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Coastal adaptation vision paper – Conservatoire du littoral (France)

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CONTEXT

In 2022, the Conservatoire du Littoral, in collaboration with more than 30 European and Mediterranean organisations, published the policy paper "[Coastal Adaptation to Climate Change: How to work with Nature](#)". In preparation to the third United Nations Ocean Conference (UNOC)¹ and in light of the 50th anniversary of the Barcelona Convention, the Conservatoire du littoral decided to broaden the scope to ensure coastal adaptation is a priority of States. Hence, the Conservatoire is willing to highlight the role of Regional Seas Conventions and Action Plans (RSCAP) as a suitable platform to ensure that coastal adaptation is a central agenda of UNOC3 and further.

To this end, a workshop was organised, in collaboration with the Mediterranean Action Plan, on 8 October 2024, in Athenes, Greece. It preceded the Annual Meeting of the Regional Seas Conventions and Action Plans - hereafter referred to as RSCAPs - and the G7 workshop. It gathered regional coordinators and executive secretaries, UNEP representatives and adaptation experts to discuss coastal adaptation solutions.

¹The third United Nations Ocean Conference (UNOC) will take place in Nice in June 2025 under France and Costa Rica co-presidency.

ACRONYMS

AR6 - Sixth Assessment Report

BBNJ - Biodiversity Beyond National Jurisdiction

CBD - Convention on Biological Diversity

CDEMA - Caribbean Disaster Emergency Management Agency

CEP - Caribbean Environment Programme

COBSEA - Coordinating Body on the Seas of East Asia

COP - Conference of Parties

EA - Ecosystem approach

EbA - Ecosystem-based approach

EEZ - Exclusive Economic Zone

GBF - Global Biodiversity Framework

GCRMN - Global Coral Reef Monitoring Network

GDP - Gross Domestic Product

GEF - Global Environment Facility

GHG - Greenhouse Gas

ICZM - Integrated Coastal Zone Management

ILK - Indigenous and Local Knowledge

IPBES - Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

IPCC - Intergovernmental Panel on Climate Change

ITLOS - International Tribunal for the Law of the Sea

LBS: land-based source

LECZ - Low Elevation Coastal Zone

LME - Large Marine Ecosystems

LSI - Land-sea interface

MEA - Multilateral Environmental Agreement

MedECC - Mediterranean Experts on Climate and environmental Change

MPA - Marine Protected Area

MSP - Marine Spatial Planning

NAP - National Adaptation Plan

NBSAP - National Biodiversity Strategies and Action Plans

NDC - Nationally Determined Contribution

NOWPAP - Northwest Pacific Action Plan

PEMSEA - Partnerships in Environmental Management for the Seas of East Asia

PERSGA - Programme for the Environment of the Red Sea and Gulf of Aden

RAC - Regional Action Center

RFB - Regional Fisheries Bodies

ROPME - Regional Organization for the Protection of the Marine Environment

RSCAPs - Regional Seas Conventions and Action Plans Programmes

SACEP - South Asia Cooperative Environment Programme

SIDS - Small Island Developing States

SLR - Sea Level Rise

SPAW - Specially Protected Areas and Wildlife

SPREP - Secretariat of the Pacific Regional Environment Programme

UNCLOS - United Nations Convention on the Law of the Sea

UNEA - UN Environment Assembly

UNEP - United Nations Environment Program

UNFCCC - United Nations Framework Convention on Climate Change

UNOC - United Nations Ocean Conference



EXECUTIVE SUMMARY

TBD after the workshop

DRAFT

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INTRODUCTION

Coastal zones are transition areas influenced by terrestrial and marine processes. These unique areas face a wide array of drivers of change, including coastal development, pollution growth, biodiversity loss, erosion and climate change. These drivers cause adverse cascading and cumulative impacts on coastal social-ecological systems.

Despite these critical issues, coastal challenges remain under-represented in international fora (e.g. UNFCCC, CBD, previous UNOC). To respond to these shortcomings, regional initiatives have emerged and adopted an integrated approach to address coastal pressures. Some of these initiatives have been supported or implemented by Regional Seas Conventions and Actions Plans (RSCAPs).

RSCAPs are regional mechanisms created for conservation of the marine and coastal environment, the first of which were established in 1972. Although their focus was initially on territorial sea rather than coastal waters and land-sea interface, they appear as crucial levers to increase awareness and support their Contracting Parties for adaptation.

In this regard, this document aims to unveil their potential to leverage coastal adaptation. To this end, it focuses on: (i) integrating coastal issues into RSCAPs, (ii) offering potential solutions and delivering recommendations for more effective coastal adaptation strategies, and (iii) listing enabling conditions to do so.

PART 1 : Navigating Regional Seas Programmes to reinforce coastal adaptation

1. Impacts of anthropogenic pressures on coastal zones and adaptation responses needed

Adapting to climate change is a significant global challenge, with sea level rise (SLR) identified by the Intergovernmental Panel on Climate Change (IPCC) as a critical issue². At the same time, coastal zones are confronted with various global changes, especially anthropogenic threats³, including **climate change, biodiversity loss, pollution, and land-use change**. This paper will prioritise the examination of geographical, ecological or socioeconomic pressures on coastal systems that interact with climate change and exacerbate its impacts.

Geographical and Physical Impacts

- **Land Reclamation:** World population growth and the associated rapid urbanisation in coastal zones, particularly in the Low Elevation Coastal Zone (LECZ) that is **home to 10% of the world's population**, have resulted in huge land demand and **coastal land transformation and reclamation**⁴. For instance, the development and operation of ports and harbours expansions, residential or commercial land for coastal developments altered coastal processes which disturb the sediment balance and exposed downdrift areas to increased erosion. In spite of the vulnerability of these areas, global coastal population could surpass one billion people by 2050⁵.
- **Sea level rise and shorelines retreat:** For approximately 3000 years up to the 20th century, sea level had been stable. However, recent data show a rapid increase, up to a 15 cm rise in the 20th century⁶. SLR rose faster in some regions, for example Western Pacific and it is certain that global mean sea level will continue to rise until at least 2100, with projections up to 1.01 metres by 2100 under the very high GHG emissions scenario.⁷ An accelerated SLR combined with low rate of sediment supply is likely to trigger or enhance erosion on shorelines - beach erosion is already prevalent on a global scale since more than 70% of the world's sandy shorelines are presently retreating⁸. Additionally, higher sea levels will cause frequent extreme

²IPCC (2019). SROCC.

³Crain et al. (2009). Understanding and Managing Human Threats to the Coastal Marine Environment

⁴Sengupta et al. (2019). Mapping Trajectories of Coastal Land Reclamation in Nine Deltaic Megacities Using Google Earth Engine Remote Sensing.

⁵Glavovic, B.C., R. Dawson, W. Chow, M. Garschagen, M. Haasnoot, C. Singh, and A. Thomas (2022). Cross-Chapter Paper 2: Cities and Settlements by the Sea. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

⁶IPCC (2021); Sixth Assessment Report. Chapter 9: Ocean, Cryosphere and Sea Level Change.

⁷*Ibid.*

⁸Paskoff, P. (2021). Effects of Sea-Level Rise on coastal cities and residential areas

events by 2100, leading to intensified flooding, shoreline erosion or deposition in shorelines, and saline intrusion, particularly affecting coastal cities and small islands.

