno-utopia of “hopefulness,” “added value,” and a STEM future, where petrocapiatist still reigns but is slightly cleaner.³⁷ The organization emphasizes oil cleanup technologies because they do not imagine a future outside of petrocapiatist.

In its efforts to commodify the depth imagination, XPRIZE funded *Current Futures*, a title that cleverly plays with the ontology of fluidity as well as time. The perspective in this interactive website is submarine, with the waves gently moving over the text that reads:

Inspired by the awarding of the Shell Ocean Discovery XPRIZE and in celebration of World Oceans Day, XPRIZE partnered with 18 sci-fi authors and 18 artists, with contributions from all seven continents, to create an anthology of original short stories in a future when technology has helped unlock the secrets of the ocean. The series is a “deep dive” into how some of today’s most promising innovations might positively impact the ocean in the future, meant to remind us about the mystery and majesty of the ocean, and the critical need for discovery and stewardship.³⁸

Feminist scholars such as Carolyn Merchant and Val Plumwood have long challenged the narrative of the way in which nonhuman nature is rendered as female gendered space, waiting passively for the penetration of masculine technology and capital to “unlock [its] secrets,” a trope that has long been associated with oceanic “wilderness.”³⁹ The language of the prize draws upon a long western tradition of representing the ocean in terms of the sublime that is simultaneously “mystery” as well as a site for conquest through discovery and techno-capitalism.

Since their partnership with Shell in the wake of the Deepwater Horizon extraction disaster,⁴⁰ XPRIZE has been particularly focused on oil spill technologies and their goal to map the entire seabed by 2030 with an interest in the new industries of the blue economy and so that Shell can explore new blue frontiers of extraction.⁴¹ As Kara Keeling has documented, since the 1970s Shell has been invested in the concepts of exploration, innovation, imagination, speculation, interdisciplinarity, and a “future scenarios initiative” of storytelling to shore up its global network of extractive ecological disaster zones.⁴² This “critical need for discovery” is part of the contemporary scramble for new submarine minerals as much as establishing a “social license to operate” through the popular genre of science/speculative fiction, providing an extractive imaginary that plumbs the depths of the seas.

Mining Cultural Capital

Who is behind this particular effort to mine cultural capital and promote an extractive imaginary? XPRIZE was established in 2011 by Royal Dutch Shell,⁴³ its current investors include the major venture capitalists associated with the neoliberalization of education, health, the subject, and the global commons. They include Amazon, Elon Musk, Google, the military and aerospace conglomerate Northrup Grumman, health insurance companies like Anthem and Blue Cross, and transnational mining corporations like Tata Steel.⁴⁴ To those who’ve read Arundhati Roy’s *Capitalism: A Ghost Story*, the story of philanthropic colonialism

will be a familiar one. In that book, she details the history of the way in which corporate foundations such as Rockefeller and Carnegie created institutions to ensure their “global corporate governance” after World War II through the establishment of the Council on Foreign Relations (CFR) which, thanks to further support by the Ford Foundation, created a global structure that undergirded the creation of the United Nations and appointed nearly all the presidents of the World Bank since 1946. From that trajectory she concludes that “corporate philanthropy has turned out to be the most visionary business of all time.”⁴⁵ As she has demonstrated, these foundations—working with the CIA—not only generated enormous profits out of postcolonial nations’ debt but also restructured academic disciplines in international and area studies.⁴⁶ Jane Mayer’s research has similarly unearthed a decades-long campaign by ultra right-wing American plutocrats to undermine the liberalism of universities, think tanks, government agencies, and philanthropy.⁴⁷

In reflecting on the ways in which non-governmental organizations (NGOs) have restructured activism and labor into non-intersectional fragments, Roy grimly concludes that “funding has fragmented solidarity in ways that repression never could.”⁴⁸ This is the result of the privatization of everything, including ideas. It’s this *innovative* side to global capitalism that we need to consider more carefully before we rush to adopt terms like the “blue humanities” amidst this drive for an extractive blue economy. Roy reminds us that global elites “can adapt and constantly innovate[,] . . . are capable of quick thinking and immense tactical cunning,” and, as we’ll see here, capable of harnessing the creative imagination. In fact, we might conclude that these extractive industries are dependent on it.

