Essays – *peer-reviewed*
https://doi.org/10.6092/issn.2611-0563/21926

From Pollution to Parable: The Green/Blue Aesthetics of Textile Production in a Changing Climate

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Published: July 15, 2●25

Abstract

The environmental impact of the textile industry extends far beyond immediate pollution, affecting ecosystems in lasting and complex ways. This research investigates the intricate relationship between textile production, environmental degradation, and the development of new aesthetic paradigms in response to climate change. Drawing on Jed Rasula's concept of "cultural ecology" and Stacy Alaimo's "trans-corporeality", the study examines how marine environments impacted by textile production inspire the shift toward *raw clothes* — natural, decorative forms created by marine ecosystems. Jason deCaires Taylor's underwater sculptures serve as a central case study, illustrating the potential for ecological regeneration and the creation of new aesthetic forms. These artworks highlight the cyclical exchange of materials between human and nonhuman worlds, emphasizing the interconnectedness of all life. The research proposes that the pronounced "green/blue turn" in textile aesthetics signifies a shift in perceptions of clothing and materiality, advocating for a sustainable and regenerative model of fashion. By integrating natural processes into textile manufacturing, the industry can align with the rhythms of the natural world, offering insights into the sustainable evolution of textile production and consumption. This study enriches the field of environmental humanities, contributing to the literature on green/blue aesthetics.

Keywords: Raw Clothing; Underwater Sculpture; Textile Aesthetics; Green/Blue Aesthetics; Ecological Sustainability.

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Introduction: Phulkari, Water, and the Threads of Sustainability in Textile Traditions

To begin this article, it is necessary to start with an example that embodies the textile-nature nexus not only in form but in name. This example is phulkari — a word that quite literally means "floral work". The term itself fuses the materiality of textiles (*phul*, meaning flower, and *kari*, meaning work or craft) with the organic world it represents, making it a natural point of departure.

Figure 1: Punjabi Phulkari. Wikimedia Commons, accessed on 14 February 2025, https://commons.wikimedia.org/wiki/File:Phoolkari_punjabi_work.jpg

Figure 2: Early 20th century Sainchi 'Circus' Phulkari depicting Akali-Nihang Sikhs. "Early 20th century Sainchi 'Circus' Phulkari from the Jill & Sheldon Bonovitz Collection," Wikimedia Commons, accessed on 14 February 2025, https://commons.wikimedia.org/wiki/File:Early_20th_century_Sainchi_%E2%80%98Circus%E2%80%99_Phulkari_depicting_Akali-Nihang_Sikhs_on_it.jpg

The traditional embroidery of Punjab, *phulkari* is more than an art form; it is a living dialogue between textile and nature. From its very name to its intricate patterns, every stitch speaks of the region's ecological heritage. This embroidery transforms everyday garments — *odhnis* (long embroidered shawls), *kurtis* (tunic-style tops), and *chunris* (light veils or scarves) — into vibrant canvases where lotus flowers bloom, water lilies float, and peacocks preen in silk thread. The motifs are direct translations of Punjab's landscape: *kakri* (cucumber vines) twist across fabric, *chandrama* (crescent moons) shine on dupattas, and *satranga* (seven-colored rainbows) arch over embroidered borders. Even domestic objects are reimagined through a natural lens — the *belan* (rolling pin) motif always appears wreathed in flowers. Animal symbolism carries emotional resonance: a peacock with drooping feathers conveys sorrow, while one with spread plumage celebrates joy.

Phulkari's ecological significance also resides in its material and processual dimensions. Traditionally worked in reverse darning stitch with untwisted silk threads, its technique and texture mirror the rhythms of agricultural life. *Odhnis* worn during harvest seasons feature embroidered wheat sheaves, bridal *chunris* (scarves) are dense with *bagh* (garden) patterns, and *charpoys* (woven cots) bloom with vine motifs. In contemporary contexts, *phulkari* continues to sustain this textile-nature relationship through the use of natural dyes, organic silk, and slow production methods that preserve traditional knowledge. Even modern adaptations incorporate endangered native plants, reasserting the practice as a form of ecological memory. Rather than passively representing nature, *phulkari* enacts an active engagement with it — stitching the environment into daily life and making visible a form of cultural resilience grounded in ecological awareness.[1]

Similarly to Punjabi *phulkari*, European textile arts reveal a profound dialogue between craft and nature — though filtered through distinct cultural lenses. Although numerous such traditions exist across the continent, this reference focuses solely on one example: 17th-century British stumpwork. Unlike *phulkari*, whose motifs emerge organically from women's embodied interactions with Punjab's agrar-

1. Vatsalika Aggarwal, "Colours of Punjab: Phulkari," *Origins: A Cultural Magazine of India* (January 2021), https://publuu.com/flip-book/4712/9000. Also see: https://philamuseum.org/collection/curated/phulkari and https://www.vastrashilpakosh.in/search/recordPreview/nift_del-45-cfp?t=Phulkari%20and%20bagh.

ian environment, stumpwork constructs elaborate nature scenes through a more formal, symbolic, and ornamental approach, often reflecting a cultivated rather than lived relationship with the natural world.

> Figures were surrounded with motifs of birds, animals, flowers and insects. Houses, castles and pavilions together with sun, moon and clouds featured in the backgrounds. The foregrounds often depict statues, fountains and pools with fish. Exotic animals such as lions, leopards and camels shared space with dogs and rabbits. All the figures were dressed in contemporary dress. Designs for flora and fauna were taken from printed books and herbals. Scale is lost in the wealth of images, which are representational rather than realistic.[2]

Scholars emphasize the importance of raw materials in textile production, which are sourced from nature, including plant fibers, animal products like wool and silk, and even mineral fibers such as asbestos. The materials used ranged from fine linen and heavy ivory-colored silk for backgrounds to fine linen cloth for petticoats, with motifs worked separately and then applied. Padding materials included wool, linen bundles, and horsehair. Various yarns were employed, such as silk, wool, gimp, metallic threads, braids, painted and silk-bound purl, and strips of parchment wrapped in silk. To embellish the textiles, artisans used beads, pearls, coral, precious stones, spangles, hair, leather, feathers, and mica. Faces and hands were crafted from carved ivory, bone, wax, wood, or padded satin, with hands also made from wrapped silk threads. Techniques included layering, wirework, needlework, and flat stitches.[3]

Raw materials continue to play a fundamental role in textile production, making it essential to examine their usage through some numerical data to better understand their environmental impact in these recent years. The production of these materials is a major contributor to the ecological footprint of the textile and clothing industry. According to the 2021 Textile Exchange report, global fiber production surged from 58 million tons in 2000 to 111 million tons in 2019, before slightly declining to 109 million tons in 2020 due to the pandemic. Synthetic fibers, which surpassed cotton as the most widely used fiber in the mid-1990s, accounted for 62% of global fiber production in 2020. However, sustainable fibers, categorized as "preferred fibers," made up less than a fifth of the total.