- **Seawater Intrusion:** The increase of salt content in soil and water is a significant yet often under-appreciated consequence of climate change and human activities like ground water extraction. This process leads to the degradation of soil and water quality, making rivers and coastal aquifers - vital sources of freshwater in densely populated coastal areas - brackish and unsuitable for drinking or agriculture⁹. Exacerbated by sea-level rise (SLR) and extreme weather events, seawater intrusion is particularly prevalent in coastal regions, notably the Mediterranean coasts, and poses growing risks to human well-being and ecosystems.

Ecological Impacts

Coastal zones host a **vast diversity of ecosystems** and provide **favourable habitats and a wide array of services** such as water regulation, coastal protection, carbon sequestration, food supply, as well as cultural, aesthetic and recreational values that sustain and are closely linked to livelihoods of all coastal communities¹⁰. However, coastal ecosystems are experiencing significant large cumulative impacts related to human activities arising from both land-based and ocean-based anthropogenic drivers¹¹. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) identified land-sea use change, pollution, climate change, overexploitation, and invasive species as the main drivers of change in marine and coastal ecosystems¹².

- **Loss of coastal habitats and ecosystems**
 - **Changes in land and sea use** are major drivers. For instance, urbanisation hinders the role played by coastal waters and nearshore-habitats as important nurseries for juvenile fish and invertebrates and resulted in the loss of at least 33% of the global wetland surface area¹³.
 - **The use and overexploitation of natural resources** is identified as a major cause of biodiversity loss, with overfishing intensifying the effects of climate change on top marine predators. First, the intensification of agriculture and exploitation of freshwater resources, including groundwater extraction and dam construction, indirectly impacts coastal areas by altering hydrological patterns, reducing sediment supply, and disrupting nutrient cycling. Additionally, mining activities like sand mining lead to habitat destruction, sedimentation, coastal erosion and pollution¹⁴, contributing to deteriorating coastal ecosystems, water quality, and disrupting marine habitats.

⁹Trégarot, Ewan, Juan Pablo D'Olive, Andrea Zita Botelho, Andrea Cabrito, Gabriel O. Cardoso, Gema Casal, Cindy C. Cornet, et al. (2024). Effects Of Climate Change On Marine Coastal Ecosystems – A Review To Guide Research And Management.

¹⁰The IPBES Sustainable Use Assessment (2022)

¹¹IPCC. (2014). AR5 Synthesis Report.

¹²IPBES. (2019). Global Assessment Report on Biodiversity and Ecosystem Services.

¹³Davidson & Finlayson. (2018). Extent, regional distribution and changes in area of different classes of wetlands.

¹⁴Rangel-Buitrago, Nelson, et William Neal. (2023). The Unsustainable Harvest Of Coastal Sands.

- **Climate change** also contributes to affect the physiology of foundation species, have impacts on habitat contraction, geographical shift of associated species, and loss of biodiversity and ecosystem functionality¹⁵. Climate change also has severe impacts on the spatio-temporal match–mismatch of seabirds and their prey¹⁶ and causes abundance changes of marine species¹⁷. SLR and ocean acidification are, respectively, a concern for mangroves and coral reefs, the latter being also affected by the severity of marine heatwaves¹⁸.
- **Pollution** - 80% of which is land-based¹⁹ and comes from industrial discharge, agricultural runoff, sewage, and oil spills - poses a serious threat to coastal ecosystems. Fertiliser run-off, sewage, animal waste, aquaculture and deposition of nitrogen from the burning of fossil fuels are contributing to the excessive growth of plant life (eutrophication)²⁰ which primarily affects coastal areas²¹. When combined with ocean warming, this leads to the decline of oxygen content of the ocean, which has already decreased by around 2% since the mid-20th century. Other pollution impacts, including plastic pollution and marine debris, result in the degradation of water quality and pose risks such as ingestion and entanglement for coastal species²².
- **Invasive alien species** represent a subsite of alien species known to have established and spread with negative impacts on biodiversity, local ecosystems and species²³. Their introduction may be intentional, - to be used in coastal management practices such as erosion control and dune stabilisation - or unintentional - when transported in ships' ballast water²⁴, translocated via biofouling on ships²⁵ or released by seaweed farming²⁶. They pose a significant threat by displacing indigenous species through mechanisms such as predation, competition, habitat modification, and disruption of food webs.

- **Hindering carbon sequestration:**

Coastal ecosystems have numerous benefits: they enhance habitats for valuable species, improve water quality, and reduce methane production²⁷. More significantly, they cover only

¹⁵IPCC (2019). SROCC.

¹⁶Grémillet, D., & Boulinier, T. (2009). Spatial ecology and conservation of seabirds facing global climate change: a review.

¹⁷Hastings, Reuben A. et al. (2020). Climate Change Drives Poleward Increases And Equatorward Declines In Marine Species.

¹⁸*Ibid*

¹⁹Landrigan, P. J. and al. (2020). Human Health and Ocean Pollution.

²⁰*Ibid*.

²¹IUCN. (2019). Ocean deoxygenation

²²Coastal Pollution - an overview | ScienceDirect Topics

²³IPBES (2023). Thematic Assessment Report on Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.

²⁴UNEP (2006). Invasive alien species. A growing threat in Regional Seas.

²⁵Costello, K. E., Lynch, S. A., McAllen, R., O'Riordan, R. M., & Culloty, S. C. (2022). Assessing the potential for invasive species introductions and secondary spread using vessel movements in maritime ports.

²⁶United Nations Environment Programme (2023). Seaweed Farming: Assessment on the Potential of Sustainable Upscaling for Climate, Communities and the Planet.

²⁷*Ibid*.

2% of the ocean but sequester about 50% of oceanic carbon²⁸ with mangroves alone storing 6.23 gigatons globally²⁹. However, these ecosystems have suffered significant declines. Since 1970, 20-35% of blue carbon cover and 50% of coastal wetlands have been lost³⁰. Their degradation exacerbates climate change when releasing up to 92% of stored carbon and other greenhouse gases³¹.

- **Putting shoreline protection at risk**

Coastal ecosystems, crucial for carbon sequestration and climate change mitigation, also provide direct and indirect coastal protection³². Over the past 30 years, the destruction of these ecosystems, e.g., mangroves, coral reefs, and wetlands³³, has left 1.4 million people annually without natural coastal protection³⁴. Coral reefs, which reduce wave energy by 97% during storms, are critical³⁵ but have suffered mass mortalities from marine heatwaves³⁶. Without action, rising sea levels and higher emissions will further erode coastal ecosystems, leading to greater risks to coastal communities³⁷.

Socio-Economic Consequences

Therefore, coastal areas are at the forefront of global changes which endanger coastal socio-economic activities that are essential to national and local economies.

- **Coastal communities**, especially socially vulnerable groups like low-income residents, informal settlers, displaced communities, women, youth, and people living with disabilities, face significant risks from changes to coastal zones, impacting their ability to adapt to climate-related stresses. Basic services, such as water quality, food security as well as ecological services vital to culture, heritage, and well-being are at risk, especially under high-emission scenarios.
- **Damaged Infrastructure**: Rising sea levels, coupled with more frequent and intense storms and seawater intrusion, are expected to severely impact critical coastal infrastructure³⁸, potentially damaging assets worth up to USD 11,000 billion, including ports, bridges, roads, and offshore energy structures³⁹. The vulnerability of

²⁸The Blue Carbon Initiative (2021). Mitigating Climate Change through Coastal Ecosystem Management.