Let’s submerge further by taking a closer look at the XPRIZE *Current Futures: A Sci-Fi Ocean Anthology* and its goals. While the collection includes predominantly American writers and is in English, it does seek to be global in scope, including emergent and established authors from the Caribbean, Africa, UK, Australia, India, and China. One of the authors kindly shared with me the list of criteria sent to the writers:

1. Stories should be between 2,500 and 3,500 words;
2. Stories should be original and unpublished;
3. Stories should take place in the 2030–2050 timeframe, far enough out for significant technological developments to have occurred, but still relatively accessible;
4. Each writer should choose from the below list of focal areas (or submit her/his own), to ensure a diversity of stories;
5. The underlying tone should be that of techno-optimism, in line with XPRIZE’s vision of the future of our oceans to be healthy, valued, and understood.

The commodification of the imagination is not a new story of course, as we might see this as a kind of patronage system that supported artists and writers

under the regime of dynasties all over the world. But in this context the new dynasty is a neoliberal techno-optimism as the sovereign of the future.

Turning to XPRIZE's assigned focus areas we can see how the extractive industries are imagining the future:

1. Exploration of Shipwrecks or other human artifacts;
2. New Energy Sources;
3. Environmental DNA (eDNA), Metagenomics;
4. Advanced Communications, Acoustics, Interspecies Communications;
5. Discovery of new species/lifeforms;
6. Discovery of new landscapes;
7. Eco-Tourism;
8. Terraforming, Underwater Human Habitats;
9. Advanced Conservation or Restoration Techniques;
10. Ocean Data, A.I.;
11. AUVs, Robotic Exploration, Transportation;
12. Advanced Imaging, Sensors, Tagging, Monitoring;
13. Clean-up Technologies.⁴⁹

There is a long history of colonial tropes of transoceanic expansion that are harnessed here and in the techno-optimistic architects of the blue economy. If we think back to the World Bank's definition of the blue economy, we see many of the same features: the ocean is imagined as a space of extraction of both energy and protein; the ocean is a space of "maritime transport," particularly submersibles such as Autonomous Underwater Vehicles (AUVs); the ocean is a space of tourism and a blue-green frontier.⁵⁰ We know that in the practice of storytelling, movement across space produces narrative. Thus, travel across and beneath the seas provides the possibility of narrating adventure and the "discovery of new species." The "discovery of new landscapes" is an established colonial plot device as it has been for centuries of maritime fiction.⁵¹ This sense of wonder at the discovery of nonhuman nature is then commodified through practices like ecotourism.

The repetition of the term "discovery" here frames the alterity of the ocean as optimistically subject to human technology and the sublime. While feminist materialists argue—compellingly, I believe—for the importance of oceanic submergence, the haptic, and the sensory encounter with our nonhuman others,⁵² surprisingly XPRIZE also emphasizes the ways in which other senses are integral to knowing the ocean through acoustics, sensing, AI, advanced knowing, and interspecies communications. One of the hallmarks of the field of the environmental humanities is its multispecies theories and imaginaries; yet here we see XPRIZE is poised to tap into the ways in which contemporary *sf* writers provide a depth imagination of our nonhuman others that benefits an extractive imaginary and practice.

Building on the foundational work of Martin Rudwick, the geographer John Childs reminds us of the complexity and cunning of extractive industries.

He argues: “The deep sea’s liveliness and its material properties may actually be very well recognized by those very actors who seek to exploit it.”⁵³ This reflects a larger capacity for mining companies to reflect and develop what Rudwick terms “geognosy” (or perhaps in this context, aquagnosy) in thinking in complex, three-dimensional, and specifically visual ways with maps, surfaces, and depth.⁵⁴ This is evident in XPRIZE’s description of its project as well as the way in which the website adopts a visual volumetric in which one submerges deeper with each story. While the homepage has an image of “wet matter” in gentle motion (placing the viewer undersea), we also note that each story has a commissioned art piece that in almost all of the cases, domesticates the alterity of the sea through familial and maternal images.

As we shift our focus to the stories themselves, I want to bring forward a few important arguments about sf that will help us unpack the way in which this genre and its techno-utopian futures emerge in an era of speculative finance and inform the extractive imaginary. The Frankfurt School thinkers argued that cultural production is structured by the commodity form and capitalism itself. Building upon this work and commenting on the ontological flatness of sf in general,⁵⁵ Fredric Jameson has pointed out the limitations of the genre as a whole, declaring that “our imaginations are hostages to our own mode of production ... at best Utopia can serve the negative purpose of making us more aware of our mental and ideological imprisonment ... and that therefore the best Utopias are those that fail the most comprehensively.”⁵⁶ Certainly there are failures in this XPRIZE anthology but they fail precisely in ways that illuminate the imaginative bankruptcy of neoliberal capital: a new era that is loosened from the commodity forms that concerned the Frankfurt School and its theorizations of culture. In our contemporary context, speculation is as much genre as capital’s new (blue) spatial fix.

