

The making of a beach

Ecosystem services as mediator in the Anthropocene

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Abstract

In the Anthropocene, it becomes problematic to imagine a sustainable balance between society and the environment. This calls for post-sustainability modes of articulating human/non-human relationships. As an attempt towards an Anthropocenic understanding of society and the environment, we analyse how ecosystem services are mobilised in marine spatial planning in the south of Sweden. The study investigates how ecosystem services are understood and narrated in environmental strategy and interviews with environmental planners. We focus on seaweed and sand. These are two kinds of materials and potential resources that materially circulate

and force together society and the environment in planning discourse and practice. Our findings show that although ecosystem services are readily understood as an anthropocentric construction, when mobilised in planning to manage an unruly nature they can be re-storied as an ontological mediator in human/non-human relations.

Keywords: Anthropocene, ecosystem services, environmental planning, post-sustainability, ontology

Introduction

In the novel *The City & The City* by China Miéville (2009), two different cities exist at the same place and at the same time, but still separated from each other. The cities are topographically overlapping but with different populations, languages and cultures. The border between the cities can be officially crossed at one sanctioned passage only, closely guarded by authorities from both territories. But the border is also porous; there are several 'windows', or rifts, where inhabitants from both sides can see into the other city. It is also physically possible to breach the border through these windows. However, citizens have been strongly socialised to not look directly into the windows, and instead immediately 'unsee' and 'unhear' all sensory spillover across the border. The physical cross-over through the rifts is utterly unimaginable for most people.

Miéville's novel can be read as an allegory over the modernist ontological separation between society and the environment (Latour 1993) in sustainability discourse. Society and the environment are constructed as separate spheres, where the major sanctioned crossing might be thought of as the extraction of resources by society from the environment. Traffic in the other direction – from society to the environment – can then be imagined as all possible tropes about sustainability grounded in a thought-model where control over the material balance between society and the environment is fundamental.

Our aim in this article is to dissolve the ontological separation between society and the environment. To do this, we use the case of ecosystem services in marine spatial planning. The so-called blue economy (Balina et al. 2017) is proposed as the frontier for new sustainable resource narratives. However, the sea is polluted and over-

exploited at an unprecedented scale, and rising sea levels is an obvious threat to societies due to climate change. The sea is a paradoxical space, pointing to a more pressing, theoretically driven reason for our contribution. This is an existential issue, because of the post-sustainability conditions emerging with the recognition of the Anthropocene: When human activities have become the dominant force of planetary and atmospheric change, it becomes increasingly non-sensical to uphold a separation between human and non-human domains (Castree 2003, 2020; Law 2015; Latour 2017; Fremaux 2019; Kolinjivadi 2019; DePuy et al. 2021). But individuals living in extractive societies (capitalist or not) cannot easily acknowledge this; we have been socialised to unsee the ontological overlap, we have no precise language to express it (Gray 2010). Addressing this barrier, we show empirically how ecosystem services are both an illustrative and a conceptually important arena for re-storying society and the environment in the Anthropocene.

Ecosystem services and the organisation of seaweed and sand

The values of marine resources can be manifest or potential, and they can appear as abundant or scarce. To even become resources, they must be made visible and narrated (see Hines 1988, for the social constructivist basis for such an argument). A way to systematically categorise the values of natural resources is through the concept of ecosystem services (Gunton et al. 2017), understood as the benefits society can gain from the environment. But as Barnaud and Antona (2014) demonstrate, the concept of ecosystem services is unresolved. At face value, ecosystem services express a separation between society and nature, a way of externalising, formalising and economising nature (McElwee 2017; Thorén and Stålhammar 2018) in terms of a range of different transactions – regulating, provisioning, supporting and cultural – between society and the environment. In this framing, ecosystem services are an anthropocentric tool to uphold societal autonomy from, and control over, nature. But at the same time, and originally (Daily et al. 2009; Costanza et al. 2017), ecosystem services also serve an important communicative purpose. It is a way to put words and numbers to measurable as well as non-measurable interdependencies and values to make them commensurable within the same frame of reference (Bullock

et al. 2018; Cheng et al. 2019). Driving this point further, calls for a less anthropocentric and a more care-based, ecocentric approach to ecosystem services have recently been raised (Muradian and Gomez-Baggethun 2021).

