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Marine Spatial Planning in the Benguela Current Large Marine Ecosystem

Gunnar Finke^{a,b,*}, Kira Gee^{c,d}, Thandiwe Gxaba^e, Roman Sorgenfrei^b, Vladimir Russo^f, Duarte Pinto^g, Silvi Edith Nsiangango^h, Lia Neto Sousaⁱ, Rodney Braby^b, Fátima Lopes Alves^j, Bernhard Heinrichs^d, Anja Kreiner^k, Maria Amunyela^b, Gcobani Popose^l, Moses Ramakulukusha^l, Ashley Naidoo^l, Elisabeth Mausolf^b, Kumbi Kilongo Nsingi^e

^a Institute of Geography, University of Hamburg, Bundesstraße 55, 20146, Hamburg, Germany

^b Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, MARISMA Project Office, 39 Anton Lubowski Avenue, PO Box 7123, Swakopmund, Namibia

^c Institute of Coastal Research, Helmholtz-Centre for Materials and Coastal Research Geesthacht (HZG), Max-Planck-Straße 1, 21502, Geesthacht, Germany

^d S.Pro | Sustainable Projects, Kärntener Straße 20, 10827, Berlin, Germany

^e Secretariat of the Benguela Current Convention (SBCC), 1 Strand Street, Private Bag 5031, Swakopmund, Namibia

^f Holísticos, Rua 60, Casa 559, Lar Do Patriota, Luanda, Angola

^g Ministry of Agriculture and Fisheries, Avenida 4 de Fevereiro, 25, Luanda, Angola

^h Institute for Artisanal Fisheries Development and Small-Scale Aquaculture (IPA), Ministry of Agriculture and Fisheries, Rua Do MAT, Complexo Administrativo Clássicos Do Talatona, 5* Edifício, 1* Andar, Luanda, Angola

ⁱ National Institute for Fisheries and Marine Research (INIP), Ministry of Agriculture and Fisheries, Rua Mortala Mohamed S/N, Ilha de Luanda, Luanda, Angola

^j Coastal and Ocean Planning Governance Team, Centre for Environmental and Marine Studies (CESAM), Department of Environment and Planning, University of Aveiro, 3810-193, Aveiro, Portugal

^k National Marine Information and Research Centre (NatMIRC), Ministry of Fisheries and Marine Resources, 1 Strand Street, PO Box 912, Swakopmund, Namibia

^l Department of Environment, Forestry and Fisheries (DEFF), Branch: Oceans and Coasts, 1 East Pier Building, East Pier Road, Waterfront, 8001, Cape Town, South Africa

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ABSTRACT

The Benguela Current Large Marine Ecosystem (BCLME) in the south-east Atlantic covers the territorial waters and Exclusive Economic Zones (EEZ's) of Angola and Namibia and partly of South Africa. Increasing demands, user-user and user-environment conflicts occur throughout the area. The three countries, which are parties to the Benguela Current Convention (BCC), have begun to implement Marine Spatial Planning (MSP) to support the sustainable development of the area and enhance ocean governance. This makes the region one of the first in a developing economies context and on the African continent to introduce MSP. The article (1) traces the origin of MSP in the region and describes the reasons for its development, (2) reviews the status of MSP processes to date at the regional and national level, and (3) reflects on the regional and individual country processes in terms of differences and similarities in approach and process governance,

* Corresponding author. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, MARISMA Project Office, PO Box 7123, Swakopmund, Namibia.

E-mail address: gunnar.finke@giz.de (G. Finke).

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shared opportunities and difficulties. The study finds that MSP in the region is introduced because of both strong interests to use it as a means to help grow the blue/ocean economy and as a mechanism to further the implementation of the ecosystem approach. Similar steps have been taken so far and alike approaches to MSP exist across the three countries, with the BCC as regional convention facilitating knowledge sharing and assisting to improve cross-border coherence and consistency on MSP from the outset. Although challenges, such as limited finances and data gaps exist both at national and regional level, the MSP processes to-date have created an enabling environment to develop the first marine spatial plans in each country and to exchange knowledge and experiences within the region and with other regions.

1. Introduction

Marine Spatial Planning (MSP) has become one of the most widely endorsed approaches for integrated management of coastal and marine environments (Ehler et al., 2018). It can be defined as “the governance process of collaboratively assessing and managing the spatial and temporal distribution of human activities to achieve economic, social and ecological objectives” (DEA, 2017). As such, MSP provides a framework for synthesizing information and collating knowledge and stakeholder views on the ocean’s ecology, resources, ecosystem services, user claims and interests as well as intangible values attached to the sea, and the threats to all of the above (Ehler and Douvère, 2009). The marine plans resulting from the analysis of such evidence provide a mechanism to support sustainable ocean development by translating underlying principles such as ecosystem-based management into an operational and spatially explicit regulatory framework. Complementing single-sector management with the provision of an integrated approach to sea use management, MSP aims to reconcile multiple use objectives and interests across sectors (Ehler, 2008).

MSP first developed in the 1970s as a concept and has seen widespread application since the 2000s, especially in high-income countries in Europe, North America and Australia (Santos et al., 2019). Largely organised as a national or sub-national approach, some countries, like Germany and Netherlands, are already developing and implementing iterated versions of marine plans. Given that marine ecosystems, human uses and their impacts extend across administrative boundaries, it is increasingly apparent that successful MSP has both national and cross-border dimensions, and coordinated and coherent approaches across national borders are increasingly called for, e.g. in the 2014 European MSP Directive (European Commission, 2014). While a transboundary approach to MSP makes intuitive sense, successful implementation has various challenges. These range from practical issues such as data exchange and alignment (Jay et al., 2016) to more complex issues of governance, such as organising a transboundary policy- and decision-making process (Tatenhove, 2017), ensuring policy convergence and maintaining good working relations amongst key actors (Flannery et al., 2015). There are also conceptual challenges such as generating a shared understanding of MSP and shared aims for ocean management. In the context of developing countries, such as in the Benguela Current Large Marine Ecosystem (BCLME) in the south-west of Africa, MSP initiatives are only beginning to evolve but increasingly emerging and progressing, including with transboundary dimensions.