A recent issue of *The Centennial Review* seeks to unpack the economic totality of “immaterial financialization” and speculative futures in both economic and narrative terms. What the editors term “extractive speculations” in relation to venture capital I adopt here to think through the extractive as material and interpretive practice in speculative fiction.⁵⁷ There is a vital body of scholarship exploring “fictitious capital”⁵⁸ and the way in which neoliberal capitalism financializes the subject through economies of debt (mortgages and loans) as well as speculation and risk (insurance). Building upon this work, scholars are examining how the narrative structures and imaginaries of speculative fiction are often entangled and informed by speculative finance.⁵⁹ The majority of scholarship on sf has read these generally utopian texts against the grain of the homogenizing reach of global capital, as resistant texts to the relentless competitive individualism of neoliberalism and toward more community-based modes of knowing and being.⁶⁰ The current trend is to argue that progressive sf imaginaries make the everyday violence of finance capital visible.⁶¹ But we must ask: is rendering something visible another way to make it available for consumption?

I am brought to this question through the critique of green and blue capitalism, which seeks to render ecological damage visible to capital so that it becomes valuable and then a source of investment for “blue growth.”⁶² My question is how to disentangle what becomes visible—be it newly discovered deep-sea creatures or the mapping of sea floor vents—from commodification. The work linking speculative fiction and capital also raises for me second, more generic question—*are utopian, alternative visions of the future the only way to imagine ourselves outside of neoliberal, extractive regimes of capital?* Are there no other genres that might also do this work?

In the remaining space I have I would like to bring these questions about speculation in relation to a few of the stories of the anthology, and examine how they speak to what XPRIZE calls—without irony—an “innovation pipeline.” Not coincidentally, Shell has long used the concept of innovation as critical to its extractive imaginary:

Innovation is the reason why we are able to drill for oil miles under the ocean, turn gas into liquid and transport it from the desert to cities, and unlock new sources of energy such as biofuels from plants. Rising demand for energy, together with the need to reduce carbon dioxide emissions, makes the role of innovation even more important.⁶³

Innovation is a through line of the *Current Futures* anthology, which is the originary mechanism of techno-optimism. Although there is a wide range of queer, feminist, non-binary, and more-than-human protagonists and imaginaries in the anthology, all of the stories feature techno-optimism in the wake of severe climate change. Techno-optimism is an eco-modernist conceit that human ingenuity will solve the ecological crisis caused by racial capitalism.⁶⁴ By extension, the narrative of techno-optimism highlights and even re-entrenches a nature/culture divide. Some of the sf authors in the anthology attempt to dissolve this division by narrating experiences of enchantment and the sublime, as their human characters become awe-struck by the beauty of submarine life. In those stories, the visual consumption of the ocean and its creatures through submersible technologies or by gazing through aquarium glass creates a sense of wonder and commitment to conservation. Nevertheless, the species barrier generally remains intact and most of the narratives remain anthropocentric.⁶⁵

Collectively, the authors of *Current Futures* document the perils of ocean acidification and warming, sea-level rise, animal extinction, devastation of coral reefs, increasing hurricanes, the expansion of plastic waste and/or oil spills in the ocean, AI technologies designed for toxic cleanup, and address poverty, famine, and environmental refugees caused by the Anthropocene. While the frame of techno-optimism provides a spatial and technological “fix,” it also leads to the creation of some extremely competitive and individualistic protagonists. Many of the anthology’s protagonists are young women or non-binary, who are vying to win technology grants and financial support from elite white men, who reside

on “super yachts” or elaborate crypts in Paris. These men become the audience to whom the protagonists need to “pitch” ideas or technologies ranging from robot fish and sensor webs to Subjective Behavioral Immersion (SBI) suits. In Brenda Cooper’s short story, for instance, money gleams from the opening paragraph where the chief CEO scientist of an ocean preservation foundation “signed approvals for so much money she could have fed all of Washington state for a year.”⁶⁶ This anthology has a remarkable presence of foundation leaders and launches, financial investors, and lavish investors’ parties, which are not particularly compelling nor do they warrant much plot movement outside of a pedagogical one in which one character “pitches” her product. In the words of Lauren Beukes’s character, “The (investors) want guarantees ... telling them what they want to hear. It’s all compromise.” In fact, in Deborah Biancotti’s story of industrial coral farming, one protagonist is labeled by another a “corporate paty.” Read allegorically, we might see these gender and power relations in terms of the largely female authors’ relationships with their XPRIZE benefactors. Nevertheless, it’s troubling because as broad and experimental as the sf genre can be, the diversity of the protagonists and their worlds has not ruptured the suture to the neoliberal operators of extractive capital.⁶⁷