By focusing on ‘the making of a beach’ we analyse how marine spatial planning in the south of Sweden is organised through ecosystem services. Our approach is that environmental values do not arise a priori from ecosystems, ‘but are co-constructed through the interaction between people and their environments’ (Fish et al. 2016:330), and therefore a social construction in constant flux (Barnaud and Antona 2014). Ecosystem services harbour a range of different values in the planning and management of sea and coast. When different categories of values – societal and environmental, measurable and non-measurable – are made to co-exist in the same management system, this challenges a monolithic understanding of ecosystems (Abson et al. 2014; Fletcher 2020). It raises the question of what values gain legitimacy in time and space in relation to other values (Kull et al. 2015). Socio-cultural and ecological values respectively enhance each other in some places over time, but in other time-space locations they block each other. But the relation is not static; coasts are dynamic and literally move around. To illustrate values in this unruly context, we focus on seaweed and sand. These are two kinds of materials that are in constant discursive and material circulation and thereby force together society and the environment in planning narratives.

Method

The empirical material comprises semi-structured, open-ended interviews with four environmental planners from one coastal municipality in the south of Sweden. The interviews were transcribed into text and manually coded. The analysis also includes one document, a presentation of environmental planning strategy for the public and other stakeholders. This document, The Coastal Program, is a knowledge inventory and a ‘cross-sectoral description of values and processes’. The aim is ‘to create an overall picture that is important for future priorities and measurement’. The document was also manually coded. The coding resulted in content categories such as seaweed, sand, ecosystem services, and ecological and socio-cultural values.

We approach the empirical material through a functional discourse analysis. Discourse is a socially constructed way of knowing some aspects of reality and a context-specific framework for making sense of things (van Leeuwen 2016). We frame the interviews and the document as the total corpus of text, treated as one narrative. In this analysis, discourse is not understood as a strict system of concepts or objects, but as a set of relationships existing between discursive events (Wodak 2008). This is a functional approach enabling the identification of both static and dynamic relationships between discursive events, that is, the interviews and the document. The analysed discourse is an account of ‘the making of a beach’.

The making of a beach

For the municipality, the beach is a critical selling point towards its residents and visitors alike. The beach must be organised by planning; left to itself, its cultural and economic values would disappear in less than a season. We can understand the beach as an artefact, in line with the conditions of the Anthropocene. The circulation of seaweed and sand caused by winds, waves and sea currents must be parried by planting schemes to bind the sand dunes, the manual transportation of sand from the sea to the beach, the removal of seaweed to a storage place away from the beach in summer, and its return to the beach in winter. This constant circulation of seaweed and sand creates values, potentials and problems. In its strategic marine planning, the municipality articulates priorities of management and use in order to realise, for example, the cultural ecosystem service of ‘quality of life’ manifested as rows of picturesque bathing huts. By the management of seaweed and sand to preserve ‘quality of life’, the municipality can also discursively and in practice point to ecological values such as biodiversity and flood protection.

Narrating values

The Coastal Program states that the beaches are an important part of the municipality’s identity. This announces values based on general notions of what people in general refer to as valuable. It needs no explanation or argumentation more than that beaches are highly appreciated places for recreation. These values are also under threat, and, since the values are shared and common standpoints, so are the threats: “Threats to the beach’s attractiveness are factors

that make it less possible to use them for recreation, such as smelly seaweed, stray dogs, and the general concern that the beach will be eaten up by the sea.” (The Coastal Program).

But seaweed can be used as protection against erosion. What is bad for the identity of the destination can be good for the making of a beach. Benefits and threats are verbalised in a specific context and therefore considered as political issues because of how values, connected to a place, are dependent on particular vested interests and foci. Socio-cultural values can be used as a middle ground when it becomes hard to justify values economically, such as logistic solutions to move seaweed between different locations:

Seaweed has the potential to be refined and used as a natural resource, but it is not clear how the seaweed can be organised and refined. The municipality’s previous tests have not shown that any processing method is particularly simple or efficient. There is also a risk that environmental benefits are challenged by long transports and high costs. For this reason, the municipality needs to create a future organization that can be justified on the basis of environmental impact and finances. The possibility of restoring the old seaweed dikes could also be a way to take care of seaweed and at the same time strengthen cultural values. (The Coastal Program).