²⁹Lecerf, M., Herr D., Elverum, C., Delrieu, E. and Picourt, L. (2023). Coastal and marine ecosystems as Nature-based Solutions in new or updated Nationally Determined Contributions.

³⁰*Ibid*

³¹Schindler Murray, L., Milligan, B. et al. 2023. The blue carbon handbook: Blue carbon as a nature-based solution for climate action and sustainable development.

³²Hülsen, S., et al. (2023). Global protection from tropical cyclones by coastal ecosystems—past, present, and under climate change.

³³*Ibid.*

³⁴Hülsen, S., et al. (2023). Global protection from tropical cyclones by coastal ecosystems—past, present, and under climate change.

³⁵Lecerf, M., Herr D., Elverum, C., Delrieu, E. and Picourt, L. (2023). Coastal and marine ecosystems as Nature-based Solutions in new or updated Nationally Determined Contributions.

³⁶*Ibid.*

³⁷*Ibid.*

³⁸IPCC (2019). SROCC.

³⁹Bongarts Lebbe, T., Beguin Billecocq, I., Vegh, T., & Sarkozy-Banoczy, S. (2022) Investment Protocol: Unlocking Financial Flows for Coastal Cities Adaptation to Climate Change and Resilience Building.

infrastructure is particularly concerning, as damage can disrupt essential services like health and education, exacerbating the challenges faced by coastal communities.

- **Global changes impacts on the blue economy**

- **Marine and terrestrial heat waves and extreme events** reduce coastal productivity⁴⁰ and the desirability of **coastal** destinations, disrupting transportation, and potentially destroying the **tourism** coastal infrastructure⁴¹. This has negative socio-economic implications as coastal and marine tourism accounts for approximately 50% of global tourism, equal to 5.2 percent of global gross domestic product (GDP)⁴², particularly for small islands and coastal communities⁴³. It calls for a shift towards other forms of tourism, e.g reef-adjacent tourism.
- Climate change is also expected to reduce phytoplankton production, bleach coral reefs, and alter fish distributions, affecting **fisheries** while ocean warming, acidification and SLR jeopardise **aquaculture**, a fast-growing sector that surpassed fisheries in the global production of aquatic animals in 2022⁴⁴.
- **Coastal agriculture** is threatened by sea level rise, shoreline inundation, and salinisation. Intense tropical storms, shifting precipitation patterns, and changes in seawater temperature also disrupt farming⁴⁵. Additionally, agriculture is negatively influenced by pollution originating from outside the coastal area and the introduction of exotic species that can constrain crop growth and cause health hazards, as well as the competition for resources vis-à-vis other economic activities that marginalise agricultural activities⁴⁶.

An insufficient response

Despite adaptation undertaken in all regions and sectors, coastal adaptation seems to be far below its potential. Global action remain **incremental** with **short-sighted** and **single hazard-focused policies and projects**⁴⁷.

These findings call for a more integrative understanding of the dimensions shaping adaptation on the ground: risk knowledge, effective planning and action, available capacities, and long-term perspective that RSCAPs could promote⁴⁸.

2. RSCAPs: strategic tools for an integrated approach

The UN Convention on the Law of the Sea (UNCLOS) provides for and encourages regional approaches (article 197) for the protection and preservation of the marine environment,

⁴⁰Barange, M., Bahri, T., Beveridge, M., & Poulain, F. (2018). Impacts of Climate Change on Fisheries and Aquaculture.

⁴¹*Ibid.*

⁴²Gaines, S., et al. (2019). The Expected Impacts of Climate Change on the Ocean Economy.

⁴³Spalding, M., Burke, L., Wood, S. A., Ashpole, J., Hutchison, J., & Ermgassen, P. Z. (2017). Mapping the global value and distribution of coral reef tourism.

⁴⁴FAO.(2024). In Brief to The State of World Fisheries and Aquaculture 2024. Blue Transformation in action..

⁴⁵Singh, A. K. (2020). Coastal Agriculture and Future Challenges.

⁴⁶*Ibid.*

⁴⁷Magnan, A.K., Bell, R., Duvat, V.K.E. et al. (2023). Status of global coastal adaptation. Nature Climate Change.

⁴⁸*Ibid.*

taking into account regional features⁴⁹. Nevertheless, regional approaches have been slow to develop⁵⁰, beginning with the establishment of RSCAPs and Regional Fisheries Bodies (RFBs), despite the growing recognition of the regional level's importance in achieving an effective multilevel governance structure⁵¹.

The creation of RSCAPs

Launched for the first time in 1974, RSCAPs share a common objective: **facilitating regional dialogue** by bringing together “all relevant stakeholders together to address the accelerating degradation of the world’s oceans and coastal areas through a “shared seas” approach”⁵². Since their establishment, **18 bodies** - covering almost every region of the globe - have been created and bring together **146 neighbouring countries**.



The 18 Regional Seas Conventions and Action Plans (Ferreira et al., 2022)

To deliver their commitments, most of the RSCAPs have adopted Action Plans (non-binding) and Conventions (legally binding) to set out regional priorities and obligations. They are

⁴⁹United Nations (1982). UN Convention on the Law of the Sea.

⁵⁰Rothwell, D. & Stephens, T. (2010). The International Law of the Sea.

⁵¹Mahon, R., Fanning, L. (2019). Regional Ocean Governance : Polycentric Arrangements And Their Role In Global Ocean Governance.

⁵²United Nations Environment Programme. (2022). Contributions of Regional Seas Conventions and Action Plans to a Healthy Ocean.

complemented by sectoral Protocols to inform responses on specific issues. Regional Action Centers (RACs) aid in implementation by providing data, fostering cooperation, and offering technical support⁵³.

For an integrated management of the coasts and the ocean

An **integrated ocean management** is a “holistic, ecosystem-based and knowledge-based approach that aims to ensure the sustainability and resilience of marine ecosystems while integrating and balancing different ocean uses to optimise the overall ocean economy”⁵⁴. Achieving this requires the coordination of diverse objectives, stakeholders, and instruments across various policy areas and governance levels⁵⁵.

RSCAPs play a pivotal role in facilitating the implementation of such an approach. Indeed, their activities range from pollution reduction, climate change resilience, oil spill risk management and integrated coastal zone management to species management, conservation, marine protected areas and marine spatial planning. Their wide scope of interventions enables integrated ocean management while considering ecosystem interconnections and land-sea interactions.

Furthermore, RSCAPs have consistently embraced an integrated approach from their inception, focusing on the ecosystem approach (EA), defined as “a strategy for integrating the management of land, water and living resources and promoting conservation and sustainable use in an equitable way”⁵⁶. This approach is guided by 12 principles which emphasise the interconnectedness of terrestrial and marine ecosystems and the need for multi-scale action to address climate change⁵⁷.