Since the general tone of *Current Futures* is post-apocalyptic, the stories imagine adaptation and innovation as ways to navigate the future, terms that are critical to circulatory capitalism and its extractive practices. In the words of Elizabeth Bear’s character, “The rising sea can’t be stopped, but its force can be shifted.” Many of the narratives are framed as futuristic detective stories in which the young female characters need to demonstrate their scientific reason to solve ecological crises and win the support of the wealthy male investment class, which is always rendered as a cosmopolitan, transnational elite. Kaushik Sunder Rajan’s description of the “venture science”⁶⁸ of neoliberal regimes is literalized in many of these stories—truth is given “truthiness” (to borrow from Stephen Colbert) because the venture-capital-funded scientist is projecting the possibilities of technology into the future, which cannot be known. By writing them as “current futures,” the authors of the anthology provide *anticipatory evidence* of the imagination for extractive capital.⁶⁹

There’s a maxim attributed to both Fredric Jameson and Slavoj Žižek that it’s easier to imagine the ends of the earth than the ends of capitalism. Narratively, the sf writers of capitalism’s ends find their spatial fix in the ocean and in the depth imaginary. While most of the stories do not render a future outside of capitalism, others directly imagine its blue spatial fix. In Biancotti’s story of industrial coral farming and its potential pirating, the narrative resolution comes to rest on the realization that “trading was how the Blue Economy worked.” Her venture scientist protagonist seeks to assist an unfunded coral conservationist by trading a meal for her genetically altered coral as a way to circumvent her corporate overlords, but it does not question genetically modified organism (GMO) technologies or the trade in forms of life. The critique only goes so far in that “the people funding the grants” decide who trades

commodities. In Gwyneth Jones's story, a student protagonist finds a way to harvest animal intelligence to produce "sustainable" abyssal plains mining, and determines "trade is the breath of life." It's hard to place these particular stories that use the trade in life or naturalize seabed extractivism as progressive sf imaginaries because they trade, narratively speaking, in neoliberal individualism and extractivism.

In fact, the extractive imaginary in many of these stories harvests data and the "mysteries of the ocean" for circulatory capital. Madeleine Ashby's protagonist "took a deep breath, feeling the data pouring in all around her. It felt like the secrets of the sea were speaking to her." She then shares these secrets with her boss, the head of an elite transnational organization, who decides he will use it to "help (him) decide some future investments." So while sf as a genre has often been attributed with resistance to transnational extractive regimes and in positing liberatory ecological and multispecies speculative futures, in this collection the stories are not necessarily even environmental. For example, Cooper's foundation director is extremely dismissive of the environmental movement and the critique of the corporate abuse of science, remarking that the "greatest environmental cliché is *Save the Whales*." When a young journalist complains that "science made plastic and atom bombs and gasoline. Science stole everything from my generation," she is dismissed as using "such old, stale talking points."

While I'm particularly sympathetic to the critic's desire for spaces of revelation, critique, and enchantment in speculative fiction, it was a challenge for me as a reader to sympathize with many of these individualistic, flat characters who function as problematic allegories of the Anthropocene. I've argued elsewhere that allegory as a formal device is critical for interpreting the multiscale crises of the Anthropocene and, following Walter Benjamin, have demonstrated that it represents a way of reading the disjuncture between weather and climate, human and the planet. In that book, I drew from work that is complicating the very human-nature binaries that the Anthropocene enacts by turning to relational ontologies, interspecies relations, and what I termed "sea ontologies," which are about the merger and dissolving of self into "wet matter."⁷⁰ I argued that our partial understanding of global climate change produces new economies of speculation, and that sea-level rise, our most globally visible manifestation of climate change, contributes to the production of new generic forms. Fluidity and mutability are hallmarks of the oceanic imaginary—these concepts of transformation are also integral to allegory as a form because it is about the metamorphosis of the subject and, eventually, reader. In a later piece co-written with Tatiana Flores, we argued for the importance of "submerged" visions,⁷¹ inspired by the work of Stacy Alaimo who wrote:

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.⁷²

I've traced this ethical, more-than-human engagement in arts and fiction, but I have to admit it gave me pause to see the ways in which XPRIZE was looking to encourage writers to submerge themselves and to explore submerged perspectives and "interspecies communications" to suit extractivist aims. There are many stories in the collection that are about oceanic submersion but *not* about generic or subjective transformation; in fact, submersion does not necessarily transform genre nor does it dissolve the competitive, individualistic aims of the protagonists. For example in Sheila Finch's story, which focuses on dolphin communication, the protagonist is writing a dissertation that "would be cutting edge, and she wasn't going to be easily thwarted." When she learns her neural implants allow her to communicate with cetaceans, "she imagined stunning her doctoral committee with her results" rather than the deeper ontological meanings of what that multispecies communication might do to transform both her and her non-human interlocutor. When she does communicate telepathically with an octopus she declares that her "scientific training prevailed" and she dismisses her earlier attachment to the Hawaiian concept of multispecies 'ohana, or family, as "childish." This current of the extractive imaginary might be better accounted for in a deeper engagement with the claims about sf as a genre and the imagined futures of the blue humanities.