With the exception of fishing, shipping and some mining activities, large parts of the BCLME still show comparatively low intensity of human use. However, existing uses are beginning to intensify and new uses are planned. Like many other countries sharing LMEs where user-user and user-environment conflicts are growing, the three governments of Angola, Namibia and South Africa – whose national jurisdictions cover the BCLME – are now turning to MSP. The overriding aim is to use the MSP process to rationally organise the development of their respective marine region by ordering multiple claims in space and time, based on the best available evidence and arrived at through political prioritisation. MSP is based on the understanding that integrated marine management has to start with a participatory decision-making process that guides where and when human activities occur in marine space. All three countries thus regard MSP as a necessary first step and an important precondition for sustainable ocean development both at the national and wider regional level.

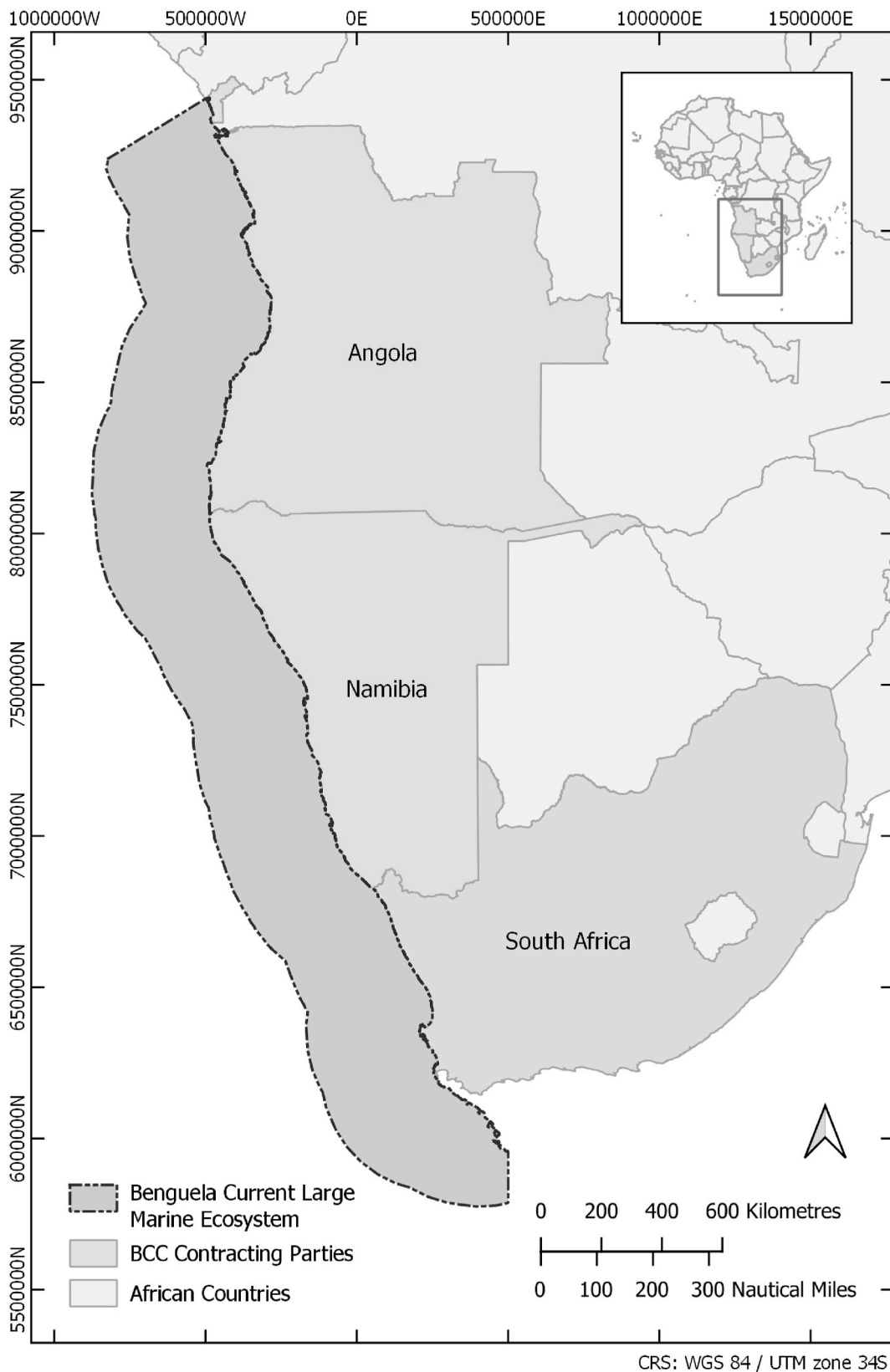
Countries bordering the BCLME are some of the first in a developing country context and on the African continent to introduce MSP. The objectives of this paper are to (1) trace the origin of MSP in the region and the reasons for its development, (2) review the status of MSP processes to date both at an LME (regional) and national level, and (3) reflect on the regional and three country processes and legislation in terms differences and similarities of approaches and process governance, shared opportunities and challenges.

The paper is based on observations of the national and regional MSP processes through extensive engagement of the authors in the planning exercises. In addition, a literature review and document analysis was carried out to inform the study.

1.1. Context

The BCLME is situated in the south-east Atlantic, stretching along the coasts of Angola, Namibia and South Africa over approximately 6800 km. The BCLME covers the marine area east of the Cape of Good Hope in South Africa to the province of Cabinda in Angola and encompassing Namibia’s entire marine environment. To the north, the BCLME intermingles with the warm Guinea current in Angola, to the east, the Benguela current covers a dynamic area until approximately Port Elizabeth, where the Benguela current mixes with the warm Agulhas current. The territorial waters and exclusive economic zones (EEZ’s) that form part of the LME extend over an area of approximately 1,485,000 km² (see map 1).

The cold Benguela Current influences the marine environment, which – together with the Humboldt, California and Canary



Map 1. Location and approximate spatial extent of the BCLME (BCC, 2014).

currents – is one of the world's four eastern boundary upwelling systems. A strong, wind-driven coastal upwelling system dominates the BCLME. The high primary production of the ecosystem makes it a unique region in terms of biodiversity and biomass (O'Toole et al., 2003).

