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Redrawing the boundaries: planning and governance of a marine protected area—the case of the Exuma Cays Land and Sea Park

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Abstract Marine Protected Areas (MPAs) shield ocean environments from hazardous human activities, including the extraction of marine resources and excessive urban development. Delimitation, zoning and governance structures are some of the environmental management tools that are provided by MPAs. These management tools may be contentious when human settlements exist within an MPAs' boundaries, since zoning affects existing human activities and potential developments, and managing structures overlap traditional governance arrangements. Varying perspectives emerge when each stakeholder is taken into consideration separately. Ideally all stakeholders with genuine interests in MPAs should take part in the delimitation, zoning and governance of these areas. However, governance is about reaching agreements amidst differences and is not just a matter of considering differences as singularities. In order to understand how multiple stakeholders would reach a shared environmental governance of an MPA, we took the Exuma Cays Land and Sea Park (ECLSP) in The Bahamas as a case study. The ECLSP, created in 1958, is co-managed by the Government of The Bahamas and the Bahamas National Trust (BNT), and contains within its boundaries uninhabited islands, islands occupied by local communities, and private islands mainly owned by foreigners

or held in Bahamian trusts. In this study, we conducted an exercise with different stakeholders who were challenged to work together in redrawing the park's boundaries, zoning and governance structures. Their individual opinions mattered less than the discussion and outcomes of their joint work. We conclude that a shared environmental governance structure does not eliminate all the frictions among stakeholders, but rather it makes them all aware of the natural and social complexities involved in managing MPAs, which improves stewardship and enhances the ECLSP's legitimacy among stakeholders.

Keywords Marine national parks · Governance · Participatory process · Bahamas

Introduction

Marine Protected Areas (MPAs) are important management tools for the restoration and conservation of marine biodiversity, promoting sustainable social and economic uses of the ocean (Arkema et al. 2006; Claudet 2011). MPAs are considered decisive for the recovery of marine life. At the same time they enhance fisheries by increasing the diversity of species, which creates a greater abundance of fishing with positive spillover effects in adjacent waters (Vincent and Harris 2014; Roberts et al. 2001). Scientists are aware of the necessity of having a “comprehensive ecosystem-based management to address the needs of both humans and nature” (Halpern et al. 2012, p. 615), and are making efforts to assess these systematic interactions simultaneously. In addition to the ecological and economic implications of managing MPAs, there are also social aspects that require consideration. Stoffle et al. (2010) assert that both human-marine uses and natural resource variables should be taken into consideration

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during the design and site selection phase of creating an MPA, although they also advocate that due to the diverse nature of variables in social and natural sciences, they should be evaluated separately. Moreover, Halpern et al. (2012) created a comprehensive Ocean Health Index that includes assessments of biodiversity and coastal protection to tourism as well as food provision.

Due to the complexity of MPAs and the diversity of interests at the local and global scales, co-management structures have been advocated as a way to promote the well being of nature and humans. In the realm of interdependent yet frequently competing and conflicting interests, governance structures are crucial. Yorio (2009) shows how diverging interests, overlapping responsibilities and lack of coordination within the government have been curtailing conservation initiatives in Argentina. Vincent and Harris (2014, p. 421) stress the importance of “mobilizing all layers of government”, as well as communities and local managers.

Based on a case-study overview, Christie and White (2007, p. 189–190) discuss five MPA governance models that are most frequently implemented, including traditional, bottom-up, co-management, centralised, and private management. The traditional model is based on local and historical practices. The bottom-up emerges mainly when there are weak formal institutions. Co-management “involves resource users and formal policy makers (e.g., the government) in a process of joint decision-making”. Centralised relies on “strong government bureaucracies and clear legal mandates”. Finally, private management, although uncommon, occurs when the private sector or tourism operations take on the management of an MPA. Other research suggests that MPA governance is based on a dual structure, including: 1) a governing system, which comprises “institutions and steering mechanisms such as organizations, legal rules and economic incentives” (p. 612); and 2) a system-to-be governed, which is formed by natural ecosystems and the systems of users and stakeholders (Jentoft et al. 2007).