I'll conclude my chapter with some possibilities that our sf authors have provided to read neoliberalism against the grain, creating spaces and bodies that are less subject to petro-commodification and extraction. There are three stories of merger and submersion that are profoundly transformative of both genre and the subject that open possibilities of alterity that challenge the extractivist imaginary through affect, the body, and ontology. These are the stories that, against the grain of neoliberal extraction narratives, imagine (sea) ontologies that deepen narrative possibilities. As Astrida Neimanis observes, "Our watery relations within ... a more-than-human hydrocommons ... [can] present a challenge to anthropocentrism, and the privileging of the human as the sole or primary site of embodiment."⁷³ For instance, Beukes's story, "Her Seal Skin Coat," challenges the "new golden age of exploration" invoked by James Cameron. While her protagonist travels to Antarctica to work with technologies that allow one to merge into the body of Weddell seals, she critiques her wealthy benefactor—and likely XPRIZE—by having her protagonist remark "you're paying me so you can play at being an explorer." The immersion tank that tourists enter in their Antarctic journey claims to give one access "inside the mind of a Weddell Seal" but her character knows "it's still *your* mind inside the body of a Weddell Seal. And isn't that the problem?"

In a later experience termed "dysmorphia" the protagonist Maia becomes renamed when she attempts to become "one with the ocean" through the immersion tank. Because she lives and breathes seals for 14 to 16 hours a day

she develops a “ghost sense of fish or favorite octopus in her *other mouth*.” At the ending of the story the seal she is embodying is killed by an orca, a physically and emotionally wrenching experience that she allegorizes as her relationship to her white male benefactor. There is no collectivity or utopia to be found except in her return to the tank which allows her this immersion that is provided by—and takes her outside of—the neoliberal narrative of masculinist extraction and discovery. In this sense, the story suggests that “watery embodiment presents a challenge to three related humanist understandings of corporeality: discrete individualism, anthropocentrism, and phallogocentrism,”⁷⁴ even as neoliberal technologies may provide the materiality or structure.

Malka Older also imagines technologies to merge human and animal consciousness, not in the service of techno-optimism or extraction but like Beukes, to register empathy and the capacity to feel nonhuman pain. In her story, “octovision” enables the sharing of octopus memory with humans, and the once thriving coral reef that has since died is recorded, felt, and grieved rather than commodified. In Catherynne M. Valente’s story, the only one featuring a non-human narrator—a pregnant orca—human and whale memory merge and the story dissolves realism into a poetic, lyric reflection of intergenerational memory of underwater life rather than isolated individualism and achievement. In these stories, the authors foreground the intimacy and care that is possible between human and nonhuman, engaging what Bachelard termed “the dialectics of immensity and depth,” producing a “depth imagination” that inscribes a multi-scalar “concordance of world immensity with intimate depth of being.”⁷⁵ Perhaps that has not been commodified. To return to the Sylvia Earle epigraph that opens this chapter, these particular stories remind us that the extraction of “our existence” is dependent on intimacy and species being with our nonhuman others.

Acknowledgments

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Notes

- 1 “5 Questions for Dr. Sylvia Chapman,” Conservation Law Foundation, 2015, <https://www.clf.org/conservation-matters-articles/5-questions-for-dr-sylvia-earle/>.
- 2 Gaston Bachelard, *The Poetics of Space: The Classic Look at How We Experience Intimate Places* (New York: Penguin Books, 2014), 188.