The three countries bordering the BCLME are part of the Southern African Development Community (SADC) and classified as upper-middle income developing countries. Poverty, unemployment and social inequalities are high in all three countries but highest in Angola, followed by Namibia and South Africa. Life expectancy and education are highest in South Africa, followed by Namibia and Angola (UNDP & OPHI, 2019). This socio-economic situation is likely to have worsened due to an economic downturn in all three countries since 2016, a severe drought in the region in 2019 and the most recent SARS-CoV-2 pandemic in 2020.

Whilst Namibia has a population of about 2.3 million inhabitants of which only approximately 200,000 live on the coast (MFMR, 2019), approximately 40% of the 58.8 million South African (STATS SA, 2019) and 50% of the 32 million Angolan citizens (Governo de Angola, 2017) live on the coast. This distinct difference in coastal populations is attributed to the harsh living conditions along the entire Namibian coast, especially the lack of freshwater. Angola and South Africa have always had a much larger coastal population; especially in South Africa's large coastal towns this number is expected to grow. In Angola, the coastal population has grown tremendously due to forced migration as a result of the civil war and more recently due to the search for better economic conditions and job opportunities.

Angola, Namibia, and South Africa have a history of European colonization by Portugal, the Netherlands, the United Kingdom of Great Britain and Germany. In all countries this imperialistic occupation resulted in intensified utilization of marine resources since the 15th century. This intensive use has continued to increase after Angola's independence from Portugal in 1975, Namibia's independence from South Africa in 1990 and with the end of the South African apartheid regime in 1994. This has resulted in localized and more widespread pressures on the environment, with overfishing as the most prominent example.

1.2. Current marine uses in the BCLME region

Multiple industries depend on the multitude of the ecosystem services the BCLME sustains. While these sectors generate significant contributions to the national economies, they also make demands on marine space, create pressures on resources and often result in conflicts between the different users of the marine space.

Commercial and small-scale fisheries are the oldest and most widespread marine uses in the BCLME, including also long-distance fishing fleets. Whilst commercial fishing fleets are the key component of the Namibian fisheries sector, Angola and South Africa also have an important small-scale, artisanal coastal fisheries sector. Major commercially important fish stocks in the BCLME are found in all three countries. In Angola, the fisheries sector is projected to contribute about 4.7% per year to the Republic's gross domestic product (GDP) in the period 2018–2022 (Governo de Angola, 2018). Fisheries contributes around 4.5% to the Namibian GDP (MFMR, 2015) and is the largest employer of all marine industries with approximately 15,000 direct jobs (NPC, 2017). In South Africa, fisheries contributes roughly 9 billion Rand to the country's GDP, which equates to roughly 0.1% of the GDP. Although this is relatively small in comparison to other sectors, fisheries is however important for economic development in certain provinces such as the Western Cape where it contributes more than 5% of the province's GDP (DGCIS, 2018). Fishing occurs generally throughout the territorial waters and EEZ with varying priority fishing areas for the respective sectors (e.g. hake on the continental shelf in Namibia, the east coast of South Africa and the southern section of Angola's marine area). Spatial and temporal fishing restrictions apply to protect important reproduction sites and seasons of harvested species. In addition, most of the countries' Marine Protected Areas (MPAs) have fishing restrictions to safeguard the natural values for which they are proclaimed.

Mariculture is a growing industry, but one that is constrained by the environmental conditions and therefore mainly occurs in the rare sheltered bays along the coast. Whilst the Angolan government is supporting the establishment of future mariculture sites, mariculture products are not yet generated in the country on a commercial scale. As such, a total of 12 mariculture projects have been identified with a projected annual production of 39,660 Metric Tons (MTs) with a new mariculture centre which aims at producing 200,000 fish larvae, 1 million molluscs larvae and 10 million crustacea larvae annually (Governo de Angola, 2019). In Namibia, mariculture production is estimated to have generated a market value of around 30 million Namibian Dollars in 2018 (MFMR, 2018). The South African aquaculture industry – both freshwater and marine – has a production value of approximately 0.67 million Rand (DPME, 2014). In 2015, marine aquaculture produced a total of 3592 Metric Tons (MTs), accounting for 66.29% of the total production having increased by 174 MTs (5%) from 2014 (DAFF, 2016). In Namibia and South Africa, production is aimed at satisfying local demand, serving the tourism sector and capitalizing on export opportunities whilst contributing to job creation.

Maritime transport is a traditional human activity and critical for all three countries in terms of accessing regional and international markets. For example, 58% of South Africa's GDP is based on trade and 98% of South Africa's trade volume moves by ships (Funke et al., 2016). While Namibia has only two commercial sea ports (Lüderitz and Walvis Bay), Angola has four (Cabinda, Luanda, Lobito and Namibe) and South Africa eight, two of which are located directly within the BCLME: Saldanha and Cape Town. All ports represent critical infrastructure for the countries through enabling all other marine uses to operate, e.g. by providing landing facilities, storage space or space for processing industries, and many, such as the port of Walvis Bay in Namibia, are expanding. Vessel movements to and from the BCLME's major ports vary in their intensity and type. Angola's role as an oil producer, for example, results in a large number of oil tanker shipments within the Angolan section of the BCLME. South Africa occupies a geostrategic position with the Cape of Good Hope being located on a major, globally significant sea-trading route that lies at the heart of the east-west trade and connects the markets of Asia, Europe and the Americas. As such, there is a high concentration of vessels crossing the waters under South African jurisdiction along the coastline. Not all of these vessels call at a South African port (Gründlingh et al., 2006) but approximately 12,000 cargo vessels use the South African ports annually (STATS SA, 2019). An intensely frequented shipping lane from the Cape to Europe

and West Africa crosses the southern part of the Namibian EEZ.

An abundance of economically valuable non-living marine resources, including petroleum, gas, precious stones and other minerals such as phosphate is found within the BCLME (Anon, 2014). Exploration and exploitation of these valuable resources in the sea is a priority for all three countries in a global economic context. Angola is the second largest oil producer in sub-Saharan Africa after Nigeria. In 2018, Angola produced 1.47 million barrels per day of petroleum and other liquids of which offshore crude oil production is the major source (OPEC, 2019). Marine alluvial diamond mining operations occur in southern Namibia and in northern South Africa in the area between the low water mark to depths of 500 m. Mineable deposits of phosphorus enriched sediments are known to occur south of the Kunene river mouth in northern Namibia, in the central Namibian section between Swakopmund and Lüderitz, and in the South African section off the West coast, with exploitation activities planned (Campton and Bergh, 2016) (Coles et al., 2002). South Africa holds deposits of gas, which are exploited offshore of Mossel Bay. The Namibian Kudu gas field offshore from Oranjemund merits exploitation but production is currently not pursued. Exploration activities for petroleum are undertaken throughout South Africa's and Namibian waters, but exploitation is currently concentrated around the South African marine area south off Mossel Bay.