MPAs involve the interaction between natural-systems and human-systems, as well as governing systems and systems-to-be governed. However, when an MPAs’ legally defined boundaries, zonings and enforcement laws encounter fluid natural and social environments, governance becomes a key element to deal with the diversity of values, expectations and goals. As Voyer et al. (2011, p. 433) explain, MPAs have the potential to affect the wellbeing of individuals and groups who value their use of the marine environment as integral to their “way of life and social identity”. Other research highlights the “social, material and symbolic effects of protected areas” (West et al. 2006, p. 252) and argues that the very idea of protected areas is a form of “virtualism”, influencing how people “see, understand, experience and use the parts of the world that are often called nature and the environment” (2006,

p. 255), imposing a European dichotomy between nature and culture where this distinction previously did not exist.

Often, these incongruous visions of nature appear in the way different stakeholders define and use environmentally protected areas, even when the involved parties have a genuine concern for the environment. This paper acknowledges the contradictory interests of stakeholders, with the intent to better understand how to protect marine biodiversity, while upholding the traditional values of the local community and the diverse perspectives of multiple stakeholders. The interplay in the definition and management of an MPA is also a primary part of our focus. We propose to simulate a decision-making process where stakeholders work together. By observing different stakeholders working together on a practical issue, our methodological hypothesis aims to shed new light on the study of MPA governance. We conducted an exercise where stakeholders had to work in mixed teams in pursuit of common goals—the redefinition of its boundaries, zoning and governance structures.

This study focuses on the Exuma Cays Land and Sea Park (ECLSP) in Exuma, an archipelago in The Bahamas. MPA governance is one part of a three-year research project, which aims to understand how anthropological concepts and research methods can inform design, planning and environmental management. We consciously decided that talking to each stakeholder individually was not part of our methodology, given the research question: What if stakeholders had the chance to practice the co-management suggested in most of the supporting literature? Observing this process we could simulate an actual participatory process, where conflicts and common interests are at play.

Background

Multiple stakeholders: simulating a decision-making process

Scientists, policy makers, environmental advocates and local communities usually agree that measures need to be taken to protect biodiversity in marine areas. MPA management involves the definition of its boundaries, the establishment of specific zonings for varied activities and the provision of legal support to enforce these measures.

As participants on the management of MPAs in Australia and the United States, Osmond et al. (2010) highlight three key components of a successful MPA planning: 1) governance, 2) planning process, and 3) public and scientific input. Two MPA management approaches are generally advocated: a “science-based”, top down method, focusing on no-take solutions, and another centred on community-based (Voyer et al. 2011) or “stakeholder-driven” solutions (Gleason et al. 2010). Authors stress that even when these two approaches are

combined, one usually prevails over the other. Thorpe et al. (2011) actually distinguished three domains dominating MPA scientific literature: 1) biological-ecological, 2) economic-social, and 3) governance-management. These three domains are the drivers of the creation and management of MPAs, with the biological-ecological domain as the primary research topic and governance-management as the secondary focus. Moreover, from 1994 to 2009, the biological-ecological domain experienced the greatest increase in dedicated research.

The separation among these different domains has evident practical and conceptual difficulties. In practical terms, questions persist regarding how to detach economy from ecology, or social from governance. These questions are particularly pertinent in an MPA, where environmental stewardship relies on people living in the parks, or where natural systems have economic value at different levels or even as an indicator of the subsistence economy, in which the attraction of international tourists becomes a necessary driver of commerce. Related to these questions, Dixon et al. (1995, p. 127) discuss tourism and conservation in Bonaire as a “joint product”, for “the generation of economic benefits that help create the political support (and financial resources) necessary for better management of the protected area”

The problem with separate domains creates deep conceptual consequences. Bruno Latour (2007, p. 4) has suggested repeatedly that rather than studying the “social”, sociologists should focus on the study of “associations” that refuse “to limit the inquiries to one domain only, as if side by side, we had social, psychological, legal, biological and economic connections, each with its own science and protocols”. Latour’s epistemological solution is that these domains could be considered as connectors among multiple aspects of the “collective” (his term replacing society). Therefore, instead of independent domains, it still makes “a huge, a lasting, an enormous difference whether a connection is made legally, scientifically, religiously, artistically, politically or technically” (2007, p. 7). In this sense, this classification has an instrumental relevance if we consider them as connectors rather than independent domains (Thorpe et al. 2011). It is not an either-or matter, but rather it is a question of how different stakeholders address the designation, zoning and management of MPAs. Even more relevant is how different stakeholders address domains/connectors when they work together or when they have to expose, justify and negotiate their arguments with other groups.