Despite the 1982 UNCLOS requiring States to implement measures to address marine pollution, including pollutants from land-based sources (Article 194)⁵⁸, and the growing attention to land-sea interactions in recent years, RSCAPs activities have largely remained focused on marine environments

3. The integration of coastal issues in RSCAPs

Coastal waters are not systematically defined in the Conventions/Action Plans. However, most RSCAPs encompass coastal zones in their perimeter of intervention to address coastal issues listed above.

Advancing action on coastal pollution

RSCAPs are historical actors in the fight against marine pollution, notably through the adoption of Protocols for pollution caused by oil and other harmful substances and land-based pollution. To date, 10 RSCAPs have adopted Protocols that share similar

⁵³*Ibid.*

⁵⁴Winther, J.G., Dai, M., Rist, T. et al. (2020). Integrated ocean management for a sustainable ocean economy.

⁵⁵Tocco, C.L., Frehen, L., Forse, A., Ferraro, G. and Failler, P. (2024). Land-sea interactions in European marine governance: State of the art, challenges and recommendations.

⁵⁶Secretariat of the Convention on Biological Diversity (2004) The Ecosystem Approach.

⁵⁷Kidd, S. (2018). Land-Sea Interactions And The Ecosystem Approach In Ocean Planning And Governance.

⁵⁸*Ibid.*

definitions of land-based sources of marine pollution, include black-listed substances and regulate the discharge or release of grey-listed substances⁵⁹.

Additionally, in 2013 the Parties of the Barcelona Convention adopted the [Regional Plan on Marine Litter Management in the Mediterranean](#), a legally-binding commitment that urges Parties to take the necessary financial, legal, administrative and other measures to ensure the implementation of this Plan.

Conserving coastal biodiversity

RSCAPs are recognised as particularly effective for the management of ecosystems beyond national boundaries by coordinating and streamlining efforts regionally⁶⁰ while being biologically significant. For instance, the wider Caribbean is biologically significant and has been identified as a global marine biodiversity hotspot⁶¹.

Biodiversity-related Protocols facilitate the establishment of protected areas while addressing threats like habitat degradation and overfishing. Coastal biodiversity issues have been widely integrated in most RSCAPs Protocols, including 8 developed in collaboration with the Convention on Biological Diversity (CBD)⁶². While most initial Protocols primarily emphasised marine ecosystems, certain Conventions have gradually expanded their scope.

- The [Specially Protected Areas and Wildlife \(SPAW\) Protocol under the Cartagena Convention](#) encompass nearshore and terrestrial ecosystems in its perimeter ;
- OSPAR identified actions for marine birds protection and conservation in its [Regional Action Plan for Marine Birds in the North-East Atlantic \(2024 – 2030\)](#) ;
- The Calabar Protocol under the Abidjan Convention (2014) provides guidance for sustainable mangrove management ;

Achieving sustainable coastal development through ICZM protocols

Integrated coastal zone management (ICZM) faced growing recognition by RSCAPs. ICZM is defined as a “a dynamic process for the sustainable management and use of coastal zones, taking into account at the same time the fragility of coastal ecosystems and landscapes, the diversity of activities and uses, their interactions, the maritime orientation of certain activities and uses and their impact on both the marine and land parts”⁶³.

ICZM has been widely acknowledged as the most appropriate approach to manage the sustainable development and use of coastal and marine areas⁶⁴ and ensure inclusive policy making processes to take into account and to balance the interests of different sectors. Indeed, the ICZM approach helps to create a bridge between government departments, local

⁵⁹Osborn, D., Rochette, J. (2024). [Launching a new phase in the fight against land-based sources of marine pollution](#).

⁶⁰Van Tatenhove, J. P. (2013). [How to turn the tide : Developing legitimate marine governance arrangements at the level of the regional seas](#).

⁶¹CANARI. (2019). [The Caribbean Islands Biodiversity Hotspot](#).

⁶²UNEP (n.d.). [Webinar on proposed headline indicators of the monitoring framework for the draft post2020 Global Biodiversity Framework, in the context of marine and coastal biodiversity](#).

⁶³Haines-Young, R. and M. Potschin (2011): [Integrated Coastal Zone Management and the Ecosystem Approach](#).

⁶⁴Nairobi Work Programme (2020). [Policy Brief on the Ocean](#).

governments, NGOs and community-based organisations, and other stakeholders at key stages in policy development, and the approach is valid at all administrative tiers, from local to national⁶⁵.

ICZM can enhance coherence by maximising synergies and adequately addressing land-sea interactions (LSI) and ensuring the compatibility of land and sea use. For these reasons, ICZM has widely been incorporated in more recent RSCAPs Conventions and Protocols.

- The [Tehran Convention](#), adopted in 2003 for the management of the Caspian Sea, dedicates an article to coastal management, encouraging Parties “to take necessary measures to develop and implement national strategies and plans for planning and management of the land affected by proximity to the sea” (article 15).
- The first ICZM legally-binding instrument, adopted under the Barcelona Convention, aimed to consolidate and strengthen States’ legal frameworks, e.g. through the establishment of a coastal setback zone for Barcelona Protocol or the regulation, restriction and prohibition of certain activities. Such instruments are pivotal and have influenced the development of ICZM nationally as well as the adoption of ICZM Protocols under the [Nairobi](#) and the Abidjan Conventions.

The increasing consideration of climate change

RSCAPs were established before climate change was high on the agenda. However, as tools designed to forge a coalition for addressing common challenges at the regional level, they provide a foundation for States to further develop and build upon for effective responses to the growing impacts of climate change. For this reason, climate-induced impacts have been progressively integrated in their mandate.

Since 2010, climate actions have been incorporated in most RSCAPs individual strategies.

For instance, 5 objectives of OSPAR [2030 North East Atlantic Environment Strategy](#) relate to climate change⁶⁶. Some of them completed it with a climate change strategy, e.g., the [Climate Change Strategy for the Nairobi Convention](#) that aims to improve adaptation policymaking and the evaluation of climate change adaptation.

Climate change was then identified as one of the [4 strategic themes](#) to be addressed by RSCAPs during the 2017-2021 period. The [Regional Seas Strategic Directions 2022-2025](#) explicitly mentions as one of its 3 overarching purposes to “Guide Regional Seas Conventions and Action Plans (RSCAPs) activities towards achieving ocean-related components of the three primary global goals of addressing climate change, biodiversity loss and pollution, as well as sustainable livelihoods”.

⁶⁵Coastal wiki. (n.d.). [Integrated Coastal Zone Management](#).

⁶⁶More specifically, the 5th, 6th, 10th, 11th and 12th strategic objectifs explicitly refers to climate change or climate resilience.

- A step forward was made in 2023 by the Barcelona Convention with the establishment of “the MAP Regional Activity Centre on Climate Change (CC/RAC) as one of the Components of the MAP system” ([Decision IG 26/12](#)).
- The [current process](#) to change or amend the Noumea Convention to better reflect contemporary issues, including climate change and climate resilience, also sends positive signals for the upcoming years.

Addressing RSCAPs challenges to reinforce implementation

Despite the adoption of a wide array of Protocols and some successes, their implementation often faces implementation issues⁶⁷.