- 3 While there is now a large body of work, an early example of the use of the term “blue humanities” can be found here: <https://www.neh.gov/humanities/2013/mayjune/feature/the-blue-humanities>. That neoliberalism in academia is a post-Reagan and Thatcher development is nicely outlined here: <https://www.aaup.org/article/tyranny-neoliberalism-american-academic-profession#.YWTVO9rMJPY>.
- 4 Bachelard, *Poetics*, 208.
- 5 Stuart Elden, “Secure the Volume: Vertical Geopolitics and the Depth of Power,” *Political Geography* 34 (2013): 35–51.
- 6 John Hannigan, *The Geopolitics of Deep Oceans* (Cambridge: Polity Press, 2016) and Surabhi Ranganathan, “Ocean Floor Grab: International Law and the Making of an Extractive Imaginary,” *European Journal of International Law* 30, no. 2 (2019): 573–600. For the connection between UNCLOS and the oceanic humanities see Elizabeth DeLoughrey, *Routes and Roots: Navigating Caribbean and Pacific Island Literatures* (Honolulu: University of Hawai’i Press, 2007).
- 7 DeLoughrey, *Routes and Roots*; Peter Linebaugh and Marcus Rediker, *The Many-Headed Hydra* (Brooklyn: Verso Books, 2000); Paul Gilroy, *The Black Atlantic* (Cambridge: Harvard University Press, 1993).
- 8 DeLoughrey, *Routes and Roots*.
- 9 Ivan Illich, *H2O and the Waters of Forgetfulness* (Berkeley: Heyday Books, 1985), 43; DeLoughrey, *Routes and Roots*.
- 10 Edward LiPuma and Benjamin Lee, *Financial Derivatives and the Globalization of Risk* (Durham: Duke University Press, 2004), 15.
- 11 Zygmunt Bauman, *Liquid Modernity* (Cambridge: Polity Press, 2000), discussed in DeLoughrey, *Routes and Roots*, 56–57.
- 12 Philip Steinberg and Kimberley Peters, “Wet Ontologies, Fluid Spaces: Giving Depth to Volume through Oceanic Thinking,” *Environment and Planning D: Society and Space* 33, no. 2 (2015): 247–264.
- 13 Stacy Alaimo, “Oceanic Origins, Plastic Activism, and New Materialism at Sea,” in *Exposed: Environmental Politics and Pleasures in Posthuman Times*, eds. Serenella Iovino and Serpil Oppermann (Bloomington: Indiana University Press, 2014), 186–203; Astrida Neimanis, *Bodies of Water: Posthuman Feminine Phenomenology* (London: Bloomsbury Publishing, 2017); Elizabeth DeLoughrey and Tatiana Flores, “Submerged Bodies: The Tidalectics of Representability and the Sea in Caribbean Art,” *Environmental Humanities* 12, no. 1 (2020): 132–166; Alexis Pauline Gumbs, *Undrowned: Black Feminist Lessons from Marine Mammals* (Chico: AK Press, 2020).
- 14 Arvid Pardo, *Common Heritage: Selected Papers on Oceans and World Order, 1967–1974*, ed. Elisabeth Mann Borgese (Malta: Malta University Press, 1975); DeLoughrey, *Routes and Roots*; Zoe W. Brent et al., “The Blue Fix: Unmasking the Politics behind the Promise of Blue Growth,” *Transnational Institute* (2018): 3–19; Ranganathan, “Ocean Floor Grab.” For a critique of how Pardo prepared the seabed as a space for mining see John Childs, “Performing ‘Blue Degrowth’: Critiquing Seabed Mining in Papua New Guinea Through Creative Practice,” *Sustainability Science* 15, no. 1 (2019): 117–129.
- 15 The terms “blue humanities” and “blue economy” seem to have arisen simultaneously around 2009 and have been greatly expanded as concepts since then.
- 16 Christopher L. Connery, “The Oceanic Feeling and the Regional Imaginary,” in *Global/Local: Cultural Production and the Transnational Imaginary*, eds. Wimal Dissanayake and Rob Wilson (Durham: Duke University Press, 1996), 286–287.
- 17 Ibid.
- 18 David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Oxford: Blackwell Publishing, 1990), 183.
- 19 LiPuma and Lee, *Financial Derivatives*, 14.
- 20 Ibid., 13–14.
- 21 Brent, “The Blue Fix,” 3, 5.
- 22 Ibid., 16.