Cotton, which represents 24% of global fiber production, poses significant environmental challenges due to its high demand for land, water, fertilizers, and pesticides, along with its limited recyclability into virgin fibers. However, organic cotton offers a more sustainable alternative, requiring less water and generating lower levels of pollution. The share of sustainable virgin cotton (which includes but is not limited to organic cotton) increased from 6% in 2012-2013 to 30% in 2019-2020. In contrast, recycled cotton accounted for only 0.96% of global cotton production in 2020. Furthermore, polyester dominated the global fiber market in 2020, holding a 52% share. Compared to cotton, polyester has a lower water footprint, dries quickly, and requires washing at lower temperatures, making it a more practical choice in certain contexts. However, its environmental drawbacks, including its fossil-based origin and contribution to microplastic pollution, remain pressing concerns.[4]

The shift from domestic and artisanal textile production to industrial and mechanized processes, particularly following the Industrial Revolution, has significantly worsened environmental challenges, especially concerning water contamination. Once a vital resource for traditional textile-making, water has increasingly suffered from pollution due to industrial textile production, leading to severe ecological consequences. Textile production methods have not only shaped cultural expressions but have also left lasting imprints on the landscape. In the past, as seen in phulkari embroidery or European textile traditions, motifs often drew inspiration from nature, reinforcing cultural myths and metaphors linked to flora and fauna. Today, however, this artistic connection contrasts sharply with the grim reality of polluted environments caused by textile waste and chemical runoff. At the same time, the global textile trade has long connected distant regions, facilitating both cultural exchange and economic growth.

2. Sue Leonard and Helen Durrant, "Stumpwork, Past and Present," *Embroidery through the Ages*, Vol. 20 (November 2009): 10–11.

3. Sue and Durrant, 11.

4. Nikolina Šajn, "Textiles and the Environment," accessed on 14 February 2025, https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729405/EPRS_BRI(2022)729405_EN.pdf.

However, this interconnectedness has also contributed to the exploitation of both human labor and natural resources — a legacy further intensified by colonial practices and ongoing environmental injustices. Although contemporary ecological humanities have increasingly examined these issues, the analysis often overlooks an equally critical component: the marine world. Marine ecosystems, with their unique resources and processes, not only provide raw materials for textiles but also serve as powerful symbols of the interconnection between human culture and the natural environment.

Before exploring the topic in depth, it is important to understand the fundamental role of water in the textile industry. Water is a critical resource in the textile industry, as various production processes require substantial amounts, often varying based on fiber type and processing stage. Natural fibers such as cotton and wool are particularly water-intensive. Cotton processing requires 20,000–45,000 mg/kg of water for scouring, while bleaching can consume up to 25,000 mg/kg, and dyeing ranges from 10,000 to 300,000 mg/kg, depending on the method. Wool, on the other hand, demands significantly more water, with scouring requiring 46,000–100,000 mg/kg, and washing consuming 334,000–835,000 mg/kg — the highest among all fibers. Additional processes such as neutralization (104,000–131,000 mg/kg) and bleaching (3,000–22,000 mg/kg) further contribute to wool's extensive water footprint. Given its high absorbency and the need for thorough cleaning, wool processing requires more rigorous water usage compared to other fibers. Meanwhile, synthetic fibers such as nylon, acrylic, and polyester also have considerable water requirements. Nylon dyeing alone can consume up to 340,000 mg/kg, while scouring for acrylic demands between 40,000 and 56,000 mg/kg. Even polyester, considered one of the less water-intensive fibers, still requires 17,000–34,000 mg/kg for dyeing. These figures highlight the immense volume of water used throughout the textile supply chain, necessitating efficient water management strategies to mitigate depletion.[5]

Beyond the sheer volume of water consumed, the textile industry also generates significant water pollution. The dyeing process, for instance, releases large quantities of effluents containing hazardous chemicals such as dispersants, leveling agents, salts, acids, and alkalis, many of which are non-biodegradable and require specialized treatment before being released into the environment. However, many textile factories, particularly in developing and least-developed countries, lack proper wastewater treatment facilities, leading to direct discharge of contaminated water into local rivers and soil. This pollution can have devastating consequences, entering the food chain through bioaccumulation, thereby posing risks to both human and animal health. The case of Tirupur, India, serves as a stark example of these environmental hazards. Over the past 20 years, untreated textile effluents have been dumped into the Noyyal River, leading to severe contamination of groundwater, surface water, soil, and aquatic ecosystems.[6] Therefore, water, as an element in constant transformation, is caught in an ongoing cycle of metamorphosis, shaped by industrial activities that challenge its purity and sustainability. Referring to Jason DeCaires Taylor's statues, particularly the photograph *The Raft of Lampedusa*, Iovino and Verdicchio assert that when a body is submerged in the ocean, neither the body remains unchanged nor does the ocean itself, as both undergo metamorphosis. "Caressing the waves from below, these sculpted figures, each one with their individual face, mark a presence that is neither only human nor totally marine."[7] Therefore, it is particularly important to examine textiles in relation to "seascapes,"[8] especially considering that "it is a timely turn, especially when the Anthropocene perils in the warming waters have begun to disrupt the dynamic heterogeneity of aquatic existence."[9]

In relation to this, this article aims to investigate the complex relationship between textile production, environmental degradation, and the emergence of new aesthetic paradigms in response to climate change.

5. P. Senthil Kumar and K. Grace Pavithra, "Water and Textiles," in *Water in Textiles and Fashion: Consumption, Footprint, and Life Cycle Assessment*, ed. Subramanian Senthilkannan Muthu (Cambridge: Woodhead Publishing, 2019): 21–40.

6. Senthil Kumar and Grace Pavithra, 25–27.

7. Serenella Iovino and Pasquale Verdicchio, "Naming the Unknown, Witnessing the Unseen: Mediterranean Ecocriticism and Modes of Representing Migrant Others," *Ecozon@*, Vol 11, no. 2, (Autumn 2020): 82–91.

8. Serpil Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," *Configurations*, Vol 27, no. 4, (Fall 2019): 443–61.

9. Oppermann, 444.

By examining the concept of raw clothes and the green/blue aesthetics within the textile industry, the study seeks to explore how natural, decorative forms created by marine ecosystems can serve as both symbols of ecological disruption and catalysts for sustainable design. Utilizing a multidisciplinary approach that incorporates environmental humanities, art analysis, and cultural studies, the research is framed through Stacy Alaimo's concept of "trans-corporeality" and Jason deCaires Taylor's underwater sculptures. The article aims to provide insights into the cultural meaning of climate change within the framework of cultural ecology, assess the implications of this aesthetic shift for future textile production and consumer practices, and contribute to the broader literature on green/blue aesthetics and sustainable design.