Researchers have explored how scientists, managers, policy makers and affected communities perceive MPAs in order to understand the natural, economic and social complexities of marine parks. One study analyses the management approaches of seven coastal and marine sites in the United States and one in Australia (Arkema et al. 2006), while another discusses how a sense of ownership is embedded in the community-based coastal management initiative in the Philippines, even

when different opinions collide (Indab and Suarez-Aspilla 2004). Ogden (1997) states how politically organized fishermen have mounted campaigns against the Florida Keys National Marine Sanctuary, despite the scientific evidence of its importance to marine biodiversity. Social use of MPAs has also been researched through interviews of 193 people from six coastal communities in Exuma (Stoffle et al. 2010). A common trait across these studies is that stakeholders approach MPAs driven by their expertise and their particular goals. In most cases, critical ecological and human factors are not weighed similarly, which opens room for misunderstandings that sometimes turn into criticisms of the very role of MPAs.

Research study

Exuma, and the Exuma Cays Land and Sea Park, an overview

Exuma is an archipelago composed of 365 islands and cays in The Bahamas. It stretches along 209 kilometres, with a total area of around 290 square kilometres. There are 7500 people living permanently on Exuma, with half of that number residing on Great Exuma, the main island.

In 1958 the Government of The Bahamas created the ECLSP, and one year later the Bahamas National Trust (BNT)—a non-governmental organisation that was established to oversee the park (Bahamas 1959). The 456-square kilometre park includes unoccupied and occupied islands and cays, including traditional settlements and private islands. In 1986, the entire park became a no-take zone.

The no-take zone has been shown to be effective in protecting marine biodiversity, when compared with other areas in the Caribbean (Mumby et al. 2006, 2011). However, other scientists have demonstrated that as the ECLSP depends on larval transport from adjacent areas. This implies that the park’s role in protecting marine biodiversity depends on the protection of other near-marine areas (Chiappone and Sealey 2000), and that a single MPA does not ensure marine metapopulation. Although the ECLSP produces large number of conch eggs and larvae, it is not large enough to retain them, and northwest marine currents carry them out of the park (Stoner et al. 2012).

Although there is universal recognition of the importance of the park’s natural environment, the Exuma community perceives the BNT’s policies and actions as controversial. During fieldwork, local inhabitants demonstrated an internal struggle between their economic subsistence and the need to protect the natural environment for long-term purposes. In Great Exuma, someone told us that ‘farmers, fishermen and craftsmen represent traditional economic practices that struggle between the immediate need to exploit natural resources to

compete with imports, and the long-term need to preserve these same resources' (field note). In Black Point, a 230-person island (Bahamas 2010), a BNT worker acknowledged that there is mistrust toward the organisation, especially from older generations: 'They were resentful of the organization for taking away their right to fish and hunt in the Land and Sea Park. I try to tell them - this is your children's future, your grandchildren -, but they don't understand' (field note). In Little Farmer's Cay—a community of roughly 70 people—a widely shared perception was vocalised indicating that the BNT and other conservation groups prioritise the wealthy: 'Millionaires', a local said, 'donate one million dollars and the BNT lets them do whatever they want to do' (field note). In Staniel Cay—an approximately 150-person community—a similar sentiment was shared when a resident told us that despite all environmental regulations within the park, 'One private cay owner was allowed to dredge out an entire marina to fit their mega yacht, making sure the marina looked environmentally friendly' (field note). These sentiments obviously are contradicted by the authorities who point out that they work within the law and are included here to show some of the tensions that exist between stakeholders.

These field notes illustrate awareness among local communities in regard to the importance of marine protection as well as suspicious feelings about how the marine protected areas are being managed. Their anecdotal characteristics also reveal that suspicions are less based on facts and more on an apparent lack of communication and active participation among stakeholders. Nevertheless, the important role the BNT plays in protecting Bahamian natural resources seems uncontested among scientists (Buchan 2000; Broad and Sanchirico 2008; James 1999).

