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Considering the importance of metaphors for marine conservation☆

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ABSTRACT

This paper seeks to highlight the importance of metaphors for marine conservation and policy. It argues that the manner in which the oceans are perceived, often as an alien landscape, can limit the way language is utilised in marine conservation efforts. This limitation can produce unhelpful environmental metaphors that, instead of acting as catalysts for action, produce negative and reactionary responses. It illustrates this point through the example of what has become known as the 'Great Pacific Garbage Patch.' It postulates that if there is a disconnect between the many complex environmental issues facing the world's oceans and the way they are perceived, then more focus should be placed on developing pre-determined culturally embedded metaphors, which can conjure relatable imagery, but that are also rooted in scientific evidence. It recommends that, in an extension to existing public perception research (PPR) on how different communities value the ocean environment, there is room for shared metaphors of the oceanic environment to be developed that can help raise awareness within a particular cultural setting.

1. Introduction

Language has always played a significant role in the environmental movement, acting as a primary medium through which complex environmental issues are delivered to a wider public. Its influence can be profound [1,2]. There exists a good body of literature on the role of language concerning environmental and ethical issues, such as climate change, genetically modified crops, energy consumption, as well as the use of the natural capital metaphor [3–6], but little on the role of language in marine conservation.

There is, however, a growing body of literature on the study of public perception of the oceanic environment, which has come from the growth in what is known as Public Perception Research (PPR) [7–11]. Perception here is understood as an "umbrella term, which includes components such as knowledge, interest, social values, attitudes or behaviours" [11 p. 62]. Seeing as language plays a key role in shaping, attitudes, values and behaviours, it is surprising that more studies have not focused on the use of language within marine conservation.

Metaphors in particular, like that of Rachel Carson's *Silent Spring*, have proven to be powerful devices for capturing the public's imagination. Not only does *Silent Spring* contain metaphors throughout, it is itself a metaphor. As Burke states a "metaphor…can be a name—*Silent Spring*—or an explanation of a condition, a "silent spring" [12 p. 26]. Indeed, Nerlich calls *Silent Spring* "a counterfactual blend and auditory metaphor that represents the anti-climax following failed expectations and dashed hopes and cancels the tacit assumption that spring should be full of life, hope and joyful sounds" [13 p. 118]. Although *Silent Spring* had an astonishing reach, the metaphor was most effective in Western cultures, where silence has always maintained a menacing, threatening aura, being associated with death itself [13]. Birdsong, on the other hand, the dawn chorus, signals renewal, the onset of spring and the beginning of a new day.

Besides the broader cultural 'figurative extensions,' the power of Carson's *Silent Spring* metaphor in raising awareness of the effect of DDT also stemmed from its simple and relatable nature; it was a visual and audible metaphor for the otherwise silent process of pollution, and its emotive brilliance was such that it helped start a whole movement [14]. It was the fear of losing a noise and sight so ingrained into everyday human culture that became the catalyst for action. As Patton [15] states, where the ocean is concerned, the maxim of the great naturalist, Aldo Leopold rings especially true: "we can be ethical only in relation to something we see, feel, understand, love, or otherwise have faith in" [16 p. 251].

Through the conjuring of contextual imagery, drawn from concerns of what has happened as well what could happen, environmental metaphors, like silent spring, are as much cognitive as purely linguistic: "The function of metaphors…is…not just a descriptive one, they do not merely represent fact or fictions…they have a performative, and therefore political and ethical, force" [17 p. 9]. In this way, the power of the metaphor lies in their ability not only to shape perspectives of the

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environment, to raise awareness of a particular conservation issue, but also to act as a conduit for broader action. Indeed, recent studies have shown how metaphors can "powerfully influence cognition…increasing the accessibility of metaphor-related thoughts and eliciting metaphor-congruent behaviours" [18 p. 5].

To this end, how metaphors are used in environmental campaigns, conservation efforts, and by both policymakers and academics alike should not be taken lightly. This paper seeks to highlight the importance of metaphors for marine conservation and policy. Firstly, this paper will argue that there can be a problem with perception when it comes to conceptualising issues effecting the marine environment. Through the example of the 'Great Pacific Garbage Patch' it illustrates that this perception problem can produce unhelpful metaphors that fail to distil the actualities and complexities of marine environmental issues to the wider public. It will then set out how metaphors can be used in a more effective manner, arguing that an approach that is embedded in both socio-cultural values and scientific research is needed. This paper is not arguing that the use of metaphors are a panacea. Rather that if they are constructed with care and meet the requirements set out in this paper they could be effective in a number of policy areas, such as increasing engagement with citizen science programmes, communicating the importance of local marine management projects and explaining complex oceanic issues to the wider public and thereby helping to bridge the perception gap.