Naval defence is an additional user of the marine area within each country. In addition to naval bases, historic ammunition dump sites in certain locations are of key interest to the military as well as training areas that are either in use historically or which the military would like to see delineated in future.

The region features unspoilt and unique coastal scenery and abundant marine wildlife, which is of considerable interest to tourism. Marine and coastal tourism is an increasingly important component of the region's recreational offer and contributor to the three national economies. For example, passenger numbers in domestic cruising in South Africa were at 140,000 in the 2014 season and have been (prior to the current SARS-CoV-2 pandemic) projected to climb to between 200,000 and near 1 million by 2025, with an estimated potential contribution of 14.1 billion Rand to the national GDP in 2025 (NDT, 2009). South Africa also offers important marine and coastal tourism destinations, with Cape Town and the Garden Route being the top places to visit. Although tourism is often land-based along the coast, sea-based tourism is increasing and includes activities such as recreational fisheries, boat-based whale watching, wildlife cruises and white shark cage diving or occasional touristic and sport events such as the Volvo Ocean race. In Namibia, the central coast in particular has become a prime tourism and recreation destination for foreigners and nationals; in Angola, coastal tourism infrastructure is growing.

Throughout the BCLME, 18 MPAs exist of which none are currently located in Angola (although plans for MPAs exist and should result in the gazetting of the first one in 2021 along the coast of the Iona National Park in the Namibe province), one in Namibia and 17 in the South African section of the BCLME. The area protected through MPAs extends over 24,000 km², which is approximately 1.6% of the entire area. A set of 21 marine areas have been identified as high priority areas for conservation and sustainable use with features relating to one or more of the scientific criteria in relation to Ecologically or Biologically Significant Areas (EBSAs), as defined by the Convention on Biological Diversity (CBD). Three of these EBSAs are shared across national borders: Namibe (previously Kunene-Tigres) between Angola and Namibia, and Orange Cone and Orange Seamount and Canyon Complex between Namibia and South Africa. Taken together, the spatial extent of the EBSAs in the BCLME is 287,000 km², which equates to 19.3% of the marine area.

1.3. A history of cooperation under the umbrella of BCC

Given the shared ecosystem, resources and closely intertwined economies, the three countries have a long history of cooperation on the management of their LME (Hamukuaya et al., 2016). In recognition of the unique character of the BCLME, its socio-economic development potential, and given the user-environment conflicts as well as rising claims by multiple activities on the same space, the three countries began to establish long-term transboundary cooperation in the late 1990s. The trilateral cooperation recently culminated in the ratification of the Benguela Current Convention (BCC), which entered into force in 2015 (BCC, 2015). First established in 2007 through an interim agreement, this environmental treaty established the originally voluntary cooperation mechanism as a permanent and binding inter-governmental organization and agreement. This critical step was taken by the contracting parties to the BCC to advance the protection of their shared marine ecosystem and to ensure the long-term future of their ocean-based economies and societies. The globally unique character of the trilateral cooperation is its multi-sector approach: It brings together the key sectors – fisheries, mining/petroleum, transport and environment – to enable coordination across uses and interests. Other experts also participate in bringing together evidence-based knowledge to enable joint learning and informed decision-making.

Through its various bodies the BCC provides the legal and governance framework through which transboundary management decisions for the BCLME can be arrived at. A governance structure at senior and ministerial levels for decision-making is advised by the following permanent expert-led panels: Ecosystem Advisory Committee (EAC), Finance and Administration Committee, and Compliance Committee. The EAC has established several ad-hoc and open-ended Regional Working Groups (RWGs) on several topics, which aim to provide decision-makers with the best scientific advice and information, including on the best conservation and management measures to pursue. A secretariat based in Swakopmund in Namibia provides the necessary administrative and logistical support to ensure the implementation of the agreement.

1.4. MSP in the BCLME: origin and need

Following the lead of other countries and regions, the three BCC countries chose MSP as the preferred pathway to enable an integrated approach to marine management. Two developments and interests converged in this. On the one hand, marine planning was promoted as a mechanism that could contribute to the growth of blue economies. In 2014, South Africa launched Operation Phakisa: Oceans Economy, a government project designed to unlock the economic potential of its ocean, which is identified to have the

potential of contributing 177 billion Rands to GDP by 2033. MSP has been included as a key means of improving ocean governance (Findlay, 2018). In Angola, MSP is situated within the context of the Blue Economy Agenda of the Angolan Presidency (Governo de Angola, 2019) and has a specific program in the National Development Plan 2018–2022 aimed at regulating the marine space and ensuring a sustainable use of marine resources (UNDP & OPHI, 2019). This is in line with African Union policy which also put forward MSP as a process to help grow the blue economy at this time, most notably by giving more certainty to developers and sectoral decision-makers (AU, 2012). In addition to this socio-economic interest in MSP, however, the BCC countries also recognized the contribution marine planning can make to implementing the ecosystem approach. In line with CBD targets, and following on from the progress already made through a regional project (Kirkman et al., 2019), the BCC countries aligned their respective MSP processes with a systematic conservation planning process that focused on the countries' EBSAs. MSP is thus not only associated with national development, but also ecological objectives, as expressed in the 2nd National Biodiversity Strategy and Action Plan (NBSAP) of Namibia (MET, 2014) and the 2nd NBSAP for Angola (Governo de Angola, 2020).

In addition to starting national MSP processes, the three countries included MSP as a strategic goal in the 2015–2019 Strategic Action Programme (SAP) of the BCC, with the aim of better realizing the socio-economic development potential of the BCLME as a whole through an ecosystem-based approach (BCC, 2014). In order to kick-start the MSP process in the region, a development partnership between the BCC, its parties and the government of Germany was initiated: MSP in the region and nationally is supported technically and financially by the German Development Cooperation Agency (GIZ)¹ under the framework of the Benguela Current Marine Spatial Management and Governance (MARISMA) project, which is financed through the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) with significant in-kind contributions of the BCC and its parties.