Methodology

The proposed exercise was designed to enable different stakeholders to work together on a few practical issues: the re-definition of the ECLSP boundaries, as well as a proposal of new zonings, management tools and governance structures. The exercise was conducted in George Town, Great Exuma, and in Nassau, the capital of The Bahamas.

In George Town, 25 people participated in the exercise, including representatives of local NGOs, hotel managers, government employees, second-home owners, local entrepreneurs, developers and local community representatives from across numerous Exuma cays. In Nassau, 26 people participated in the activity, including representatives from the BNT and of the national government, students and faculty from the College of The Bahamas (COB), as well as residents and private island owners. In each site, participants were divided in groups of three to five people, purposely mixing different stakeholders. Each group was given a booklet with basic information about the ECLSP as well as a 24-by-36-inch

photographic poster of the park and the island of Exuma, tracing paper and markers. They were then asked to complete the following tasks in two hours:

- Re-imagine the boundaries (physical and conceptual) of the existing ECLSP in pursuit of long-term sustainability goals for Exuma;
- Identify the principal stakeholders in the re-imagined scenario by answering the questions: Who are the stakeholders?; What do they have at stake?; and What are the explicit and tacit agreements between specific stakeholders that underpin the status quo that you are intending to redefine?
- Lay out significant stakeholder risks, costs, benefits and time frames projected over the next fifteen years for a 'do-nothing' scenario versus the group's proposal.

Each group presented their results publicly, and the floor was opened to questions and discussion.

Findings

George Town

In George Town, all groups highlighted the importance of the ECLSP for the protection of the natural environment, and the key role it plays on Exuma's identity. However, four out of five groups proposed that the park's boundaries remain as they are. The majority opinion was that enlargement of the park would significantly damage the local economy, which is largely reliant upon fishing as a primary means of income. This opinion echoes sentiments we heard frequently during our fieldwork on the cays. For this reason, the consensus around the importance of the park as a no-take zone raised by all groups was quite surprising. They were aware of the benefits brought by the no-take zones to the fishing economy in the surrounding waters.

Two complementary proposals related to the fishing restriction were raised by different groups and discussed collectively. One proposal was to make the ECLSP a 'no-build' zone as well. This would further restrict the sale of cays and formalize covenants regarding permitted uses and occupancy. These measures along with proposals for greater public access and tourism within the park were counterbalances to the increased regulation. Despite the increase in demand for park access by the boating community and other groups, the present offer for visitation and use is limited. Ecological benefits associated with environmentally friendly uses (e.g., eco-tourism and associated small-scale accommodation) were highlighted as ways to increase revenues for park operations, including stricter enforcement of no-take zone regulations and discharge of waste from commercial ships. Web-based systems for

registering entry and duration-of-stay in the park, payment of fees and visitor support were also cited as desirable and would be complemented by additional physical locations for mooring.

Although in agreement with the previous points, one of the teams proposed to extend the ECLSP's borders to comprise the whole Exuma archipelago with the existing park area as one of three no-take zones. Considering marine currents, the other two no-take zones would be created on the southern portion of the larger park, serving to repopulate areas in the north. Spillovers would enhance the interest in underwater tourism and help the local fishing industry. The creation of a natural and cultural heritage site to promote international tourism was also included in this proposal.

All groups urged the decentralization of management. They argued for the creation of a local advisory board formed by residents of adjacent islands, which should be consulted or even co-managed by the ECLSP along with the BNT.

Nassau

Three groups were formed in Nassau, each containing at least one member from the BNT, the COB and one resident from Exuma. Similar to the general opinion in George Town, all groups highlighted the importance of the ECLSP. However, the reasons were slightly different. While in George Town existing and potential economic performance was perceived to be of utmost importance, the groups in Nassau placed marine protection at the forefront of their proposals.

One group proposed that the park's boundaries should be kept as they are, mentioning the necessity of more personnel to enforce the existing policies. The other two groups proposed enlarging the area to include the extreme north of the Exuma chain. In both cases, the width of the park would be enlarged to 8 miles—it is currently 4 miles wide. Also, in both cases, the extension of the park to the south was largely based on evidence collected from field investigations of the spawning areas. This research suggests that no-take zones help to raise the metapopulation of fish and conch while north-west currents help repopulate northern areas of Exuma.