These difficulties do not exclusively concern RSCAPs but regional organisations. Improvements in regional ocean governance range from institutional architecture, through policy development, management planning to technical capacity for on-the ground implementation⁶⁸. The challenges in implementing RSCAPs in certain regions may stem from factors such as varying levels of political will, political instability, funding constraints, or the presence of less robust enforcement mechanisms⁶⁹. Implementation may also be influenced by the presence of numerous regional agreements within certain areas, which can limit the capacity of national governments, particularly smaller countries, to engage effectively⁷⁰.

Additionally, integrated policies are recognised as not only the most difficult type of “policy mixes” to develop, but also the most difficult to implement successfully as they have multiple levels, actors and jurisdictions⁷¹. At the same time, cooperation with other regional organisations, including indigenous arrangements - developed by sub regional groupings of countries mostly not associated with UN bodies⁷² - LME mechanisms, and other sectors such as fisheries and tourism remains limited or lacking and could facilitate implementation⁷³. Nevertheless, positive developments have emerged in recent years, marked by increased formalised cooperation between RSCAPs and RFBs, as well as the establishment of a [coordinated Mechanism in the Caribbean](#).

Regarding coastal adaptation, collaboration could be enhanced with regional organisations like the [Partnerships in Environmental Management for the Seas of East Asia](#) (PEMSEA) which have a long-standing experience through its Integrated Coastal Management Initiative. It could provide on-the-ground coastal solutions and buy-in at the local level throughout the

⁶⁷Osborn, D., Rochette, J. (2024). Launching a new phase in the fight against land-based sources of marine pollution. Issue Brief N°06/24, IDDRI.

⁶⁸Mahon, R., Fanning, L. (2019). [Regional Ocean Governance : Polycentric Arrangements And Their Role In Global Ocean Governance](#).

⁶⁹Mead, L. (n. d.). [The “Crown Jewels” Of Environmental Diplomacy : Assessing The UNEP Regional Seas Programme](#).

⁷⁰*Ibid.*

⁷¹*Ibid.*

⁷²*Ibid.*

⁷³Mahon, R., Fanning, L. (2019). [Regional Ocean Governance : Polycentric Arrangements And Their Role In Global Ocean Governance](#).

South-East Asian region. Events such as the [Marine Regions Forum](#) and the [Sustainable Ocean Initiative](#) (SOI) appear as pivotal to bring together RSCAPs, regional organisations and regional stakeholders. They also offer opportunities to strengthen cooperation and to support the development of new approaches for integrated ocean governance at the regional level.

PART 2 : ADAPTING COASTAL TERRITORIES TO SEA LEVEL RISE WITH RSCAPS

1. Principles for a successful adaptation of the coasts to global changes

Proactive rather than reactive responses

Responses to extreme climate events tend to be more reactive than proactive, with actions in contexts of emergency or recovery rather than preparedness⁷⁴. However, proactive planning allows for more effective risk management, resource allocation, and community engagement⁷⁵.

Planned responses involve anticipating and preparing for future climate impacts in a coordinated manner, rather than merely reacting to immediate threats as they arise. This includes :

- conducting vulnerability assessments to identify priority areas and populations at risk,
- developing adaptation plans based on scientific evidence and local knowledge,
- implementing a mix of structural and non-structural measures to reduce risks and enhance resilience,
- establishing scientific monitoring and evaluation mechanisms.

In light of deep uncertainties, planners must adopt a new paradigm, the **dynamic adaptive policy pathways**. This paradigm provides the opportunity to shift strategies in response to climatic, economic or social changes while reducing coastal risks and minimising inefficient investments and social inequities⁷⁶. This approach enables planners to take additional or different actions, or an alternative pathway if a threshold is exceeded (e.g., if a predicted extreme event occurs or not).

The Nairobi Convention contributed to the [Report on Regional State of the Coast Western Indian Ocean](#) conducted by the Western Indian Ocean Marine Scientists Association

⁷⁴Ocean & Climate Platform. (2024). [Adapting Coastal Cities and Territories to Sea Level Rise in the Pacific: Challenges and Leading Practices](#).

⁷⁵Tocco, C.L., Frehen, L., Forse, A., Ferraro, G. and Failler, P. (2024). [Land-sea interactions in European marine governance: State of the art, challenges and recommendations](#).

⁷⁶Haasnoot, Marjolijn, Jan H. Kwakkel, Warren E. Walker, et Judith Ter Maat. (2013). [Dynamic Adaptive Policy Pathways : A Method For Crafting Robust Decisions For A Deeply Uncertain World](#);

(WIOMSA). It provides insights on the economic potential of the region, the consequential demand for marine ecosystem goods and services to match the increasing human population, the pace and scale of environmental changes while providing exploratory scenarios and policy analysis to better inform anticipatory planning and management of coastal and marine resources.

Planning also enables authorities to “reset” and relocate activities in less vulnerable areas. Therefore, it is crucial to establish legal frameworks at national scale to **support the anticipated managed retreat of infrastructures and properties** that are or will be exposed to the impacts of climate change in coastal areas.

Identification and establishment of **coastal setback zones is also considered as a planning and operational tool** aligned with the ICZM approach. Implementing set-back lines no-build regimes stops urban expansion in areas where it is still possible, as represented by the principle of the 100m strip of non-constructability in place in the countries of the Mediterranean basin. RSCAPs could also promote the **development of legal and financial tools to facilitate the removal of infrastructure and assets at risk** in coastal areas and introduce building bans to halt urban expansion in areas where it is still possible. To this end a **“100-year strip”** zone able to take into account the evolutions of the coastline that will take place over the coming decades could be designed.

The Article 8 of the [Protocol on ICZM for the Mediterranean](#) (Barcelona Convention) clearly stipulates the establishment of a 100-metre coastal setback zone as the agreed principle. This narrow zone plays an important role in the preservation of natural habitats, landscapes, natural resources and ecosystems at the land-sea interface, and is also crucial for the prevention and/or reduction of the effects of natural hazards

In addition, it is necessary to introduce innovative tools for the temporary occupation of territories to make relocation easier over time, for example by **allowing only temporary constructions**. In addition to facilitating coastline retreat, RSCAPs could encourage the **adoption of legal frameworks that facilitate public purchase of land to combine non-expansion and environmental preservation**. This could be achieved through coastal agencies such as the Conservatoire du littoral able to purchase land or through the establishment of an agreement between a property owner and a government agency for the purpose of conserving and/or restoring biodiversity (on the model of French real environmental obligations⁷⁷).

A call for legal frameworks to address coastal situations is being heard worldwide. Without developing ICZM Protocols, **RSCAPs could contribute to the exchange of legal best practices among their contracting parties**, e.g., in Latin America. For instance, a Coastal Law, *Ley de Costas*, that would integrate considerations of climate change, and put the emphasis on coastal planning and management for disaster risk reduction is debated in

⁷⁷Mallet-Bricout B. (2020). [The ‘Obligation Réelle Environnementale’ in French Law](#).

Chile. It would focus on ICZM, sustainable development, environmental justice and ecosystem approach, while acknowledging the public nature of the coast.