2. The problem of perception

> "We are already beginning to learn that what the ocean has to offer extends beyond the limits of our imaginations."
>
> Francis Minot [19 p. 44]

The then-Director of the Marine and Fisheries Engineering Research Institute, Francis Minot, made this prophetic statement in his aptly entitled book *The Inexhaustible Sea*, in which he detailed "the exciting story of the sea and its endless resources" [20 p. 12]. Replace the words "sea" and "ocean" with that of the "the West," and such statements could have easily been made by early American prospectors as they gazed westward across the seemingly endless, pristine landscape and its untapped resources [21]. Minot's sentiment echoed the zoologist and anatomist, Thomas H. Huxley ('Darwin's Bull Dog'), in his assertion that "probably all the great sea-fisheries are inexhaustible; that is to say that nothing we do seriously affects the number of fish" [22 p. 19]. Yet, as with any conceptualisation of a resource (be it deemed "natural" or otherwise) as an unexploited frontier, endless in bounty, Minot, and Huxley before him, were as mistaken in their prophecy as the prospectors.

Such statements regarding the unbounded nature of the oceans are, however, far from unique. Rachel Carson, the peerless chronicler of environmental degradation, proclaimed, "man cannot control, or change the oceans as, in his brief tenancy of earth he has subdued and plundered the continents" [23 p. 10]. Carson's statement was, in part, meant to evoke a reverence for the ocean realm, juxtaposed with what she saw as humanity's Promethean hubris in its exploitation of the natural world. It also, however, served to illustrate the belief that the fundamental composition of the oceans, in comparison to that of the land, cannot be controlled or altered: "deeply rooted in human culture is the attitude that the ocean is so vast, so resilient, it shouldn't matter how much we take out of – or put into – it" [24 p. 2–3].

As Carson rightly pointed out, during humanity's brief tenancy on earth, humans have fundamentally altered the characteristics of the land; urbanisation and the development of industrial agriculture, and the loss of biodiversity that such changes signalled, have brought enormous changes to forest, marshland and plain [25]. The oceanic form, with its liquidity and consistent surface complexion, hides the fact that the oceans are also industrial landscapes [26]. Indeed, technological advances, coupled with our growing need for energy, food and other resources, have seen oceans going through what Wright [27 p. 77] calls an "unprecedented period of industrialisation." Of course, it is all too well known that oceans are not a realm of boundless resources - the collapse of the Atlantic cod population in the early 1990s made this abundantly clear [28]. Nevertheless, the multifaceted complexity of the environmental problems facing the oceans today, coupled with the ocean's alien form and the fact that many of these environmental challenges cannot be rendered in a visual form, means that public perception can still be a problem [29–31]. As the environmental philosopher, Clark Wolf states [15 p. 6]:

> "When we enter a marine environment - often importing with us a compressed version of our own non-marine environment - we may feel instead like alien, foreign visitors. For this reason, it is easier to generate public concern about deforestation in the Rockies."

This perception perpetuates oceanic degradation, as it becomes harder to comprehend the complex environmental issues the marine environment currently faces. This is not to say that this problem of perception is ubiquitous, as such a statement would be misleading. More that distilling these complex issues into more effective narratives for different audiences can be an especially tricky endeavour, as the imagery utilised is often limited. Section 2.1 provides a short example of how marine pollution can, unhelpfully, be characterised through clumsy metaphorical language.

2.1. Texas, deserts, and the great pacific garbage patch

Oceanic pollution is an umbrella term that covers a wide range of diverse environmental problems, such as agricultural runoff, industrial and municipal waste, and noise pollution [32]. The majority of the chemicals and particles that end up in the oceans originate from land and find their way into oceans' complex food chains [32]. Drawing on the results of the world's first survey of toxic contamination in marine mammals, Ferber illustrated how these pollutants are amassing in apex ocean predators, such as sperm whales [33]. A cocktail of human-made, land-originated pollutants is slowly moving around the world's oceans with, as Ferber states, "relative impunity" [33]. Indeed, in February 2017, researchers at Newcastle University published results showing that human-made pollutants are evident at the bottom the deepest ocean trenches on earth [34].

In recent years, several prominent environmental campaigns have emerged focusing on the issue of oceanic pollution and specifically the problem of plastic pollution. In the US, the majority of these campaigns focused their attention on what has been dubbed the 'Great Pacific Garbage Patch' or 'Eastern Garbage Patch,' a concentration of pelagic plastic particles and other debris caught up in the North Pacific Gyre. Greenpeace's (n.d.) website states: "The "Trash Vortex", also known as the "Eastern Garbage Patch", is an area equivalent in size to Texas, or Turkey, or Afghanistan, that slowly rotates our rubbish in a never-ending rotation" [35]. Numerous media outlets [36–38] utilised the garbage patch metaphor to describe the nature of this pollution and the analogy of Texas to describe its size; pictures of floating plastic bags, bottles and other garbage often accompanied these stories. However, the majority of the pollution affecting the gyre is not an island of trash, but rather photo-degraded plastics and other pollutants [39].

Worryingly, this disconnect between the language utilised by campaigns and the actuality of the pollution in the North Pacific Gyre has served to foster counterproductive media coverage. Some saw the fact that you could not see this 'island of trash' twice the size of Texas rendered in visual form, and that the images accompanying stories of the 'Great Pacific Garbage Patch' were actually of Manila Harbour, as demonstrative of an environmental community increasingly prone to hyperbolic statements [14]. Nerlich [13] rightfully states that "metaphors can be used by experts and the media to shape visions of the past and/or the future in order to try to affect our social and political actions in the present." Yet, when the images that these metaphors conjure are