The only difference between proposals was that in one, the park would be extended south without including Great Exuma, while the other did include Great Exuma. The former proposal argued that the relatively urbanized features of Great Exuma wouldn't fit within a marine park, whereas the latter emphasized that the inclusion of human settlements within the park would bring a stronger cultural and social dimension to the ECLSP. In both cases, groups suggested that the government apply for designation of the park as a World Marine Heritage site.¹ Additionally, they reasoned that in such a large

park, different zones—including no-takes zones—could be created in ways that proffer culturally relevant sites. Figure 1 shows the existing boundaries of the ECLSP, with the proposed new boundaries and non-take zones.

Similar to the other locales, the role of the BNT in the management of the ECLSP was simultaneously praised and contested. One group suggested that the BNT be kept as the single manager of the national parks by promoting a stronger and more constant presence in Exuma, while the others were more open to a shared management system, which would include other stakeholders and the local population.

Conclusions

The design of an MPA is highly driven by the necessity of protecting natural marine resources (Botsford et al. 2003) but this mono-disciplinary approach is also contested (Thorpe et al. 2011; West et al. 2006). When MPAs include or affect human settlements, social factors are also relevant in defining the boundaries, zoning and managing structures of marine parks.

Instead of assessing different stakeholders individually, or consulting secondary sources on the establishment and management of the existing MPA, we conducted two workshops with stakeholders directly involved with the ECLSP. The stakeholders consulted included residents and island-owners within the park and on the surrounding islands, as well as representatives from the Government of The Bahamas, community leaders and the BNT. By analysing the challenges of redrawing the boundaries, purposes and governance structures of the ECLSP, we have enabled stakeholders to work together towards a more encompassing solution for the park. Their conclusions were structured around three topics: 1) Statement of intent, 2) Physical boundaries and 3) Zoning and governance structure.

All groups highlighted the importance of the park as a management tool to preserve the natural marine environment. However, groups mainly in George Town also emphasized the necessity of opening up the park to environmentally friendly tourism. This, they contended, would increase the park's revenues and stimulate local economy by promoting tourism-related entrepreneurship. In Nassau, a more varied use of the park was mentioned, but its main purpose centred on marine protection. Resuming Latour's idea of 'connectors' and Thorpe's 'domain', it was clear that the people more closely tied to the ECLSP as part of their daily life, leaned toward supporting more economic-social connectors, while stakeholders in the capital city used more biological-ecological.

The physical boundaries of ECLSP should remain as they are, according to the great majority of the participants in George Town. In Nassau, however, one group shared this opinion, whereas the other two groups proposed an