- 23 My thanks to Phil Steinberg for calling my attention to this competition. See <https://www.isa.org/jm/world-oceans-day>.
- 24 I explore this in more depth in a special issue of the journal *English Language Notes* on hydropower: "Toward a Critical Ocean Studies for the Anthropocene," *English Language Notes* 57, no. 1 (2019): 22–36.
- 25 Alexander Campbell, "Extractive Poetics: Marine Energies in Scottish Literature," *Humanities* 8, no. 1 (2019): 7.
- 26 Anna Lowenhaupt Tsing, "Natural Resources and Capitalist Frontiers," *Economic and Political Weekly* 38, no. 48 (2003): 5100–5106, 5102.
- 27 See R. Carver et al., "A Critical Social Perspective on Deep Sea Mining: Lessons from the Emergent Industry in Japan," *Ocean and Coastal Management* 193 (2020): 1–10.
- 28 Convention on the Law of the Sea, Article 136, December 10, 1982, 1833 UNTS 397 [UNCLOS]: "[T]he Area and its resources are the common heritage of mankind." "The Area" is "the sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction," and its "resources" are "all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the sea-bed, including poly-metallic nodules." UNCLOS art. 1, 133a. See also John Childs, "Greening the Blue? Corporate Strategies for Legitimising Deep Sea Mining," *Political Geography* 74 (2019): 1–12; Childs, "Performing 'Blue Degrowth'"; John Childs, "Extraction in Four Dimensions: Time, Space and the Emerging Geo(-)politics of Deep-Sea Mining," *Geopolitics* (2020): 189–213.
- 29 See Carver, "A Critical Social Perspective."
- 30 Liam Campling and Alejandro Colás, "Capitalism and the Sea: Sovereignty, Territory and Appropriation in the Global Ocean," *Environment and Planning D: Society and Space* 35, no. 4 (2017): 776–794; Ranganathan, "Ocean Floor Grab."
- 31 Colin Filer and Jennifer Gabriel, "How Could Nautilus Minerals Get a Social Licence to Operate the World's First Deep Sea Mine?" *Marine Policy* 95 (2019): 394–400.
- 32 Carver et al., "A Critical Social Perspective," 3.
- 33 In the scholarship I've consulted the term is first used in John Childs and Julie Hearn, "New' Nations: Resource-Based Development Imaginaries in Ghana and Ecuador," *Third World Quarterly* 38, no. 4 (2016): 844–861, 847. See also Campbell, "Extractive Poetics," 16; Ranganathan, "Ocean Floor Grab."
- 34 "Current Futures: A Sci-Fi Ocean Anthology," XPRIZE, 2021, <https://go.xprize.org/oceanstories/>.
- 35 See *ibid.*
- 36 The emphasis on the seven continents is given by Chanda Gonzales-Mowrer (Vice President, Prize Operations) in the 2019 award ceremony recorded here: https://www.youtube.com/watch?v=gB35nTmiX7w&t=6s&ab_channel=XPRIZE.
- 37 "A Global Future Positive Movement," XPRIZE, 2021, <https://www.xprize.org/about/mission>.
- 38 XPRIZE, "Current Futures."
- 39 Carolyn Merchant, *The Death of Nature* (New York: Harper & Row Publishers, 1980) and Val Plumwood, *Feminism and the Mastery of Nature* (New York: Routledge, 1993).
- 40 "Information on Concept Paper for Partnerships Dialogue of the Ocean Conference," XPRIZE, accessed October 15, 2021, <https://sustainabledevelopment.un.org/content/documents/13700XPRIZE2.pdf>.
- 41 Many of the websites outlining the partnerships between Shell and XPRIZE have disappeared since I started writing this essay in 2020. This one outlines the 2015 ocean floor mapping prize partnership: <https://techcrunch.com/2019/05/31/teams-autonomously-mapping-the-depths-take-home-millions-in-ocean-discovery-xprize/>.
- 42 Kara Keeling, *Queer Times, Black Futures* (New York: New York University Press, 2019).