Trans-Corporeality and Slow Violence: Rethinking the Textile Industry through Cultural Ecology

Jed Rasula observes that

> the planet is an ongoing metamorphosis. [...] Life is eating us up. We shall be fables presently. [...] Each creature puts forth from itself its own condition and sphere, as the slug sweats out its slimy house on the pear-leaf, and the woolly aphides on the apple perspire their own bed, and the fish its shell. Similarly, humans excrete or exteriorise what we call culture.[10]

This notion of flux disrupts traditional conceptions of materiality, particularly within the realms of fashion and textiles, and necessitates an exploration of the intersection between culture and the environment, or what Rasula terms "cultural ecology."[11]

In the context of the textile industry, this flux manifests in the intricate entanglement of textile production and consumption with ecological systems, positioning the industry as both a driver of environmental degradation, since it is based on the "global economic impulse of overexploitation and destruction of marine life,"[12] and a potential site for ecological regeneration. The textile industry, much like water — a primordial substance that sustains life, connects elements, and inspires myths and narratives such as *The Odyssey, The Tempest* and *Moby Dick* — operates as a fluid and dynamic system that defies static categorization. Textiles are not merely inert materials but are integral to a broader cycle of material exchange between human and nonhuman worlds.

For instance, the production of textiles often involves significant interaction with water, a process that leaves lasting impacts on ecosystems, as previously explained. This interaction, while essential for textile creation, frequently results in irreversible contamination, contributing to what Rob Nixon describes as "slow violence."[13] Nixon defines this concept as "a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all."[14] The temporal dimension of slow violence is critical; for example, the production of synthetic fibers, reliant on petrochemicals, perpetuates environmental pollution over extended periods, reflecting humanity's limited understanding and exploitation of water. Simultaneously, the industry's dependence on natural fibers like cotton and wool ties it to agricultural and ecological systems, making it a key site for examining "trans-corporeality"[15] — the interconnectedness of human bodies and the environment over time.

10. Jed Rasula, "Bringing in the trash: the cultural ecology of Dada," *Green Letters: Studies in Ecocriticism*, Vol 18, no. 1, (November 2014): 22–35.
11. Rasula, 24.
12. Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," 446.
13. Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (London: Harvard University Press, 2014), 2.
14. Nixon, 2.
15. Stacy Alaimo, *Bodily Natures: Science, Environment, and the Material Self* (Bloomington: Indiana University Press, 2010), 11.

Rasula's metaphor of humans "excreting or exteriorising culture"[16] encourages a view of the textile industry as a dynamic reflection of our relationship with the environment. In a manner similar to how water flows effortlessly through all life, textiles travel through global supply chains, carrying subtle traces of ecological and cultural histories. This perspective invites a thoughtful reconsideration of the industry's future, suggesting the possibility of shifting from a strictly linear model of production and consumption toward a more cyclical process that resonates with the natural rhythms of the world. Such an approach may foster a more sustainable and regenerative model of fashion — one that appreciates the inherent fluidity and interconnectedness of all life.

The interaction between human and nonhuman entities, however, raises the problem of representation, a central concern for ecocritical scholars. Nixon's concept of slow violence highlights the gradual, often invisible changes inflicted on nonhuman entities, resulting in the slow but persistent transformation of natural bodies. To analyze this phenomenon, Stacy Alaimo's concept of a "map of transit" is particularly useful. Alaimo explains that "the 'environment' [...] runs right through us in endless waves,"[17] stressing the cyclical exchange of materials between human and nonhuman worlds. This interconnected relationship, which Alaimo terms "trans-corporeality,"[18] has been echoed by other scholars. For instance, Harold Fromm argues in *The Environment Is Us* that "the environment looks more and more to be the very substance of human existence in the world."[19] Similarly, Edward S. Casey asserts that "my body and natural things are not just coterminous but continuous with each other [...]. The fibers of culture and nature compose one continuous fabric."[20] This material and social interchange occurs within specific spaces, often sites of slow violence, where the gradual degradation of ecosystems unfolds over time. As Alaimo notes, "all bodies are shaped by their environments from the moment of conception, then there is never a time in which the human can be anything but trans-corporeal."[21] This aspect is further underlined by Jason DeCaires Taylor in an interview of his: "I was very intrigued by how the artworks themselves adapted and changed to the surroundings they were in."[22] The ongoing interplay between human bodies and nonhuman entities gives rise to raw materials — substances with distinct identities and histories. These emergent material agencies serve as a tangible manifestation of climate change, translating an abstract concept into concrete forms that will be examined in greater detail.

Raw Materials as Embodiments of Contamination and Visibility

The notion of raw materials undergoes a profound transformation when interpreted through the dual lenses of ecological degradation and regeneration. Instead of being regarded as passive resources extracted for human exploitation, these substances are reimagined as dynamic entities animated by their interactions within contaminated ecosystems. In this framework, water — and the oceans in particular — emerges as a critical site of material production. Although often envisioned as vast and resilient, the oceans have become toxic landscapes characterized by degraded ecologies. In these polluted waters, raw materials forged through contamination acquire a tangible presence that reveals the often-hidden repercussions of human activity. In this context, drawing on Hüpkes and Dürbeck's notion of "aesthetic techniques of depicting, visualizing, and mediating complex, abstract processes in a particular way —

16. Rasula, "Bringing in the trash: the cultural ecology of Dada," 23.

17. Stacy Alaimo, *Bodily Natures: Science, Environment, and the Material Self*, 11.

18. Alaimo, 11.

19. Harold Fromm, "The 'Environment' Is Us," *Electronic Book Review*, accessed on 11 February 2025, https://electronicbookreview.com/essay/the-environment-is-us/.

20. Edward Casey, *Getting Back into Place: Toward a Renewed Understanding of the Place World* (Bloomington: Indiana University Press, 1993), 255–56.

21. Alaimo, *Bodily Natures: Science, Environment, and the Material Self*, 12.

22. Jason deCaires Taylor, "Underwater Sculpture," accessed on 13 February 2025, https://www.youtube.com/watch?v=uo5i8x1JYFc.

a way that is not necessarily about 'seeing more,' but rather about 'seeing differently',"[23] alongside DeLoughrey's theory of the "aesthetics of rupture and connection,"[24] it is essential to consider "the sea's entangled physical, social, ideological, scientific, and aesthetic modalities." In particular, the aesthetic paradigm related to raw clothing must be understood within this framework, as "the sea's meanings always remain in the interstice between the discursive and the real."[25]

As Davies notes, "toxic pollution, species loss, and climate change are the silent killers of our age, yet the casualties of such drawn-out emergencies appear geographically and temporally remote."[26] In this environment, entities such as algae, coral, and other forms of marine growth serve as indicators of ecological conditions, with coral bleaching and discoloration acting as tangible manifestations of climate change's otherwise abstract effects. Tim Smedley further elucidates this transformation in his discussion of harmful algal blooms (HABs) — which have arisen due to rising temperatures and "increased nutrients in the water" — and explains that HABs present themselves as dangerous entities that can affect even fresh water. Smedley describes how these blooms occur when certain algae experience explosive growth as a result of excess nutrients, typically stemming from agricultural runoff laden with artificial nitrogen and phosphorus. In such circumstances, the algae receive an unnaturally abundant meal, leading to the formation of a bloom that, while sometimes harmless in small doses, can become toxic and harmful to both humans and animals when it reaches an extraordinary scale. He emphasizes their tangibility: "It has a physical presence. This layer of very striking greens and blueish greens [...] when you put your paddle in it, you can feel it." Moreover, they carry a "smell of decay and death."[27] These observations help refine the definition of raw materials: not merely byproducts of pollution, but also naturally occurring marine elements whose altered states under climate change conditions render them potent symbols of both ecological degradation and regenerative potential.