To do so, RSCAPs must

- **Contribute to anticipating and adapt human uses in natural coastal areas by identifying and prioritising adaptation options ;**
- **Support climate change risk and vulnerability assessments in their region and by their Contracting Parties ;**
- **Encourage Contracting Parties to adopt flexible and adaptive pathways to be able to adapt strategies to situations ;**
- **Planning on the basis of a desired, rather than an actual, future ('reset'), using a multi-criteria approach, so as to be ready to invest in a path other than the continuation of the present ;**
- **Develop legal and financial tools to facilitate managed retreat of infrastructures and properties at risk in coastal areas ;**
- **Advance regulations based on factors like topography, erosion rates, and the ecosystem services provided by coastal environments ;**
- **Promote the adoption of setback zones, determined through dynamic modelling of local coastal processes, and social science information on coastal community economies and culture to mitigate risks associated with development in these zones and act as buffers against prevalent risks such as storm surges ;**
- **Strengthen coordination between MSP and ICZM to consider the interconnectedness of terrestrial and coastal marine ecosystems at the land-sea interface.**

Implementing hybrid responses

Hybrid responses integrate hard protection, retreat, advance of the sea, and **Ecosystem-based Adaptation (EbA) and Nature-based Solutions responses (NbS)** (see annex). NbS offer the opportunity to address synergistically climate and biodiversity crises and achieve the Global Biodiversity Target 30x30 target, on land and sea through the **establishment of protected areas**.

To date, RSCAPs have actively promoted EbA and NbS responses.

- The Nairobi Convention to develop [guidelines for the restoration of mangroves and seagrasses](#),
- The SPREP implements projects on ecosystem-based adaptation, such as the [PEBACC and PEBACC+ projects](#).

However, combining multiple technical and social responses may allow for a more flexible and integrated protection of coasts and therefore a better adaptation in the face of uncertainty. It must also comprise short, medium and long-term actions: from strengthening

of coastal defences to relocating populations and businesses, renaturing specific areas, and developing mitigation policies⁷⁸.

Decision-makers are encouraged to opt for a systemic approach of long-term coastal adaptation to understand the interactions between physical and socio-economic components of the coastal urban system, especially to tackle SLR and other long-term processes.

In the Pacific, UNEP, SPREP and UN-Habitat collaborated with the Lami Town council in Fiji to develop a [model for utilising cost-benefit analysis](#) in identifying and combining ecosystem-based adaptation options with other, more conventional options. This pilot project found that ecosystem based approaches are often the most cost-effective, requiring only modest long-term investment while providing a number of additional benefits from ecosystem services, whereas engineering options may be useful in protecting high value infrastructure that cannot be moved. This provides a model for adaptation that is locally appropriate in the Pacific SIDS context and can be replicated by countries and towns across the region, through facilitation by SPREP⁷⁹.

To promote this type of response, RSCAPs must

- **Develop hybrid climate change adaptation strategy at a regional, national and local scale with short and medium milestones ;**
- **Increase the coverage and achieve effectiveness of marine and coastal protected area and coastal MPA Networks while ensuring the socio-economic and ecological quality and value in the expansion ;**
- **Strengthen actions to restore terrestrial and marine coastal ecosystems including outside Protected areas;**
- **Evaluate and considerate the impacts of hard adaptation responses on coastal ecosystems ;**
- **Use a pathways approach to identify and make incremental, no- or low-regret investments ;**
- **Ensure environmental and social sustainability of blue economy activities.**

Advancing coastal knowledge for effective management

Adapting coastal territories to climate change requires new forms of actionable and institutionalised knowledge. Scientific knowledge must be collected, analysed and finally used along with **other forms of knowledge** such as Indigenous Local Knowledge (ILK), social-science and natural sciences as well as socio-economic data to ensure justice and inclusive decision-making.

It is also crucial to have thorough knowledge and robust understanding **of regional impacts**, based on rigorous scientific research **and communicate clearly the magnitude and implications of uncertainties**.

⁷⁸Ocean & Climate Platform. (2021). [Adapting coastal cities and territories to sea level rise](#).

⁷⁹United Nations Environment Programme. (2014). [Setting a course for Regional Seas](#).

On a Mediterranean scale, the Mediterranean Experts on Climate and Environmental Change ([MedECC](#)) acts as a science-policy-society interface and produces comprehensive scientific assessment reports on the specific risks associated with climate and environmental changes for the Mediterranean Basin. It is designed to support decision making by providing robust downscaled climate information, including identified knowledge gaps, to policymakers, stakeholders, and the public⁸⁰. MedECC is strongly supported by the regional organisations including UNEP/MAP, and the MedECC Secretariat is hosted by the RAC/Plan Bleu.

To effectively address the challenges posed by climate change to coastal zones and islands, **robust data collection is essential** to effectively address coastal challenges through informed decision making and tailored strategies. This includes monitoring physical changes such as sea level rise, erosion rates, and storm frequency, as well as assessing ecological impacts like shifts in species distribution and habitat loss. Furthermore, socio-economic data on the livelihoods and vulnerabilities of coastal communities can help in crafting equitable and effective responses.

Additionally, it is also pivotal to **produce knowledge specifically centred on the coastal zone** to ensure full consideration for example on coastal observation data, and to make it accessible to national and local decision-makers. In several regions, initiatives have emerged that work jointly with RSCAPs. For instance, [Future Earth Coasts](#) - a network of coastal scientists and practitioners from all disciplines of the natural and social science, engineering, law, and the humanities - can help to strengthen relations between researchers, practitioners and RSCAPs. Their “Looking for a Future in Assessment” Workshop, held in March 2018, brought together Regional Seas stakeholders, assessment organisations, and UN and other international bodies to develop a strategy for knowledge exchange for a more effective adaptive management and governance of the coast.

- The [Report on Assessment of the Distribution of Tidal Flats in the NOWPAP Region](#) understands the current status of and historical changes in tidal flats/salt marshes in the NOWPAP region by mapping the past and current tidal flats/salt marshes using remote sensing images.
- In 2020, ROPME published its [Status and Trends of Coral Reefs in the ROPME Sea Area – Past, Present and Future](#) which preceded its 2022 toolkit for [Coral Restoration and Resilience building methods](#).

Coastal knowledge must integrate **indigenous local knowledge (ILK) and citizen science** that both contribute to greater awareness and collective learning.

⁸⁰Their Summary for Policymakers of the Special Report on Climate and Environmental Coastal Risks in the Mediterranean has recently been endorsed by the Contracting Parties of the Barcelona Convention (Decision IG.26/13, COP 23, December 2023, Portoroz, Slovenia, Decision IG.26/13).

Given the numerous challenges and crises experienced by RSCAPs, the need for regional exchanges of experiences and know-how to create a community of practice is greater than ever to mainstream climate adaptation and coastal issues

RSCAPs are essential to facilitate exchange of knowledge and provide guidance to their Parties and to local communities

- To promote regional cooperation and knowledge sharing PAP/RAC conducted the [ICZM Platform](#) and established comprehensive monitoring and evaluation mechanisms are crucial for the way forward.
- The [Regional Node platform](#), developed by COBSEA, provides stakeholders in the East Asian Seas region with access to knowledge, case studies and networking services on marine litter and plastic pollution for informed action.
- The Nairobi Convention has been working closely with local stakeholders, with specific [training on coral reef in Mauritius](#) or when providing [guidance to local practitioners](#) for the management of natural resources.