The municipality assesses the ecological and socio-cultural potentials simultaneously by emphasising the possibility to restore old seaweed dikes; understanding cultural heritage as an ecosystem service requires simultaneous consideration of ecological and cultural contexts. When engaging with the public it became obvious that people had interest in restoring the old seaweed dikes. When socio-cultural aspects are included in the planning processes, it often creates engagement and even acceptance towards the more invisible parts of ecosystem services.

Sand migration is a recurring theme in the Coastal Program. The fine-grained sand is easily transported by wind and currents, which is associated with a certain risk. There is a negative net balance of sand: more sand disappears than what is added to the area. As sand circulates, the value of sand is linked to the dynamic movement

that is able to add as much sand to the area as it removes. Socio-cultural values interact with environmental values, and these values reinforce each other only if nature's movements are favourable and rhythmic.

Socio-cultural values are often emphasised more than environmental values in the document and interviews. All beaches are associated with recreation and must be taken care of. If the shore is covered with enough sand it is per definition a beach, and therefore requires planning and management. The Coastal Program states that the coastline is subject to rapid change. More sand disappears than what is added, and large amounts of sand must be manually transported to the shoreline from other locations in order not to affect the value of the beaches negatively. The net balance of sand, and its circulation, is intimately tied to the placement and movement of bathing huts, and the huts are a key landscape feature for the value of cultural ecosystem services. The bathing huts are perceived as central in the making of a beach since they *de facto* identify the shoreline as a beach and tell the story of how the municipality was established as a seaside resort.

The acute risk of erosion and legislative issues combine to make the displacement of bathing huts a complex and problematic question. The value of cultural ecosystem services becomes interwoven with a larger ecosystem in constant change. Historically, the bathing huts had a practical purpose; recreation and the hiding of the naked body while changing clothes. Today, they still have this purpose, but are also a cultural heritage. As such, the huts are of strategic value. One respondent puts it simply: 'From the strategic perspective it is clearly stated that we need beach management.' Both bathing huts and beaches are posts in the municipal budget, and the respondent refers to this as a strategic decision to deal with the fact that the value of cultural ecosystem services are not calculable in terms of monetary value.

This strategic approach is able to include what people actually care about without demanding economisation. The management of the circulation of sand and seaweed thus makes visible the overlapping of society and the environment; by organising the dynamics of ecological ecosystem services, cultural heritage and quality of life are temporarily maintained.

The ambiguous work of managing seaweed

The demand from locals to keep the beaches clean from seaweed results in intense dialogue. The municipality is responsible for keeping the beaches tidy and clean, and if the beach is not cleared of seaweed, there will be complaints. Performatively, according to local regulations, all beaches are actually ‘beaches’. But it is the clearing away of seaweed that makes a beach in practice:

On the beach, we sort out the rubbish. And then we take away the seaweed. There is extremely much seaweed in the spring in some places. Then we drive in with an excavator and dig it away. The mental picture of what our beaches look like on a nice, sunny day in July does not really correspond to reality. If we hadn’t cleaned and prepared, we would have a completely different beach environment.

When the currents for several weeks have pushed the seaweed up on a specific beach, it is difficult to keep it clean. Organizing seaweed usually involves a spring cleaning in May to get rid of the seaweed that came in during the winter: “And then we put it in temporary storage places. Pretty close to the beach. Large piles of seaweed. And then we drive the seaweed back into the sea in the autumn. It’s the most economically sustainable way we have found. This is how our work looks today.”

That the seaweed is a problem for the municipality becomes clear when environmental planners tell the story about how they handle it. The same pile of seaweed can be defined as waste in up to three iterative rounds. The first time when it lies on the beach (waste on the beach), the second time when it is driven away and placed in a hidden storage place (waste on land), and the third time when the same seaweed pile is transported back to the sea (waste on land dumped in the sea). Despite attempts to find places where as few people as possible come into contact with the seaweed piles, both visitors and locals still experience the seaweed as waste ‘when you see the pile’.

The Coastal Program focus on strategic dimensions associated with the circulation and management of sand and seaweed where different ecosystem services collide (The Coastal Program):

The sand dune environment, for example, harbours many important ecosystem services such as flood protection, biological diversity, recreation, and experiences of nature. This environment is complicated in that it is under constant transformation and is formed by different types of nature with varying fragility and need for care, at the same time as it is a popular recreational area /---/ Seaweed plays a central role both in the sea and on land. In the sea it offers mating and hunting grounds, and protection. On land it can protect from erosion. Rotting seaweed affects the attraction of beaches by smell and preventing bathing. Mixed with the seaweed is also a significant amount of rubbish from both visitors and the sea.