1.5. Status of the MSP process in the BCLME region

1.5.1. Benguela Current LME: status of MSP at the regional level

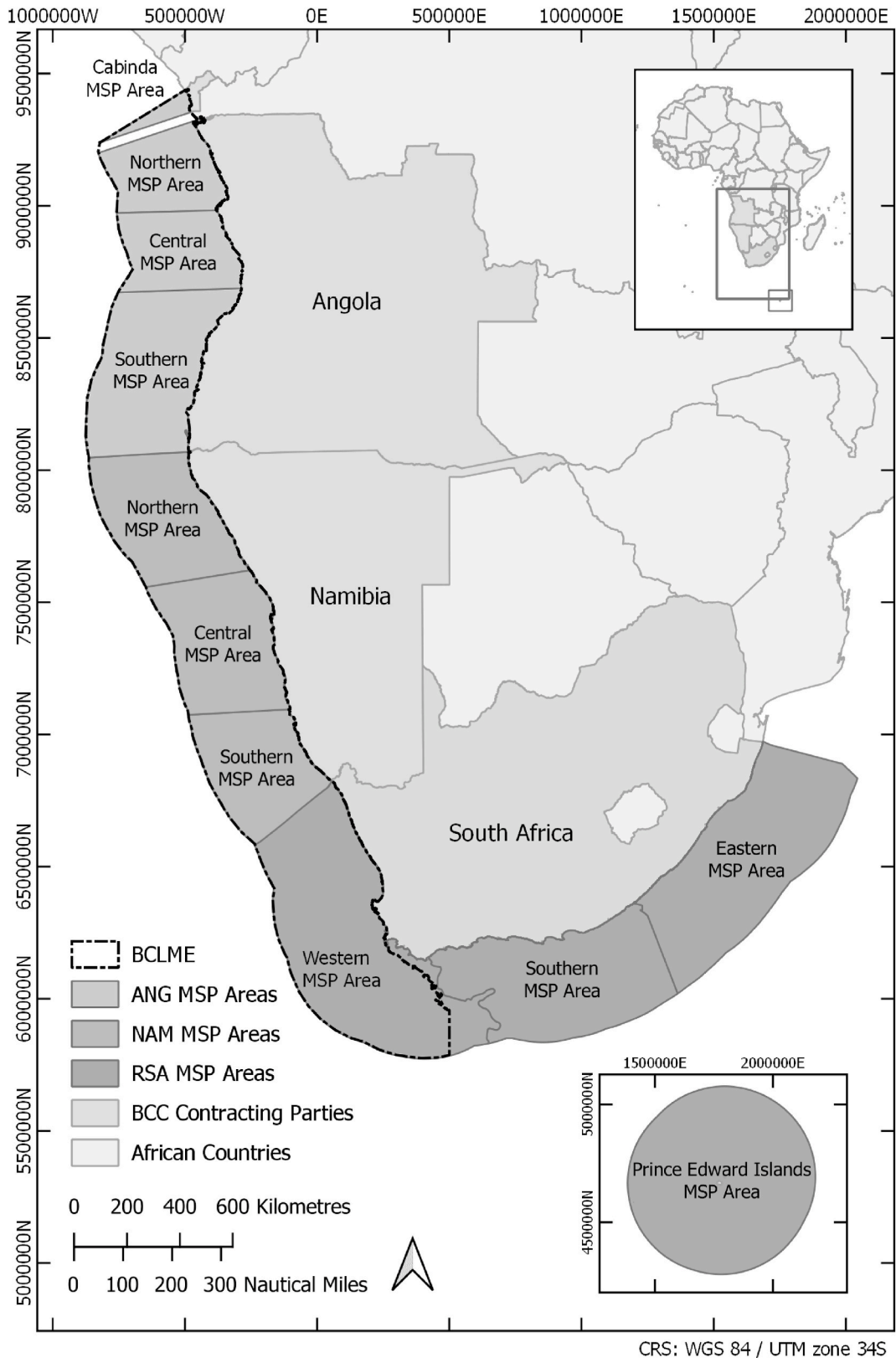
The BCLME region has a relatively long history of multi-sector cooperation aimed at cross-sector coordination both regionally and nationally (Hamukuaya et al., 2016). The BCC is a flagship example of this approach at the regional level, while integrated coastal zone management initiatives and cross-sector agreements on the declaration of coastal protected areas are good illustrations of local and national efforts. Although framework conditions for enabling better ecosystem-based marine management have been developed and tested, relatively little has been achieved so far in terms of an integrated and coordinated approach to managing human uses in the marine waters under national jurisdictions of the BCLME. A coordinated approach to MSP seemed a promising route towards coherence in MSP, as well as an opportunity to deliver key BCC targets for ecosystem management and sustainable regional growth.

Within the framework of the BCC, a RWG on MSP was created in 2016. This group comprises of up to five government officials from each country. Depending on the country context, the delegation of each party consists of one or two officials from each of the key sector ministries and departments, which also participate in the BCC structures: fisheries, mining/petroleum, transport and environment. In addition, other relevant officials, such as from the development planning offices, as well as technical experts and civil society participate. All of the RWG members are also engaged in the national-level MSP processes and part of the National MSP Working Groups (NWGs). The RWG reports to the EAC and meets up to two times per year.

The RWG setup and arrangement, so far, has been directed primarily towards supporting the initiation of MSP at national levels by enabling the exchange of the growing experiences and knowledge on MSP across the three countries. The idea of learning from and with each other at the early stages of the national-level MSP processes has not only enabled intra-regional capacity development but also contributed to similar approaches across the countries. The RWG has also exchanged with other regional organizations and conventions on MSP to learn from the European Commission, the Baltic Marine Environment Protection Commission (HELCOM), the Baltic Sea Spatial Planning Organization (VASAB) as well as the Barcelona Convention (UNEP/MAP). In addition, the NWGs visited MSP authorities in Europe, which further enriched the discussions at BCLME level: Angola exchanged with Portugal (including Madeira), Namibia visited the United Kingdom (Scotland) and The Netherlands, and South Africa travelled to Sweden and Germany. These technical exchanges led to an even stronger appreciation of the significance of stakeholder engagement and the need to create a supporting policy and legislative environment. In addition, the RWG and the BCC secretariat developed increased understanding of the possible roles of regional organizations and conventions in facilitating national-level and cross-border MSP.