To bridge coastal knowledge gaps, RSCAPs must

- **Compile adaptation knowledge and solutions experienced at the regional scale ;**
- **Promote the creation of regional platforms for compiling and analysing consistent data collected according to the same protocols (coastal observatory) ;**
- **Incorporate indigenous local knowledge, traditional practices, natural and social science, and citizen science while including coastal stakeholders in knowledge production, data collection and adaptation planning ;**
- **Develop a Community of Practice to enhance adaptation and resilience to climate impacts and disasters ;**
- **Promote the use of advanced technologies for monitoring and managing marine and coastal environments, e.g. satellite imaging, GIS mapping, and environmental sensors to provide real-time data and inform decisions ;**
- **Evaluate data adequacy against specific challenges in regional seas to identify data gaps, ensuring that monitoring systems and data collection frameworks effectively meet end-user needs.**

Engaging coastal stakeholders

Achieving inclusive coastal management policies requires systemic thinking and **effective stakeholders engagement**. Engagement of stakeholders can help experts to better understand the challenges that are inherent in both coastal pressures and possible responses. Experts in turn can increase the community's understanding of the nature and imminence of potential coastal threats from climate change and biodiversity loss, building greater receptivity for, and often co-creating measures to address these threats. Although the involvement of civil society in decision-making remains complex, RSCAPs appear as appropriate platforms to facilitate dialogue between contracting parties and stakeholders, including civil society, private actors, research and academic institutions.

Before proceeding, it is essential that **resources and technical guidance are available to communities** for full social appropriation of the subject of adaptation to climate change in coastal areas.

The Pacific Climate Change Center developed a [Pacific Climate Change Portal](#) that hosts resources and guides designed for communities to assess local coastal pressures and develop a risk culture. This preliminary step facilitates awareness of the population that can be strengthened through participatory field work.

The **participation of coastal communities and stakeholders** is crucial at every level of governance. At the regional level, COPs offer opportunities to ensure coastal stakeholders participation in the process and in the development of strategies. At the regional and local level, the adoption of a “**whole-of-society approach**” and all stakeholders in the **spatial planning framework and in the design of adaptation** plan is also of great importance and can be facilitated through consultation and discussions. Joining existing networks of coastal managers on a similar scale facilitates inclusion of local coastal stakeholders in planning of adaptation to climate change.

Parties of the Nairobi Convention decided at COP 10 in November 2021 to develop a Regional Ocean Governance Strategy (ROGS) - then adopted at COP11 in 2024 - for the Western Indian Ocean. Since May 2022, a 24-member multi stakeholder task force, including representatives from the Nairobi Convention parties, the African Union, regional economic communities, private sector, and civil society, has worked collaboratively on this initiative. The support team, hosted by the Nairobi Convention Secretariat, organised a series of participatory technical dialogues focusing on maritime security, blue economy, environment and natural resources, and knowledge management & capacity building.

Additionally, it is paramount to incorporate **gender, equity, and justice considerations into decision-making**. Community-based adaptation, human rights-based approaches, and approaches to adaptation that consider gender-related dimensions or are equity-based can address adaptation while also contributing to gender-, equity-, and justice-related outcomes⁸¹.

Targeted attention must also be paid to specific communities or sectors of society or groups who are often underrepresented or undermined in decision-making and to inland inhabitants who can be impacted by the relocation of coastal housing or infrastructures. That can be facilitated by **participatory approaches that encourage more participation of all the community, including women and indigenous peoples** in policymaking and decision-making.

Community engagement can be improved by:

⁸¹IISD.(2024). Mobilising Knowledge on Gender, Equity, and Justice in Climate Change Adaptation: Key gender and equity findings from the 6th Assessment Report of the Intergovernmental Panel on Climate Change – Working Group II on Impacts, Adaptation, and Vulnerability

- Communicating on hazards and vulnerabilities to the region as well as knowledge on past, current and future state and dynamics of the coastline to the communities and promoting the implementation of early warning systems;
- Strengthening the communication of adaptation options and measures implemented targeting particularly specifically those experiencing poverty and inequality to build coastal resilience ;
- Investing in educational and capacity-building programs to educate local authorities and communities about sustainable practices and the importance of marine conservation ;
- Enhancing collaboration with local governments, communities, industries, and NGOs ;
- Encouraging inclusive settings for dialogue and decision making and the ; integration of wider society in spatial planning projects and decision-making processes.

Catalysing finance

Even though global climate finance doubled between 2019 and 2022, the global adaptation funding gap continues to widen considerably⁸². Estimates suggest that the global economic costs to cities, from rising seas and inland flooding, could amount to \$1 trillion by mid-century⁸³. However, despite the surge in demand for global adaptation finance, there is evidence that funding is diminishing from 7% in 2019–2020 to 5% of total climate finance in 2021–2022⁸⁴. Implementing coastal adaptation measures require substantial funding and therefore considerable increase and realignment of capacities and resources.

Costs of adaptation measures vary greatly depending on climate hazards, types of hard protection, coastal infrastructures and assets to relocate remain expensive and NbS under-funded. Indeed, NbS only received a third 37% of what is needed by 2030 to achieve global climate and biodiversity goals⁸⁵. Financing coastal adaptation also varies depending on the regions with overseas countries and territories being exposed to low co-financing capacities or within countries among rural and urban areas.

RSCAPs can be instrumental in identifying regional opportunities of funding and financing, considering notably philanthropic, corporate, and public-private investments as a first step to be supplemented by public fundings. While these resources are primarily allocated at the national level, the regional level can play an important role in directing public and private investments.

⁸²Climate Policy Initiative and Global Center on Adaptation (2023). [State and Trends in Climate Adaptation Finance 2023](#)

⁸³C40 (2018). [The Future We Don't Want - How Climate Change Could Impact the World's Greatest Cities](#).

⁸⁴Climate Policy Initiative and Global Center on Adaptation (2023). [State and Trends in Climate Adaptation Finance 2023](#)

⁸⁵United Nations Environment Programme (2023). [State of Finance for Nature: The Big Nature Turnaround](#).

- The GEF CReW+, a GEF-funded project implemented, inter alia, by the Cartagena Convention, identifies sustainable finance mechanisms such as payment for ecosystem services, blended finance and revolving funds.
- The [Caribbean Blue Economy Financing \(BluEFin\)](#) project, launched in 2023 by the CBF and funded by the GEF, aims to boost sustainable economic growth in the insular Caribbean. Focusing on post-pandemic recovery, the project will support small and medium enterprises by promoting Blue Economy opportunities. It seeks to create jobs, strengthen economies, protect marine biodiversity, and enhance climate resilience.

This type of guidance could be of utmost importance in the case of MPAs, which 65% report that they have insufficient budget for management or enforcement of their area⁸⁶. Common funding mechanisms - government allocations, donor contributions, tourism revenue, grants, and philanthropy - are often insufficient for maintaining effective management activities. RSCAPs could develop toolkits to their Parties, similar to the [toolkit](#) produced by The Reef Resilience NetWork to identify on varieties of funding mechanisms for MPAs.

Access to sustainable funding and resources is a challenge faced by many organisations, and the secretariats of RSCAPs are no exception. Opportunities exist to access and mobilise resources towards sustainable economic activities, including funds specifically oriented towards the environment (Adaptation Fund, GCF, GEF, etc.). RSCAPs are or can be accredited entities for these funds for their own organisation and/or for their members.