This process of material transformation underscores the pivotal role of cultural ecology, which examines the intersections of cultural practices and environmental conditions. Rasula suggests that cultural ecology reveals the deep interconnections between human and nonhuman worlds, framing raw materials produced via contamination not as incidental byproducts, but as agents that make the subtle impacts of climate change perceptible.[28] As Pelcher observes, climate change is typically encountered in fragments—"one only sees pieces of a hyperobject at any one moment," and thus "the climate hyperobject is therefore definitionally the unrepresentable. We see weather but neither climate nor global warming."[29] In a similar vein, Nixon posits that "to 'apprehend [...] often imperceptible threats [of slow violence] requires rendering them apprehensible to the senses'."[30] Similarly, by referring to Chakrabarty, Hüpkes and Dürbeck underscore that

> it is not possible to experience oneself as part of a species—neither do phenomena like climate change, biodiversity loss, ocean acidification, or species extinction directly unfold before our eyes. At large scales they can only be perceived when they are constituted as scientific objects constructed on the basis of 'physics, chemistry and big data; measurements,

23. Philip Hüpkes and Gabriele Dürbeck, "Aesthetics in a Changing World — Reflecting the Anthropocene Condition through the Works of Jason deCaires Taylor and Robert Smithson," *Environmental Humanities*, Vol 13, no. 2 (November 2021): 414–32.

24. Elizabeth DeLoughrey, "Submarine Futures of the Anthropocene," *Comparative Literature*, Vol 69, no. 1 (March 2017): 32–44.

25. Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," 446.

26. Thom Davies. "Slow violence and toxic geographies: 'Out of sight' to whom?" *Environment and Planning C: Politics and Space*, Vol 40, no. 2 (March 2022): 409–427.

27. Tim Smedley, "The pollution causing harmful algal blooms," accessed on 08 February 2025, https://www.bbc.com/future/article/20230110-the-pollution-causing-harmful-algal-blooms.

28. Rasula, "Bringing in the trash: the cultural ecology of Dada," 23.

29. J. Brandon Pelcher, "Green Dada: Avant-Garde Aesthetics and Ecocritical Theory," *Seminar: A Journal of Germanic Studies*, Vol 60, no. 3 (September 2024): 191–209.

30. Nixon, *Slow Violence and the Environmentalism of the Poor*, 14.

simulations and statistics.'[31]

In this context, raw materials can be understood as material bodies shaped by the intricate intra- and inter-human interactions with their environments, embodying a form of quasi-posthuman ecological performativity. Language, in its attempt to capture these phenomena, remains bound to description, hinting at the limitations of our comprehension.

Furthermore, the discussion shifts toward the evolving aesthetic paradigms within the textile industry through the emergence of what might be termed raw clothes. Here, dynamic raw materials — previously examined as substances emerging from ecological degradation and subsequent regeneration — are reconceived as natural textiles. Marine growths, such as algae and coral adorning Jason deCaires Taylor's underwater sculptures, serve as striking examples of nature's own fabric. These elements, while altered by climate change, are intrinsic to the ocean and vividly illustrate nature's capacity to transform and regenerate under environmental pressures.

Within this framework, the traditional industrial work chain in textile production is fundamentally challenged. As nature assumes a primary role in material creation — transforming the consequences of human activity into novel, emergent forms — the exclusive position of humans as producers becomes decentralized. Textile manufacturing, long associated with environmental harm, increasingly intersects with natural processes that mirror nature's resilience and adaptive regeneration. This green turn redefines the relationship between humanity, industry, and the environment, integrating natural decorative formations into innovative production methods. Consequently, eco-generated materials not only serve as tangible markers of environmental disruption but also function as catalysts for sustainable design. This integrated perspective enriches cultural ecology, imbuing aesthetic expressions within the textile industry with renewed cultural significance and suggesting a promising pathway for reimagining future production and consumption practices.

Underwater Raw Clothes: Translating Ecological Transformation into Textile Aesthetics Through Submerged Sculpture Forms

Jason deCaires Taylor presents compelling perspectives on the marine environment, denoting it as "current crisis,"[32] providing essential context for his innovative artistic work. Traditionally, art has depicted nature, but Taylor's work exemplifies a profound collaboration between art and the natural world. He emphasizes that the oceans are vital reservoirs of life — crucial for regulating the climate, absorbing carbon dioxide, and producing oxygen — while also sustaining the livelihoods and nourishment of billions of people globally. "The sea is a sacred place, it's part of something bigger, bigger than us all."[33] Despite covering over 70% of the Earth's surface, less than 4% of these vast waters remain free from human impact, and current exploitation trends indicate that up to 90% of natural coral reefs could vanish by 2050. As these marine ecosystems gradually disintegrate under the pressures of climate change and industrial activity, they evoke the image of a delicate, ever-wearing fabric — a continuous textile slowly coming apart.

Global warming is a major driver of this decline. The Intergovernmental Panel on Climate Change warns that global temperatures could increase by 1.4°C to 5.8°C by the century's end, while sea levels may rise by as much as 69 centimeters over the next 100 years. Even minor fluctuations in temperature disrupt marine ecosystems, triggering phenomena like El Niño that lead to widespread coral bleaching and compounding the damage with more frequent and intense tropical storms and hurricanes. At the same time, ocean acidification poses an equally significant threat. Since the industrial revolution,

31. Hüpkes and Dürbeck, "Aesthetics in a Changing World — Reflecting the Anthropocene Condition through the Works of Jason deCaires Taylor and Robert Smithson," 417.

32. Jason DeCaires Taylor, "Current Crisis," accessed on 9 February 2025, https://underwatersculpture.com/environment/environment-current-crisis/.

33. deCaires Taylor, "Underwater Sculpture".

the massive influx of CO_2 into the seas has altered water chemistry, increasing ocean acidity by approximately 25% over the past two centuries — a dramatic shift from its long-term stability. This acidification disrupts the ability of marine organisms, particularly those at the base of the food chain, to extract dissolved oxygen and form vital structures such as shells and coral frameworks, which are integral to the ocean's natural fabric.