The importance of the beach – without seaweed – as a cultural ecosystem service is here presented as self-evident. Seaweed is not able to deliver any value to the beach that can be classified as an ecosystem service. Instead, the absence of seaweed is the basis for providing cultural ecosystem services.

During one interview, the respondent reflected over a certain lack of knowledge among planners about the meaning of ecosystem services and how to use them discursively and in practice:

It is in part a matter of competence among us planners; everyone does not know what an ecosystem service is. They are not comfortable using them. It's not really part of your experience or your education. So this is quite a big thing. /---/ but then we have a political decision that we should work with ecosystem services in all relevant plans and programs. The result is that we don't have like a smooth way of doing things. How do we talk about ecosystem services? How do we use this concept... in our planning?

The ambiguity is obvious and acknowledged by the planners. Even though there is a lack of knowledge among planners, their work is guided by a political decision to work with ecosystem services in planning. The Coastal Program explains this by the relevance to

better illustrate what the natural environment contributes with to society and its importance for humans.

Before the pandemic, the municipal planning division arranged an event for the public with the purpose of educating the public about marine and coastal planning. It was, in the words of the respondent, an ‘ingenious event’ taking place at the actual beach where children were encouraged to use a fishing rod in a fishpond (the kind common at children’s birthday parties). The ‘prize’ in this fishing expedition was not a bag of candy but a description of an ecosystem service attached to a yellow plastic duck. By associating ecosystem services with a party, the planners accomplished several things. The event targeted children, who, in order to understand the descriptions, engaged their grown-ups. Municipal ecologists were present to explain the concept of ecosystem services to both children and adults. At the same time, seaweed, sand, and beach finds were displayed to facilitate new understandings of the sea and coastal environment. Two generations were simultaneously, *in situ*, being made aware of how the window between two different ontological domains – society and the environment – suddenly opened to show their simultaneousness in time and space. An Anthropocenic moment: ecosystem services attached to plastic as a transformative practice on a beach in constant peril to narrate the spatial and ontological overlap between society and the environment.

Conclusions

The ambition in this study has been to re-story the complex relationality between society and environment, in this case through the concept of ecosystem services. The value of ecosystem services for society demands organisation and management. Different ecosystem services simultaneously support and inhibit each other. The making of a beach specifically identifies values in constant motion in time and space since sand and seaweed circulate. To breach the ontological divide between society and the environment, the ability to narrate the outcome of such dynamic relationships is one key issue for environmental planning in the Anthropocene. The social acceptance and engagement for invisible ecosystem services in the ecological sense in planning and decision-making is facilitated when these are embedded and presented in socio-cultural contexts. The identification and articulation of certain values creates engage-

ment with specific ecosystem services. When it comes to the circulating sand, cultural ecosystem services interact with environmental ones. The making of a beach is a transformative process that activates a range of different values, and the symbolism of the bathing huts, with roots in a different context, becomes a prioritised cultural heritage in the municipal planning strategy. Here, the understanding of ecosystem services as a one-way flow of benefits from nature is hard to maintain. Instead, ecosystem services transcend the ontological separation between domains. In the pragmatics of environmental planning, ecosystem services are not a tool for upholding the autonomy of society from the environment. Quite the opposite; their mobilization demonstrates a relational ontology where society and the environment continuously create each other, a state of flux in no need to be pinned down.

This relational ontology was manifested in the case of the yellow plastic ducks. Socio-cultural aspects were staged as the pedagogical apparatus aimed at creating understanding and engagement, rather than being part of the ecosystem service complex in itself. The mobilisation of ecosystem services in the shape of toys can in this sense be understood as an attempt open a rift to re-story society and the environment in terms of ontological relationality. Ecosystem services – no longer an anthropocentric concept describing a one-way flow of benefits from nature to society – appears as a mediator between different ontologies. Fishing in the playful way described above is for many associated with catching a prize, which in this case can be understood as a re-storying practice. Ecosystem services is the prize for socio-cultural sensibility in awareness of Anthropocenic nature. This is neither a trivial conclusion, nor a very complex one. But it is, we would argue, a demonstration of how to dissolve the ontological divide between society and the environment and begin to tell the story of a post-sustainability world.

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