One of the key outputs of the group to-date is a regional MSP strategy, which was adopted by the Commission of the BCC in 2018 (BCC, 2018). The strategy is advisory in nature and aims at facilitating a coherent and consistent approach to MSP across the three countries. The strategy suggests common elements of MSP processes that all three countries should consider when implementing MSP, for example stakeholder engagement or a plan review period of 7–10 years. While it stimulates national MSP processes, the strategy thus also lays the foundation for future transboundary-level planning in support of the BCC's Strategic Action Programme and the regionally agreed MSP goals. The RWG is also working on issues such as establishing a joint spatial data portal under the BCC, and agreeing common legends across the countries to facilitate coherent planning and mapping across borders. Linked to discussions on the possibility to create legally binding protocols under the convention, the RWG is also debating options to transform the strategy into a protocol on MSP in the longer term. One of the current tasks of the RWG is to develop more specific ideas for cross-border marine plans both in terms of guidelines and MSP implementation.

¹ Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.



Map 2. The marine planning areas of Angola, Namibia and South Africa.

Another RWG was created on EBSAs in 2016 to enable a regional systematic conservation planning process. Similar in its setup to the MSP-RWG, the EBSA team aimed at updating the existing CBD-recognized EBSAs in the entire BCLME and at identifying and delineating additional areas which would meet the scientific EBSA criteria. As a result of this expert-driven scientific and technical process, which was completed jointly by all three countries with the support of international experts, including through the MARISMA project and the Global Ocean Biodiversity Initiative (GOBI), a consolidated set of EBSAs has been described and delineated (Harris et al., 2018). Namibia submitted its set of updated and new EBSAs to the CBD in early 2020, Angola and South Africa are in the process of following suit. Together with possible management measures and suggestions for zoning and associated spatial regulations, the nationally driven and regionally coordinated EBSA process will now inform the development of technical proposals for spatial management measures and zoning schemes for those marine plans that straddle the national borders.

1.5.2. Benguela Current LME: status of MSP at the national levels

The BCC countries have put in place similar inter-ministerial and cross-sectoral mechanisms within government to enable the introduction of MSP and preparation of the first marine plans. Lead ministries/departments for MSP work closely with other relevant ministries/departments and government agencies through formally established NWGs to deal with multiple spatial claims in an integrated way. The NWGs report to higher government structures through the respective lead ministries/departments. Each NWG has established specialised sub-groups to deal with certain tasks related to the process on an ad-hoc basis. Experts of the MARISMA project team advise the NWGs and task teams in the process and provide technical and logistical support.

All three countries have divided their marine jurisdictions into sub-national planning units in order to implement MSP in a more manageable and meaningful way (see map 2).

All countries have divided their marine area into several distinct planning areas based on human uses and ecological boundaries. Each country then chose a pilot area in which to develop the first marine plan. In Angola and Namibia, these are the central marine areas where many human activities and potential spatial conflicts are concentrated; in South Africa it is the southern area (see map 2). All planning units comprise both territorial waters and EEZs, with the landward limits being the high-water mark.

Both Namibia (MFMR, 2020) and South Africa (DEA, 2017) have compiled strategic elements for their national MSP processes. The respective frameworks provide high-level guidance for the preparation and approval of marine plans as well as their implementation, monitoring and review. Their aim is to ensure plan-making is consistent and coherent across the respective marine areas. While such a framework is formally required by the South African MSP Act (Act No. 16 of 2018) and a first version was gazetted in 2016, the Namibian framework is not legally required and still exists as draft version that now requires formal adoption by government. It is possible that the forthcoming Angolan strategy for the sea will also set out strategic guidance for Angolan MSP. In addition, the territorial planning legislation is currently under revision and will include MSP aspects in future. Following international guidance for MSP (Ehler and Douvère, 2009), all three countries have developed a vision for the ocean, and high-level MSP goals and aspirations for the marine areas have been agreed. These concern all dimensions of sustainability and are also directed at improving ocean governance as a whole.

All countries have developed a similar spatial management approach, which is neither solely policy led nor entirely zoning based. Generally speaking this consists of: a) general development guidelines, b) sector development guidelines, and c) a zoning scheme with spatial regulations. The zoning schemes build on the countries' spatial planning approaches on land in terms of defined zones for particular uses.

General development guidelines are broad-level policies that apply to all developments and licensing decisions in the sea while recognising the challenges between users and desired uses. They are geared towards ensuring that the overall development of the country's marine area is in line with the strategic goals of MSP, and that environmental, economic and social objectives are taken into account in decision-making. The general development guidelines apply throughout the planning areas, irrespective of additional zoning schemes.

Sector development guidelines reflect the specific development aspirations of the maritime sectors. Unlike the general development guidelines, they may vary between plans to accommodate the specific social, economic and ecological context of each of the planning areas and to meet distinct marine plan objectives.

Zones go beyond the general and sector development guidelines by pre-defining intended combinations of use in certain places. They effectively represent priority areas where one use is defined as the primary use based on criteria such as suitability, compatibility and desirability; other activities that conflict with the priority function are prohibited or restricted. Zones are arranged in the plan areas in such a way as to enable the best possible pattern of use that can be obtained at the time, based on the current and prospective activities as well as the best available evidence and stakeholder interests. The zoning scheme therefore offers a transparent decision-making guide with clear instructions for potential users and developers.

Through the zoning scheme, and in line with the strategic MSP goals, the BCC countries thus prioritise – to varying degrees – the following human activities that are of national priority and regional or global significance:

- Biodiversity: protecting the high priority areas which possess key biodiversity features of national, regional and global significance, and managing human impacts on them, with a focus on the region's EBSAs.
- Fisheries: ensuring continued access to fishing grounds, particularly areas of priority to the sectors, and protecting key fisheries habitats from adverse effects by human uses, including fishing activities.
- Mariculture: securing the existing mariculture locations and identifying appropriate sites for future mariculture development and use.