Overfishing further destabilizes these ecosystems. Modern fishing methods have decimated key species, with 76% of the world's fisheries now fully exploited or overfished. The removal of herbivorous fish, which naturally control algal growth, has led to rampant algal blooms that transform the ocean substrate, gradually suffocating natural habitats and converting vibrant reefs into barren landscapes. Similarly, coastal tourism — responsible for 80% of global travel — exerts constant physical and indirect pressure on these delicate environments, fragmenting the continuous fabric of the ocean through excessive human activity and coastal development. Furthermore, marine pollution compounds all these challenges. The introduction of harmful substances — ranging from oil spills and industrial waste to the 8 tonnes of plastic waste that enter the ocean annually — has led to the proliferation of microplastics and toxic chemicals, which disrupt marine life and accumulate through the food chain, threatening both wildlife and human health. Moreover, habitat loss driven by coastal development, dredging, destructive fishing practices, and anchoring further erodes critical ecosystems such as wetlands, mangroves, and estuaries that serve as breeding grounds for nearly all marine species. The rapid disappearance of more than 35% of the world's mangroves in some regions undermines their capacity to sequester carbon, exacerbating the global climate crisis.[34]

In textile aesthetics, the environmental challenges confronting marine ecosystems provide a compelling metaphor for raw clothing — a form of materiality that arises naturally through the interaction between nature and human activity rather than through factory production. Despite the debates surrounding maritime metaphors — since "the ideological nature of metaphoric representations in maritime discourses has engendered intense debates about making sense of the seas with metaphors. Aquatic metaphors are not mere imaginary constructions, but an ingrained feature of the sea's material configurations"[35] — the analogy remains powerful. Just as textiles acquire their distinctive character over time through natural processes such as dyeing, weathering, and fraying, the degradation and regeneration of the ocean yield raw materials that resemble a living fabric. This metaphor of raw clothing encapsulates the dual processes of collapse and renewal in marine ecosystems, suggesting that nature itself weaves a narrative upon the remnants of industrial activity. This narrative of decline and transformation invites a reconceptualization of material culture in which raw clothing becomes a symbol of nature's ability to reclaim and reinterpret the debris of human enterprise. As DeLoughrey observes,

> The ocean became a space for theorizing the materiality of histories, yet it rarely figured as a material in itself. [...]With some exceptions, these narratives largely represent a transoceanic imaginary, positioning the sea as a stage for human history; a narrative of flat surfaces rather than immersions. Until recently, the oceanic has not been truly fathomed as a cultural or multispecies ecology.[36]

In this light, the ongoing interplay between human creation and natural forces challenges conventional production methods while offering a blueprint for sustainable aesthetics — one where material culture evolves in harmony with the resilient, regenerative power of the natural world. Consequently, the sea is sometimes described as "a textual terra incognita with some deep-sea species depicted as 'alien' creatures and some marine ecosystems are 'destroyed before they can even be described'."[37] In contrast to this natural generative aesthetic, human perspectives often focus on "toxic waste traveling freely," with the seas being seen as "radically instrumentalized," "plumbed for resources," "crisscrossed by shipping

34. DeCaires Taylor, "Current Crisis".

35. Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," 447.

36. DeLoughrey, "Submarine Futures of the Anthropocene," 33.

37. Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," 448.

routes," and "metabolized by effluents."[38]

The Inception of Sculptural Forms and Their Natural Attire: The Emergence of Raw Clothing

The theme of undersea metamorphosis has long fascinated writers, with Shakespeare's *The Tempest* offering one of the most haunting depictions of transformation beneath the waves. In Ariel's song, "Full fathom five thy father lies; / Of his bones are coral made; / Those are pearls that were his eyes," the drowned body does not simply decay but undergoes a sea-change — a profound and irreversible transformation "into something rich and strange." This eerie chant, addressed to Ferdinand, plays on his grief, as he believes his father, King Alonso, has perished in the recent shipwreck. Yet the song does more than mourn — it reimagines death as a process of creation, where the body is absorbed into the ocean's rhythms, reshaped into coral and pearl. This vision finds a striking parallel in contemporary underwater sculptures, which, rather than eroding into oblivion, become foundations for marine life. Like Shakespeare's imagined metamorphosis, these submerged statues are slowly encrusted with coral polyps, their rigid forms softened by layers of organic growth. Over time, their surfaces cease to be merely sculptural and instead function as thriving ecosystems, embodying a dialogue between human artistry and ecological adaptation. "Ding-dong, bell," sings Ariel, reminding us that the ocean's tolling is not just an end, but a beginning — a process of renewal in which human artifacts, like Prospero's drowned past, are rewritten by the rhythms of the sea.[39] Moreover, Ariel's song can be interpreted as work ante litteram by Shakespeare, alluding to the birth of raw clothing — an idea that finds a visual counterpart in Jason deCaires Taylor's underwater sculptures. Just as the bones of Ferdinand's father are imagined as coral and his eyes as pearls, Taylor's statues acquire their own second skin, formed by the slow accretion of marine life. These sculptural figures are not adorned with fabric in the traditional sense, but instead, the ocean itself weaves a living garment over them — an organic, evolving attire made of coral, algae, and other marine organisms. This transformation speaks to the fluid boundaries between nature and art, permanence and impermanence. Much like Shakespeare's poetic vision of renewal through submersion, Taylor's statues embody a dialogue between decay and rebirth, inviting us to rethink how human artifacts, like Prospero's drowned past, are rewritten by the rhythms of the sea.

Figure 3: Jason DeCaires Taylor, *Coral Progress, Silent Evolution*. Used by permission (with compliments by Sir Jason deCaires Taylor, private correspondence).

Jason deCaires Taylor's work, as illustrated in the photograph *Coral Progress, Silent Evolution, MUSA, Mexico*, showcases the profound metamorphosis of submerged statues. It embodies movement, transition, and metamorphosis, bridging the known and the unknown — an "otherworldly" realm where two previously unconnected realities converge. As scholars note, it is an "otherworldly" reality — one that is fundamentally "other." As they explain,

> The worlds in which we live, in fact, are composite — they are other to one another and in themselves. However, if otherness is a founding category of this multiverse, the 'other'

38. Oppermann, 448.

39. William Shakespeare, *The Tempest* (Washington: Folger Shakespeare Library, 2015).

> — whether or not a human other — is often suppressed or made invisible, materially or symbolically left to drown in the interstices of a modernity that awaits decolonization.[40]

This point is also stressed by Elizabeth DeLoughrey, who states that, when dealing with the marine ontologies, there is always an engagement with the "submarine others."[41]

Initially cast from the form of a living person, Taylor's statues are installed into the marine environment, where they become canvases for nature's own artistry. Over time, algae, coral, and other marine organisms colonize their surfaces, weaving a living, ever-evolving fabric across their features. This transformation turns the inert human form into a hybrid entity that embodies the fluid interplay between human creation and ecological agency, giving rise to the notion of raw clothing — not as a textile produced by human hands but as a dynamic, organic materiality forged through the entanglement of culture and nature. In this way, the statues do not remain static artifacts; rather, they actively participate in the shifting ecologies of the ocean, bearing the imprints of environmental change as the ocean is "a site of 'flows' and 'fluidity'."[42] "The sculpture proposes growth, change, and natural transformation [...] how time and environment impact on and shape the physical body."[43] As they are shaped by water, marine life, and even pollutants, they become poignant interlocutors between human action and climate transformation. As Iovino and Verdicchio observe, "The elemental immersion of these artworks, shaped by waters, other animals, and polluting substances, is also a metaphor for an ecological gyre that envelops everything, from climate to life."[44] Building on this idea, it is essential to recognize that

> the ocean is a medium different from the earth [...] it forces us to think differently. The medium itself, where everything flows and everything is interconnected, forces us to 'unfocus,' to shed our old concepts and paradigms, to 'refocus' on a new paradigm.[45]

In this shifting, fluid space, submerged statues do not merely bear witness to environmental change — they compel us to reconsider the very frameworks through which we perceive nature, culture, and the boundaries between them. The ocean, with its constant movement and interwoven ecologies, resists rigid categorizations, urging a reimagining of how human interventions — whether artistic or industrial — are absorbed, altered, and ultimately reshaped by planetary forces.