- 43 Braden Kelly, "Exploring for Innovation by Land, Sea, and Space," *Customer Think*, October 15, 2011, https://customerthink.com/exploring_for_innovation_by_land_sea_and_space/.
- 44 "Prize Sponsors," XPRIZE, accessed October 15, 2021, <https://www.xprize.org/about/benefactors/sponsors>.
- 45 Arundhati Roy, *Capitalism: A Ghost Story* (Chicago: Haymarket Books, 2014), 25.
- 46 *Ibid.*, 49.
- 47 Jane Mayer, *Dark Money: The Hidden History of the Billionaires Behind the Rise of the Radical Right* (New York: Doubleday, 2016).
- 48 *Ibid.*, 37. See also the discussions about "philanthrocapitalism" in David Rieff, "Philanthrocapitalism: A Self-Love Story," *Nation*, October 1, 2015, <https://www.thenation.com/article/archive/philanthrocapitalism-a-self-love-story/>; and William Easterly, *The Tyranny of Experts: Economists, Dictators, and the Forgotten Rights of the Poor* (New York: Basic Books, 2014). A larger body of work on this topic includes Robert F. Arnove, ed., *Philanthropy and Cultural Imperialism: The Foundations at Home and Abroad* (Bloomington: Indiana University Press, 1982); Anand Giridharadas, *Winners Take All: The Elite Charade of Changing the World* (Visalia: Vintage, 2019); Mark Dowie, *American Foundations: An Investigative History* (Cambridge: MIT Press, 2002); Inderjeet Parmar, *Foundations of the American Century: The Ford, Carnegie, and Rockefeller Foundations in the Rise of American Power* (New York: Columbia University Press, 2015). Many thanks to Nizan Shaked for suggesting the list of texts here.
- 49 The criteria were shared with me by an XPRIZE author who prefers to remain anonymous.
- 50 See Stefan Helmreich, *Alien Ocean: Anthropological Voyages in Microbial Seas* (Berkeley: University of California Press, 2009).
- 51 DeLoughrey, *Routes and Roots*.
- 52 See Stacy Alaimo, "New Materialisms, Old Humanisms, Or, Following the Submersible," *Nordic Journal of Feminist and Gender Research* 19, no. 4 (2011): 280–284; Eva Hayward, "Fingeryeyes: Impressions of Cup Corals," *Cultural Anthropology* 25, no. 4 (2012): 577–599; DeLoughrey and Flores, "Submerged Bodies."
- 53 John Childs, "Extraction in Four Dimensions."
- 54 Martin J. S. Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (Chicago: University of Chicago Press, 2005).
- 55 "I have said this negatively in connection with contemporary utopias: that their shallowness is not the mark of their failure of imagination, but rather very precisely their political function on the formal level—namely, to bring the reader up short against the atrophy of the utopian imagination and of the political vision in our own society." Fredric Jameson, *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (New York: Verso, 2005), 6.
- 56 Jameson, *Archaeologies of the Future*, xi. See also Fredric Jameson, "Reification and Utopia in Mass Culture," *Social Text* no. 1 (1979): 130–148.
- 57 David M. Higgins and Hugh C. O'Connell, "Introduction: Speculative Finance/Speculative Fiction," *New Centennial Review* 7 (2019): 1–9.
- 58 See Sheryl Vint, "Promissory Futures: Reality and Imagination in Finance and Fiction," *New Centennial Review* 19, no. 1 (2019): 11–36.
- 59 See Jameson *Archaeologies of the Future*; Vint, "Promissory Futures"; Aimee Bhang, *Migrant Futures: Decolonizing Speculation in Financial Times* (Durham: Duke University Press, 2018).
- 60 See Vint, "Promissory Futures," 12.
- 61 See *ibid.*, 18.
- 62 Brent, "The Blue Fix," 7.
- 63 "Energy and Innovation," Shell, 2021, <https://www.shell.us/energy-and-innovation.html#vanity-HR0cHM6Ly93d3cuc2h1bGwudXMvZW5lcmd5LWFuZC1pbm5vdmF0aW9uL29jZWFuLWlubm92YXRpb24uaHRtbA>. See also Keeling, *Queer Times*, 13.

- 64 John Asafu-Adjaye et. al, “An Ecomodernist Manifesto,” Ecomodernism, 2015, <http://www.ecomodernism.org/>; (This was popularized by a 2015 manifesto written primarily by men working at the neoliberal Breakthrough Institute).
- 65 While there are a few stories that imagine human/nonhuman mergers, the only story told from a nonhuman point of view is “The Seething Sea Sufficeth Us” by Catherynne M. Valente. See <https://go.xprize.org/oceanstories/>.
- 66 All *Current Futures: A Sci-fi Ocean Anthology* citations can be found on the website: <https://go.xprize.org/oceanstories/>.
- 67 There are of course exceptions—Vandana Singh and Catherynne M. Valente are the most experimental with form and narrative, whereas Nalo Hopkinson challenges colonial tourism through its natural decay; Lauren Beukes makes a powerful commentary on the exploitation of women and marine mammals. See <https://go.xprize.org/oceanstories/>.
- 68 Quoted in Vint, “Promissory Futures,” 27. Kaushik Sunder Rajan, *Biocapital: The Constitution of Postgenomic Life* (Durham: Duke University Press, 2006).
- 69 This is part of a larger argument about the rise of capital in relation to speculation and transnational labor/slavery. See Ian Baucom, *Specters of the Atlantic: Finance Capital, Slavery, and the Philosophy of History* (Durham: Duke University Press, 2005), 31; Keeling, *Queer Times*.
- 70 Elizabeth DeLoughrey, *Allegories of the Anthropocene* (Durham: Duke University Press, 2019).
- 71 DeLoughrey and Flores, “Submerged Bodies.”
- 72 Alaimo, “New Materialisms,” 280–284.
- 73 Neimanis, *Bodies of Water*, 2.
- 74 *Ibid.*, 3.
- 75 Bachelard, *Poetics*, 210, 188–189.