- Geological resources: enabling exploration activities to establish reliable knowledge about resource deposits, which may merit future exploitation, and securing key known deposits to promote sustainable use of these resources.
- Maritime transport: guaranteeing safe and efficient navigation through a system of areas that ensure safe passage, anchoring, and handling of vessels in need of assistance, and the disposal of dredge material.
- Defence: allocating space for military training activities and the safe anchoring of naval vessels, and ensuring that dumped ammunition does not become a danger for other users and the marine environment.
- Marine and coastal tourism: Enabling continued and improved access to marine and coastal resources for responsible tourism activities.
- Underwater infrastructure: Protecting existing submarine cables and other linear infrastructure, whilst reducing risks to other seabed users and the marine environment.
- Maritime and underwater cultural heritage: Protecting maritime and underwater cultural heritage resources.

Whilst Angola and Namibia inaugurated their NWGs in 2016 at the beginning of the MARISMA project, South Africa's technical group was already established in 2014, pursuant to the initiation of Operation Phakisa: Oceans Economy. Since then, each of the countries have followed – more or less and based on international guidance – the same initial steps in the planning process.

As a first step, each country developed a comprehensive baseline report outlining the current status of the national marine area (MFMR, 2019) (Governo de Angola, 2017) (DEFF, 2020). This was done by drawing together available data and identifying important evidence gaps. Each process was led by the NWG and involved formal and informal single- and multi-sector meetings and other means

Table 1
Aggregated overview of national MSP structures and processes

Country	Angola	Namibia	South Africa
Lead ministry/Department	Ministry of Agriculture and Fisheries	Ministry of Fisheries and Marine Resources	Department of Environment, Forestry and Fisheries
Ministries/Departments and (related) government institutions represented in the MSP-NWGs	Ministry of Culture, Tourism and Environment Ministry of Mineral Resources, Petroleum and Gas Ministry of Economy and Planning Ministry of Transport Ministry of Defence Ministry of Higher Education, Science, Technology and Innovation Ministry of Youth and Sport Ministry of Public Works and Land Use Planning Ministry of Energy and Water Ministry of Justice and Human Rights Ministry of the Interior Ministry of Foreign Affairs Agostino Neto University	Ministry of Mines and Energy Ministry of Works and Transport Ministry of Environment, Forestry and Tourism Ministry of Defence and Veteran Affairs Ministry of Urban and Rural Development Ministry of Agriculture, Water and Land Reform Ministry of Industrialization and Trade National Planning Commission National Commission on Research, Science and Technology University of Namibia Namibia University of Science and Technology	Department of Transport Department of Mineral Resources and Energy Department of Tourism Department of Science and Innovation Department of Defence Department of Agriculture, Land Reform and Rural Development Department of Public Works and Infrastructure Department of Communications and Digital Technologies Department of Planning, Monitoring and Evaluation Department of Sports, Arts and Culture South African National Biodiversity Institute South African Environmental Observation Network South African Maritime Safety Authority South African Navy Hydrographic Office Petroleum Agency South Africa Council for Geosciences South African Heritage Resources Agency Directors-General Committee on MSP (through the Director-General for the Environment, Forestry and Fisheries)
The NWG reports to	Presidential Commission for Maritime Affairs (through the Minister of Agriculture and Fisheries)	Inter-Ministerial Blue Economy Committee (through the Minister of Fisheries and Marine Resources)	
Specialised NWG task teams on	EBSAs Data and information Stakeholder engagement	EBSAs Data and information Stakeholder engagement	Organization of the marine area planning process Stakeholder engagement and communication Data and information Marine area plan implementation 4 (including Prince Edwards and Marion Islands) Southern planning area
Number of sub-national planning areas	4	3	
Pilot area for the first marine plans	Central planning area	Central planning area	
Aggregated status of the national-level MSP process	Knowledge baseline assessment completed Draft first plan completed, pending high-level approval	Knowledge baseline assessment completed Draft first plan currently finalized	Knowledge baseline assessment completed Draft plan elements for all three mainland plans currently developed
MSP legislation	Currently lacking, options are discussed	Currently lacking, options are discussed	Exists (Act No.16 of 2018)

of consultation between 2017 and 2019 (Zauch and Kreiner, 2020). The data and information comprises ecological, economic and social knowledge, information relating to all human uses and interests in each country (and in the case of Angola and Namibia with a focus on the first planning areas), including existing and projected uses, as well as information on relevant uses and developments on land with an impact on the sea. In terms of environmental information, this process was informed by the systematic conservation planning processes with the help of the dedicated EBSA task teams and the RWG on EBSAs. In South Africa, the national biodiversity assessment, which is required by law and is normally published every five years, has furthermore provided key input (Sink et al., 2019). These country knowledge baselines have helped to identify the key challenges and opportunities for MSP, in particular in the first chosen planning areas. The systematic conservation planning processes have offered detailed scientific recommendations for management measures and suggestions for zoning and regulations.

Based on the baseline reports marine plans have since been developed as drafts in Angola and Namibia. South Africa has focused on establishing a legal framework for MSP before proceeding with the actual planning steps. The President of the Republic signed the MSP Act in April 2019, which also officially establishes the NWG and inter-departmental committees at higher levels to function as decision-making mechanisms (Government of the Republic of South Africa, 2019). Following this landmark action, the practical planning process accelerated in 2019 and South Africa is now moving forward towards developing initial draft elements for its marine plans. In Angola and Namibia, different options are currently being reviewed to legislate for MSP, including the development of new and dedicated legislation (building on South Africa's approach) or amending existing Acts to include MSP. In Namibia, the leading ministry on MSP is furthermore coordinating the development of a blue economy policy. The 2019 draft of the policy prioritizes MSP as a key mechanism to enable policy implementation, in line with the country's national development plan and blue economy priorities. In Angola, the mandate of the Ministry of Fisheries was extended in 2018 to also cover sea affairs which enabled MSP to become an important topic of the National Development Plan. Currently, with recent changes in the government structure MSP will be led by the Ministry of Agriculture and Fisheries. MSP and the integrated management and development of the country's marine area have thus become a key priority. In 2019, recognising MSP as a mechanism to drive sustainable ocean development, the President of the Republic additionally established a high-level commission on sea affairs (Governo de Angola, 2019). A national strategy for the ocean is now being developed, which will furthermore establish policy direction for MSP. As such, Angola and Namibia have advanced with the MSP process without supporting legislation at this stage.