The evolution of these "anthropomorphic sculptures,"[46] made of "non-toxic materials,"[47] gradually unfolds "into the temporal becoming of submarine ecologies."[48] At first, the sculpture stands as a faithful reproduction of the human form — a monument to human craftsmanship. Yet, upon immersion, it enters an intimate dialogue with its surroundings. As Stacy Alaimo asserts, "all bodies are shaped by their environments from the moment of conception,"[49] and the statue is no exception. In its early stages, while the features remain distinct, a thin layer of algae and microorganisms begins to blur the contours, marking the first subtle imprint of nature. This initial phase sets the stage for a more radical transformation as marine life increasingly inscribes its own textures onto the surface. "On a conceptual level

40. Iovino and Verdicchio, "Naming the Unknown, Witnessing the Unseen: Mediterranean Ecocriticism and Modes of Representing Migrant Others," 84.

41. DeLoughrey, "Submarine Futures of the Anthropocene," 33.

42. DeLoughrey, 33.

43. DeLoughrey, 38.

44. Iovino and Verdicchio, "Naming the Unknown, Witnessing the Unseen: Mediterranean Ecocriticism and Modes of Representing Migrant Others," 87.

45. DeLoughrey, "Submarine Futures of the Anthropocene," 37.

46. Hüpkes and Dürbeck, "Aesthetics in a Changing World — Reflecting the Anthropocene Condition through the Works of Jason deCaires Taylor and Robert Smithson," 416.

47. Iovino and Verdicchio, "Naming the Unknown, Witnessing the Unseen: Mediterranean Ecocriticism and Modes of Representing Migrant Others," 84.

48. Hüpkes and Dürbeck, "Aesthetics in a Changing World — Reflecting the Anthropocene Condition through the Works of Jason deCaires Taylor and Robert Smithson," 416-17.

49. Alaimo, *Bodily Natures: Science, Environment, and the Material Self*, 12.

the sculptures manage to create the sensation of being confronted with human culture and art being overtaken by nonhuman processes and entities."[50]

Gradually, the once-pristine artifact becomes densely encrusted with coral and algae, evolving from a mere recording of ecological interaction into a complex, decorative fabric. The layers of marine growth accumulate until the original human features are nearly subsumed, producing a form that is neither entirely human nor wholly natural. Much like raw fabric exposed to environmental forces — fading, fraying, and gaining character over time — the statue becomes a living textile, continuously redefined by nature's unpredictable processes.

This metamorphosis carries deeper implications for material culture and human subjectivity. The statue, now enshrouded in its natural garment, stands as a testament to the enduring dialogue between human innovation and nature's regenerative power. It challenges traditional notions of production and consumption by demonstrating that artistic creation is not solely the product of human endeavor but can also emerge organically through environmental processes. In this evolving state, the sculpture reflects a profound shift in subjectivity, echoing Pelcher's observation that "understanding the substance of one's self as interconnected with the wider environment marks a profound shift in subjectivity."[51] The living textile of algae and coral becomes a vivid reminder that our bodies, like art, are continuously shaped by the forces that surround them. In this way, *Silent Evolution* is transformed from a static underwater installation into a dynamic exploration of raw clothing aesthetics. The natural textile that adorns the statue is not merely a sign of decay but a manifestation of nature's creative agency — a continuously evolving inscription that narrates the interplay between contamination, adaptation, and regeneration. This transformation represents the emergence of new aesthetic paradigms in response to climate change.

Figure 4: Jason deCaires Taylor, Silent Evolution. Used by permission (with compliments by Sir Jason deCaires Taylor, private correspondence).

Building on the previous exploration of raw clothing and its connection to sustainable design, Jason deCaires Taylor's *Silent Evolution* at MUSA, Mexico, provides another striking example. This installation features two statues seemingly engaged in silent dialogue, their surfaces transformed by layers of marine life. Encrusting Fan Leaf Algae, *Lobophora variegata*, drapes over their forms like garments shaped by the ocean itself, reinforcing the notion that nature is not merely a subject of artistic representation

50. Hüpkes and Dürbeck, "Aesthetics in a Changing World — Reflecting the Anthropocene Condition through the Works of Jason deCaires Taylor and Robert Smithson," 422.

51. Pelcher, "Green Dada: Avant-Garde Aesthetics and Ecocritical Theory," 205.

but an active collaborator in design. This transformation, reminiscent of the mythological narratives in Ovid's *Metamorphoses* — particularly the tale of Apollo and Daphne, where Daphne is transfigured into a laurel tree to illustrate the fluid boundaries between human and natural forms — is driven by the organic growth of algae. These marine organisms create a natural form of adornment, blurring the boundaries between sculpture and living matter. Unlike static sculptures, Taylor's figures undergo continuous transformation, shaped by their environment. As nature slowly weaves its own garments over these statues, they embody the principles of sustainable design — where fashion, too, can become a living, evolving entity rather than a disposable commodity. Through Oppermann's words, it can be stated that

> these stories are products of an imaginative impulse to visualize through poetic language terrestrial-aquatic interactions and encounters. [...] This outlook enables us to contemplate the images of the sea in cultural productions not just metaphorically but also literally, to really understand the sea in its twofold condition: a regulatory ecosystem as a 'science making world,' holding 'multispecies interdependencies,' and, apparently, also a story-making world with a powerful hydrogeological agency that has, for centuries, inspired countless stories. [...] The seas will always invite scientific and imaginative attention to be directed to the 'interfolding network' of marine relations now floundering in toxic contamination and industrial pollution.[52]

The concept of raw textiles thus extends beyond materiality, proposing a vision of fashion that embraces symbiosis with the environment rather than mere exploitation of its resources. Taylor's underwater museums, by attracting mass tourism, demonstrate humanity's intrinsic attraction to nature. This suggests that fashion, like art, can move beyond artificiality and instead mimic the regenerative, adaptive qualities of marine life. This approach aligns with the philosophy of green aesthetics, which reframes sustainability as an intrinsic rather than peripheral element of artistic and material choices. Taylor's sculptures serve as more than static artworks; they exemplify an ongoing dialogue between human creativity and ecological processes, offering a model for a future in which fashion, art, and nature exist in continuous, reciprocal exchange. Indeed, the artist states: "when you go underwater and you're suspended it puts your mind into a different state that you feel like you're part of something."[53] In this vision, whether that of a "submarine unheimlich"[54] or the Burkean sublime, beauty — acknowledging the artist's sentiment that "ultimately, my hand can never reproduce any of the beauty that's underwater"[55] — transcends mere superficiality and is redefined as a concept imbued with moral, intellectual, and functional values. The aesthetic appeal of algae-covered sculptures is intimately linked to their ecological significance, emphasizing that true beauty arises from forms that are ethical, purposeful, and deeply connected to nature's rhythms.