¹ Information about the programme at <http://whc.unesco.org/en/marine-programme>

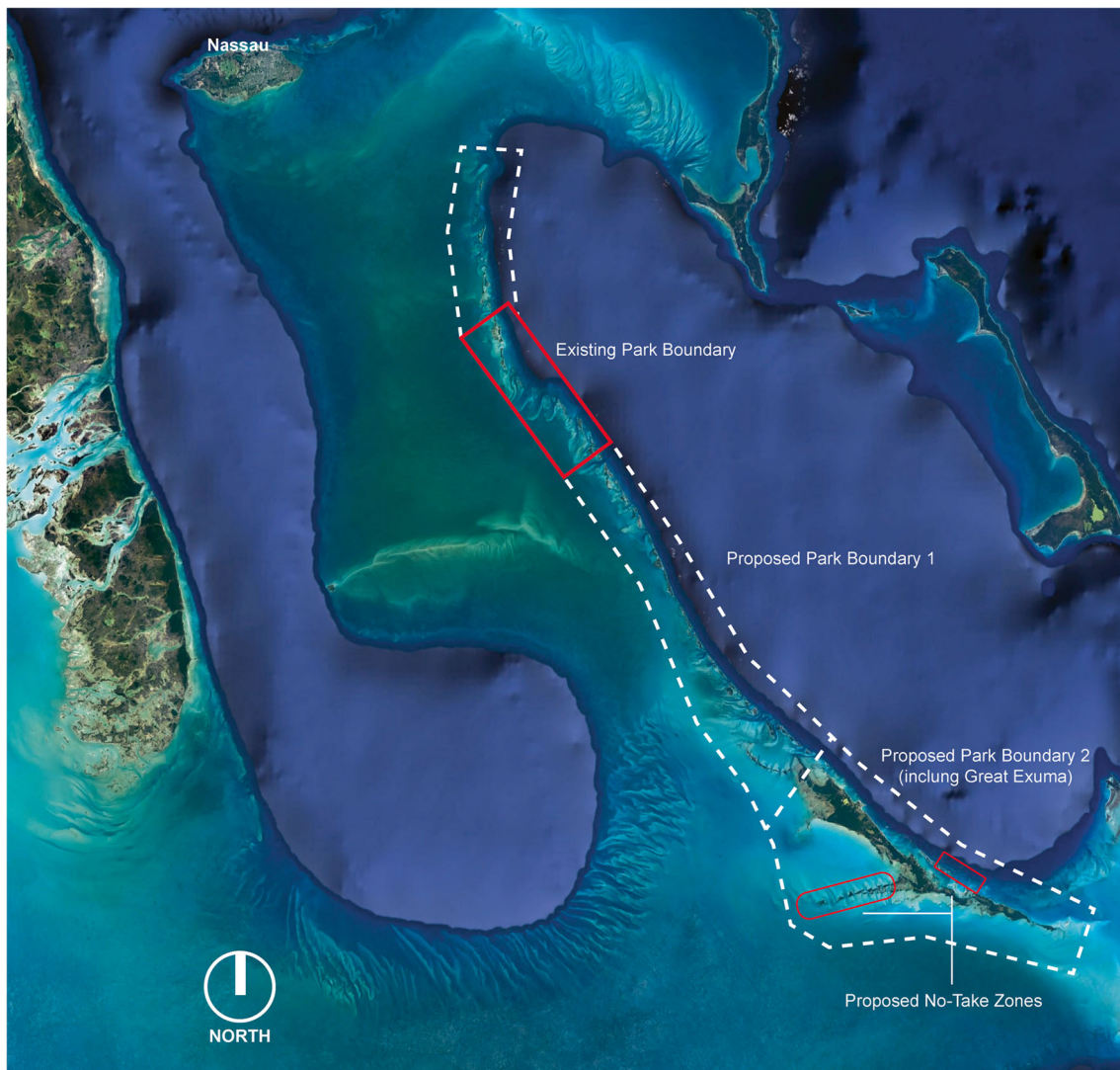


Fig. 1 Exuma Cays Land and Sea Park: existing and proposed boundaries

enlargement to the area of the park. The three groups (one in George Town, two in Nassau) that proposed to extend the park's edges to include the entire Exuma archipelago, still kept the current boundaries of the ECLSP as one of the no-take zones. In this proposal a few more no-take zones were added, mainly to the south of the original. Due to maritime currents, these new southern no-take zones could help to repopulate other areas of the Exuma Sound. Among those recommending keeping the current boundaries, several suggested that zoning could be more restrictive by turning the ECLSP into a no-build zone. The need for increased patrolling of the park and stricter enforcement of regulations was identified by all of the groups as a major issue. In this case, it is possible to see a relationship between biological-ecological and governance-management, when people link the protection of marine resources with land-use regulations.

Finally, a centralised governance structure was a contentious subject in George Town, and to a smaller degree in

Nassau. This was probably due to the presence of BNT staff in all groups. A more horizontal managerial structure, with the involvement of the community with the creation of a local advisory board, especially including those living on the cays adjacent to the park, was considered essential to the long-term success of the ECLSP.

By considering the three domains proposed by Thorpe et al. (2011) as connectors of how stakeholders deeply involved in the use and management of the ECLSP manifest their ideas, it is possible to say that people living close to the park give more importance to economic-social and governance-management, whereas people in Nassau based their comments on biological-ecological aspects, followed by governance-management. These varying perspectives among those concerned with the protection of marine resources demonstrate—using West's (2006) words—different 'ways of seeing, understanding and (re)producing the world'. These results show that though varied and sometimes conflicting visions emerge among stakeholders,

the importance of marine parks is highly recognised, and that its boundaries, zoning and governance may gain legitimacy when multiple stakeholders work together through the whole process, from design to managing marine parks.

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