The next step for South Africa is to draft the first marine spatial plan, while Angola and Namibia need to further develop a legal framework for MSP. Whilst the Angolan plan has already been subject to stakeholder consultation and has been approved by the directors of the concerned ministries in August 2019, Namibia still needs to formally consult non-governmental stakeholders to consolidate its first marine plan. Like in Namibia and Angola, stakeholder engagement is an important element of developing the first draft marine spatial plan in South Africa and is likely to take the form of informal and formal single and multiple sector involvement. With all three countries looking to publish relevant spatial data as part of the forthcoming online BCC portal, South Africa is also in the process of developing a dedicated marine spatial information system as part of the Ocean and Coastal Information Management System (OCIMS).

Table 1 summarises the above information for each country.

2. Discussion

Although MSP in the BCLME is driven by strong economic agendas, its potential to contribute to critical conservation and social objectives is recognized throughout and has been key in initiating MSP. This encompasses the use of MSP to protect key biodiversity areas, supplementing MPA- and other area based approaches where possible but also working to manage EBSAs in line with CBD targets outside of protected areas. Social objectives focus on the transparent, fair and equitable distribution of ocean wealth and allocation of uses in the marine environment. In addition, the countries see MSP as an opportunity to improve national and regional ocean governance by fostering cooperation across sectors, stakeholders and government authorities. Introduction of MSP in the BCLME clearly reflects global developments and policy initiatives and commitments such as in the context of a blue economy and marine conservation.

Due to the cross-sectoral nature of MSP, all three BCC countries recognized that planning and plan implementation cannot be the responsibility of a single sector alone. Rather, the governments pursue a collaborative approach – both nationally and regionally within the BCC. Similar planning mechanisms and arrangements have been put in place nationally through the NWGs and higher-level structures to bring together sectors and pool expertise. Overall, similar approaches to MSP can be observed in the three countries in terms of process design, data governance and the spatial management approach itself (e.g. priority areas, zoning), leading to a solid foundation for a regionally coherent approach to MSP. Three factors contribute to this at the regional level: (1) the convening and enabling power of the BCC and its ability to instigate thematic RWGs; (2) consistent technical advice by the MARISMA project; and (3) similar planning traditions and government systems (for example in Namibia and South Africa due to the intertwined history of both countries). This is likely to contribute to improved transboundary coherence and consistency and can facilitate coordination between MSP authorities when plans are being prepared for areas adjoining national borders.

Another advantage for the BCC countries is that the integrated nature of MSP is not entirely new to them. Existing capacities and experiences with integrated coastal zone management, fisheries management and MPAs can be built on as they concern similar practices of coordination and integration.

The introduction of MSP at the current stages of marine development with relatively low (but increasing) intensity of use is a strategic advantage for the BCC countries compared to other world regions where MSP was only introduced when spatial congestion, competition and governance problems were already occurring. MSP in the BCLME therefore has the potential to prevent increasing and

new user-user and user-environment conflicts in a pro-active manner from the outset.

Whilst South Africa has already legislated MSP, the current lack of a legal base in Angola and Namibia provides uncertainty as to the binding power of the marine plans and the long-term implementation and institutionalisation of MSP. Yet the informality of the initial process and the openness of stakeholders to engaging in MSP have also had advantages. An open learning environment was created for all stakeholders, and authorities, industry and NGOs could be brought to the table in a way that stimulated the process and encouraged joint ownership of MSP. In turn, the successful process stimulated the political debate for developing legislation and an enabling policy environment.

Although most of these developments relied on external funding through the MARISMA project, the countries have already made substantial in-kind contributions and have also allocated domestic resources towards MSP with dedicated staff and extended competencies. Efforts at the level of the BCC to create institutional and more statutory arrangements that can contribute towards supporting MSP at national levels and across borders support the national financial and political MSP commitments and will help to build the foundations for establishing MSP as a standard operating procedure in the BCLME region.

3. Conclusions

The BCC countries and the BCLME as a whole are among the first African countries and among the first developing countries and LMEs worldwide to introduce MSP. This paper illustrates the national and regional MSP processes that have been undertaken in this context to date.

The BCLME case illustrates that the region has introduced MSP in response to increasing spatial claims and multiplying uses in the BCLME. In part, this has been driven by national efforts towards more coordinated and sustainable marine use in the three BCC countries. The overall objectives for regional MSP are to strategically manage the use of the BCLME so that conflicts are pro-actively avoided and a sustainable blue economy can grow in such a way that ecosystem services are sustained and societies benefit from marine development in a fair and transparent manner. The example furthermore indicates that MSP has the potential to enhance national and regional ocean governance.

Fostering ecosystem-based MSP in the context of strong economic growth agendas requires balanced and integrated governance and technical planning structures and processes. The national and regional approaches are designed to accommodate such an approach and have so far proven useful. Weaknesses, such as long-term funding constraints, data gaps as well as lacking MSP legislation and institutionalisation will need to be addressed by the decision-makers as MSP moves forward nationally. This is particularly important given that MSP needs to become a standard operating procedure by governments if it is to be successful. The regional level plays an important role in that it creates a platform for exchange and a learning environment for MSP authorities and stakeholders. Both are essential but especially helpful during the early stages of shaping MSP to meet the particular needs of the region.

4. Credit author statement

Gunnar Finke: Conceptualization, Methodology, Investigation, Writing – Original Draft, Writing – Review & Editing, Visualization, Supervision, Project Administration. Kira Gee: Conceptualization, Writing – Review & Editing. Thandiwe Gxaba: Investigation. Roman Sorgenfrei: Investigation, Visualization. Vladimir Russo: Investigation. Duarte Pinto: Investigation. Silvi Edith Nsiangango: Investigation. Lia Neto Sousa: Investigation. Rodney Braby: Investigation. Fatima Lopes Alves: Investigation. Bernhard Heinrichs: Investigation. Anja Kreiner: Investigation. Maria Amunyelá: Investigation. Gcobani Popose: Investigation. Moses Ramakulukusha: Investigation. Ashley Naidoo: Investigation. Elisabeth Mausolf: Investigation. Kumbi Kilongo Nsingi: Investigation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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