Building on this foundation, and given our focus on art, it becomes essential to examine the notion of aesthetic experience. When aesthetic experience is enriched by knowledge, raw materials — as exemplified by the notion of raw clothing in the textile industry — acquire a profound, multidimensional significance. Scholars such as Niinimäki,[56] Sircello,[57] and Saito[58] argue that beauty is inherently tied to utility, suitability, and function; objects that perform their intended roles effectively are naturally perceived as beautiful. In everyday contexts, Saito points out that the practical and aesthetic dimensions of an object are experienced as an integrated whole, such that stripping away its functionality diminishes its overall aesthetic appeal.[59] In textile design, this principle becomes particularly salient: raw clothing

52. Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," 449.

53. deCaires Taylor, "Underwater Sculpture".

54. DeLoughrey, "Submarine Futures of the Anthropocene," 39.

55. deCaires Taylor, "Underwater Sculpture".

56. Kirsi Niinimäki, "Green Aesthetics in Clothing," *Artifact*, Vol 3, no. 3 (June 2014): 1–13.

57. Guy Sircello, *A New Theory of Beauty* (Princeton: Princeton University Press, 1975).

58. Yuriko Saito, *Everyday Aesthetics* (Oxford: Oxford University Press, 2007).

59. Saito, 26.

— materials in their natural, unrefined state — demonstrates how the dynamic interplay between form and function can generate both practical satisfaction and sensory pleasure. Moreover, this sensory pleasure, especially in visual terms, is not detached from ethical considerations but is embedded within a broader understanding of nature and humanity as "agentic and active participants in socio-ecological systems."[60] Furthermore, Berleant extends this interplay by asserting that "aesthetic value can provide an intrinsic value basis for ethical values in the environment."[61] In the field of textile aesthetics, this perspective implies that the evaluation of raw clothing involves more than just visual or functional criteria — it also incorporates ethical and ecological dimensions. For example, textiles created from natural materials that are designed to harmonize with their environment may be regarded as aesthetically superior because they embody principles of sustainability and environmental stewardship. In contrast, designs that rely on synthetic processes or ignore ecological impact may evoke discomfort or disapproval. Here, the act of aesthetic judgment in textile design becomes an ethical practice, reflecting the intricate interconnections between form, function, and environmental responsibility. Indeed, this connection between aesthetics and ethics is further illuminated by the Kantian tradition, which frames aesthetic judgment as a relationship between subject and object, rooted in the world's capacity to affect us. As scholars note,

> An aesthetic judgment in the Kantian tradition of philosophical aesthetics assumes the form of a relationship between subject and object, which lies in the world's capacity to affect us. Yet the stability and outcome of this relationship depends on the subject's capacity to apprehend it.[62]

This apprehension, I argue, is not neutral; it carries ethical and moral weight. The way one perceives and engages with textiles — whether as an artist, designer, or consumer — is shaped by an awareness of the environmental and social conditions that give rise to them. Thus, the act of aesthetic judgment in textile design becomes an ethical practice, reflecting the intricate interconnections between form, function, and environmental responsibility. In this sense, to apprehend an aesthetic object is to recognize its embedded histories, material origins, and ecological consequences — an engagement that transforms aesthetic appreciation into a site of ethical reflection and moral responsibility.

Conclusion: Towards a Sustainable and Regenerative Textile Industry

The pronounced "green/blue turn" in textile aesthetics, as exemplified by Taylor's underwater works, signals a significant shift in how clothing and materiality are perceived. Traditional textiles, transforming into matterless entities, are giving way to nature-generated forms — raw clothes — that open up new perspectives on sustainable design and encourage a dialogue between human culture and environmental processes. In this vision, raw materials are no longer inert remnants of industrial production but are dynamic, ever-changing entities that embody a continuous exchange between human and natural forces.

As Iovino and Oppermann observe,

> Whether visible or invisible, socialized or wild, they are all material forms emerging in combination with forces, agencies, and other matter. Entangled in endless ways, their 'more-than-human' materiality is a constant process of shared becoming that tells us something about the 'world we inhabit.' [...] All matter, in other words, is a 'storied matter.' It is a

60. John Charles Ryan, "Passive Flora? Reconsidering Nature's Agency through Human-Plant Studies (HPS)," *Societies*, Vol 2, no. 3 (August 2012): 101–21.

61. Arnold Berleant, "Introduction: art, environment and the shaping of experience," in *Environment and the Arts: Perspectives on Environmental Aesthetics*, ed. Arnold Berleant (Burlington: Ashgate Publishing Limited, 2002), 1–21.

62. Hüpkes and Dürbeck, "Aesthetics in a Changing World — Reflecting the Anthropocene Condition through the Works of Jason deCaires Taylor and Robert Smithson," 418.

> material 'mesh' of meanings, properties, and processes, in which human and nonhuman players are interlocked in networks that produce undeniable signifying forces.[63]

This idea is further echoed by Oppermann, who describes the sea as "a storied sea, its physicality detailed in scientific research, and their dialectical relation seriously"[64] — a realm where nature now acts, in part, against the long-held heroic narratives of male-centric environmental exploitation. This notion of nature being rebalanced is also emphasized by Jason DeCaires Taylor, who reflects on humanity's historical attempts to control nature, noting, "I think humanity has always tried to control nature and I love the fact that this has been rebalanced in the works."[65] In this new context, nature is not passive; it creates, transforms, and challenges human actions. As Oppermann notes, "The storied sea today is a hybridizing mix of the Anthropocene dilemmas within which marine creatures play out entwined ecological crises and material intimacies,"[66] emphasizing that marine entities possess their own agency. These forms, as Iovino and Oppermann further state, become

> a pervasive and inbuilt property of matter, as part and parcel of its generative dynamism. From this dynamism, reality emerges as an intertwined flux of material and discursive forces, rather than as a complex of hierarchically organized individual players.[67]

In other words, marine life "wants its voices heard, its stories recognized, and its attempts to stay alive understood,"[68] thereby granting narrative agency to the aesthetic forms in the seascape.

This narrative agency is evident in the way these natural textiles — raw clothes — are integrated into the environmental history of our time. They embody a shift from traditional, male-dominated heroic actions to a scenario where nature takes decisive action in response to human impact. The sea, functioning as "a site of narrativity [...] embodying its own narratives in the minds of human agents and in the very structure of its own self-constructive forces,"[69] reinforces the idea that beauty and meaning are inseparable from ethical and ecological considerations. Moreover, Alaimo reminds us that "what nature needs is not a bond with culture but a separation or divorce, some autonomy, at last some protection through 'shelters' (preserves), offering sanctuary from culture's constant battering and stalking."[70]

Overall, this research enriches the field of environmental humanities by contributing to the literature on green/blue aesthetics with a "postanthropocentric view of the Anthropocene"[71] and offering insights into the sustainable evolution of textile production and consumption. Jason deCaires Taylor's underwater sculptures serve as a central case study, analyzed through the lens of posthumanist theory with a focus on trans-corporeality and the interconnectedness of human and nonhuman realms. The integration of natural processes into textile manufacturing not only marks a tangible response to environmental disruption but also acts as a catalyst for reimagining future production practices. In conclusion, a pathway toward a future can be imagined where aesthetics, ethics, and functionality converge in a continuous, dynamic interplay — a future where the fabric of life itself is both a material and a narrative, woven from the endless, intertwined forces of the natural world.

63. Serenella Iovino and Serpil Oppermann, *Material Ecocriticism* (Bloomington and Indianapolis: Indiana University Press, 2014), 1–2.

64. Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," 452–53.

65. deCaires Taylor, "Underwater Sculpture".

66. Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," 453.

67. Iovino and Oppermann, *Material Ecocriticism*, 3.

68. Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," 453.

69. Oppermann, 456.

70. Alaimo, *Bodily Natures: Science, Environment, and the Material Self*, 15.

71. Hüpkes and Dürbeck, "Aesthetics in a Changing World — Reflecting the Anthropocene Condition through the Works of Jason deCaires Taylor and Robert Smithson," 429.

Bibliography

Aggarwal, Vatsalika. "Colours of Punjab: Phulkari." *Origins: A Cultural Magazine of India*, January 2021. https://publuu.com/flip-book/4712/9000.

Alaimo, Stacy. *Bodily Natures: Science, Environment, and the Material Self.* Bloomington: Indiana University Press, 2010.

Berleant, Arnold. "Introduction: art, environment and the shaping of experience." In *Environment and the Arts: Perspectives on Environmental Aesthetics*, edited by Arnold Berleant, 1–21. Burlington: Ashgate Publishing Limited, 2002.

Casey, Edward. *Getting Back into Place: Toward a Renewed Understanding of the Place World*. Bloomington: Indiana University Press, 1993.

Cooper-Hewitt Museum, Sonday, Milton, Moss, Gillian. *Western European Embroidery*. New York: Smithsonian Institution's National Museum of Design, 1978.

Davies, Thom. "Slow violence and toxic geographies: 'Out of sight' to whom?" *Environment and Planning C: Politics and Space*, Vol. 40, no. 2 (March 2022): 409–427. https://doi.org/10.1177/2399654419841063.

DeLoughrey, Elizabeth. "Submarine Futures of the Anthropocene." *Comparative Literature*, Vol. 69, no. 1 (March 2017): 32–44. https://doi.org/10.1215/00104124-3794589.

Fromm, Fromm, "The 'Environment' Is Us." *Electronic Book Review*. Accessed on 11 February 2025. https://electronicbookreview.com/essay/the-environment-is-us/.

Iovino, Serenella and Pasquale Verdicchio. "Naming the Unknown, Witnessing the Unseen: Mediterranean Ecocriticism and Modes of Representing Migrant Others." *Ecozon@*, Vol. 11, no. 2, (Autumn 2020): 82–91. https://doi.org/10.37536/ECOZONA.2020.11.2.3559

Iovino, Serenella and Serpil Oppermann. *Material Ecocriticism*. Bloomington and Indianapolis: Indiana University Press, 2014.

Leonard, Sue and Helen Durrant. "Stumpwork, Past and Present." *Embroidery through the Ages*, Vol. 20 (November 2009): 10–11.

Niinimäki, Kirsi. "Green Aesthetics in Clothing." *Artifact*, Vol. 3, no. 3 (June 2014): 1–13. https://doi.org/10.14434/artifact.v3i3.3653.

Nixon, Rob. *Slow Violence and the Environmentalism of the Poor*. London: Harvard University Press, 2014.

Oppermann, Serpil. "Storied Seas and Living Metaphors in the Blue Humanities." *Configurations*, Vol. 27, no. 4, (Fall 2019): 443–461. https://doi.org/10.1353/con.2019.0030.

P. Senthil Kumar and K. Grace Pavithra. "Water and Textiles." In *Water in Textiles and Fashion: Consumption, Footprint, and Life Cycle Assessment*, edited by Subramanian Senthilkannan Muthu, 21–40. Cambridge: Woodhead Publishing, 2019.

Pelcher, J. Brandon. "Green Dada: Avant-Garde Aesthetics and Ecocritical Theory." *Seminar: A Journal of Germanic Studies*, Vol. 60, no. 3 (September 2024): 191-209. https://doi.org/10.3138/seminar.60.3.1.

Philip Hüpkes and Gabriele Dürbeck. "Aesthetics in a Changing World — Reflecting the Anthropocene Condition through the Works of Jason deCaires Taylor and Robert Smithson." *Environmental Humanities*, Vol. 13, no. 2 (November 2021): 414–432. http://dx.doi.org/10.1215/22011919-9320222.

Rasula, Jed. "Bringing in the trash: the cultural ecology of Dada." *Green Letters: Studies in Ecocriticism*, Vol. 18, no. 1, (November 2014): 22–35. https://doi.org/10.1080/14688417.2014.891445.

Ryan, John Charles. "Passive Flora? Reconsidering Nature's Agency through Human-Plant Studies (HPS)." *Societies*, Vol. 2, no. 3 (August 2012), Vol. 2, no. 3: 101–121. https://doi.org/10.3390/soc2030101.

Saito, Yuriko. *Everyday Aesthetics*. Oxford: Oxford University Press, 2007.

Šajn, Nikolina. "Textiles and the Environment." Accessed on 14 February 2025. https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729405/EPRS_BRI(2022)729405_EN.pdf.

Shakespeare, William. *The Tempest*. Washington: Folger Shakespeare Library, 2015.

Sircello, Guy. *A New Theory of Beauty*. Princeton: Princeton University Press, 1975.

Smedley, Tim. "The pollution causing harmful algal blooms." Accessed on 08 February 2025. https://www.bbc.com/future/article/20230110-the-pollution-causing-harmful-algal-blooms.

Taylor, Jason DeCaires. "Current Crisis." Accessed on 9 February 2025. https://underwatersculpture.com/environment/environment-current-crisis/.

Taylor, Jason DeCaires. "Underwater Sculpture." Accessed on 13 February 2025. https://www.youtube.com/watch?v=u05i8x1JYFc.

"Early 20th century Sainchi 'Circus' Phulkari from the Jill & Sheldon Bonovitz Collection." Wikimedia Commons. Accessed on 14 February 2025. https://commons.wikimedia.org/wiki/File:Early_20th_century_Sainchi_%E2%80%98Circus%E2%80%99_Phulkari_depicting_Akali-Nihang_Sikhs_on_it.jpg.

"Phulkari: Embroidered Textiles of the Punjab." Philadelphia Museum of Art. Accessed on 14 February 2025. https://philamuseum.org/collection/curated/phulkari.

"Phulkari and Bagh." Indian Textiles & Crafts Repository. Accessed on 14 February 2025. https://www.vastrashilpakosh.in/search/recordPreview/nift_del-45-cfp?t=Phulkari%20and%20bagh.

"Punjabi Phulkari." Wikimedia Commons. Accessed on 14 February 2025. https://commons.wikimedia.org/wiki/File:Phoolkari_punjabi_work.jpg.

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