RSCAPs can act as finance catalysers if they contribute to:

- **Build capacity among local, sub-national and national decision-makers and stakeholders to develop bankable projects that are more likely to obtain funding ;**
- **Support regional stakeholders in their applications for fundings ;**
- **Significantly scale up finance commitments and accelerate climate finance flows into mitigation and adaptation action that support the protection and restoration of coastal ecosystems including through targeted investments into Nature-based Solutions ;**
- **Invest in monitoring programs and scientific research to track climate impacts, assess adaptation effectiveness and efficiency and inform adaptive management strategies ;**
- **Invest in interdisciplinary and international research and development to enhance disaster risk knowledge ;**
- **Develop trust funds for the management of marine and coastal natural areas in NbS dynamics.**

⁸⁶Gill, D.A. et al. 2017 "Capacity shortfalls hinder the performance of marine protected areas globally." Nature (543): 665-671

2. Promoting locally-tailored responses

There is no single approach to adaptation planning because of the complex, diverse, and context-dependent nature of adaptation to climate change⁸⁷ remembering that the direct application of terrestrial models rarely suit the complexity of coastal zones⁸⁸. Different types of coastal areas also face different central challenges, calling for different features in their solutions.

Coastal cities' features call for particular adaptation approaches that consider **urban infrastructure, high population density and the vulnerability of some coastal communities**. Seawater intrusion is becoming a major environmental issue in coastal cities, with 32% of the coastal metropolitan cities worldwide having been threatened⁸⁹.

Infrastructure resilience such as retrofitting buildings and critical infrastructure (including hospitals and transportation systems), improving drainage systems but also relocating energy plants, distribution networks to withstand extreme weather events and sea-level rise must be at the core of adaptation responses. This also includes elevating structures, installing flood barriers, using resilient building materials with respect to their potential historical and cultural significance. Throughout the adaptation process crucial focus must be put on social consequences of these actions implemented to avoid at all costs maladaptation that can reinforce inequalities and cause **climate gentrification**.

Special attention must be paid to **delta cities** that already face particular risk that can be addressed through pumping, piping and storage infrastructure ; sea walls and water barriers' technology and flood proofing pressures⁹⁰.

To this end, coastal cities adaptation requires implementing comprehensive **coastal zone management plans** that incorporate land use planning, ecosystem conservation (e.g., mangrove restoration), and sustainable development practices. To improve coastal resilience, the IPCC encourage cities to adopt **a mix of adaptation responses** - protection, accommodation, retreat with infrastructural, NbS and sociocultural interventions - to manage coastal risks and build resilience over time while following "adaptation-pathways approach [that] sets out near-term 'low-regret' actions"⁹¹.

Nevertheless, in some cases - in LECZ, pre- and post-disaster settings or when structural measures are too costly or impossible to implement⁹² - **relocation** appears as the most effective response. It reduces exposure by moving away populations and assets from prone-risk coastal areas in a planned and coordinated manner. It reduces exposure to

⁸⁷IPCC (2014). AR5 Climate Change 2014: Impacts, Adaptation, and Vulnerability: [Chapter 15 Adaptation Planning and Implementation](#).

⁸⁸Tocco, C.L., Frehen, L., Forse, A., Ferraro, G. and Failler, P. (2024). Land-sea interactions in European marine governance: State of the art, challenges and recommendations.

⁸⁹Cao, T., Han, D. & Song, X. (2021). [Past, Present, And Future Of Global Seawater Intrusion Research : A Bibliometric Analysis](#).

⁹⁰C40. (2016). [Climate Change Adaptation in Delta Cities](#).

⁹¹IPCC. (2021). AR6 Synthesis Report. [Fact sheet - Cities and Settlements by the Sea](#).

⁹²Climate ADAPT. (2023). Retreat from high-risk areas.

natural hazards when it is not possible to implement structural measures or if they are too costly.

The Tehran Convention supports the Adaptation Fund 4-year project "[Building Climate Resilient Cities and Communities in the Republic of Azerbaijan](#)". The project aims to advance climate initiatives on both national and local scales entailing strengthening capacity and establishing an evidence base for planning, prioritising, and financing essential urban resilience and climate change adaptation measures. Specific actions will be implemented at the local level, including initiatives like water management, early warning systems, and addressing urban heat island effects.

Natural areas adaptation prioritises biodiversity conservation with fewer infrastructure concerns while facing pressures from climate change and human encroachment. The loss of natural areas - natural, agricultural, and forest areas - must be halted and reversed to **preserve valuable ecosystems**.

One path is to ensure urban relocations are planned to mitigate and manage potential detrimental impacts on peripheral natural areas or to the hinterland. To do this, it is critical to **review the territorial planning** in order to declassify areas that are not sustainable for coastal conservation and human safety reasons and preserve ecosystems connectivity.

In addition, **land intervention** is necessary to regulate the potential land loss and encourage natural regeneration. Preserving and restoring coastal natural areas, as an alternative to building coastal protection structures, can be achieved while using a **flexible and dynamic approach** and the combination of various disciplines, e.g., geomorphology, civil engineering, ecology, landscaping and project management.

Such an approach offers an alternative to narrow engineering solutions that may be detrimental to natural areas through disturbance of hydrodynamics and sediment transport. **Flexible management solutions** can be adapted to the various coastal typologies and risks under consideration and facilitate the transformation of natural habitats. By ensuring accessible connection to the sea and creating a transition zone, the coastline can evolve naturally without jeopardising any human activities, which will, consequently, adapt as necessary.

The Nairobi Convention supports the rehabilitation of the degraded coastal ecosystems at [Pasquière on Praslin Island, Seychelles](#) to prevent the loss of wetlands. The project includes enhancing vegetation cover on degraded foothills upstream of the wetlands, removing invasive plant species encroaching the wetlands and replanting with appropriate native species, to reduce soil erosion from the land into the marine park as well as enhancing the overall biodiversity and functioning of the ecosystems.

A sense of urgency is prevalent among **small islands**. Small islands, particularly Small Island Developing States (SIDS) are increasingly affected by increases in temperature, the

growing impacts of tropical cyclones, storm surges, droughts, changing precipitation patterns, sea level rise, coral bleaching and invasive species⁹³.

As a result, many of them are already reporting losses and damages. Small islands are also characterised by having relatively large populations for the area they occupy with high growth rates and densities, poorly developed infrastructure and limited land area, natural, human and economic resources⁹⁴. Islanders are also highly dependent on their natural resources. It is therefore crucial to **enhance islands natural defences through ecosystem-based adaptation (EbA)**. To this end, islands must be recognised as interconnected systems and adopt a **"whole-of-island" approach**, i.e. a comprehensive strategy for managing island ecosystems and communities that integrates all aspects of environmental, social, and economic systems. Project can also build upon the **ridge to reef approach**⁹⁵ that emphasises the ecological connectivity and management from upland areas to the ocean, the need for watershed management, coastal and marine protection and pollution control. Restoration actions must include the **management of invasive species** which are a primary driver of islands biodiversity loss⁹⁶.

This requires the **enhancement of disaster preparedness and early warning systems for extreme weather events** to improve disaster response capabilities through community drills and preparedness plans. However, climate change-related coastal hazards are not certain and difficult to predict which encourage the adoption of [flexible pathways](#) designed to be dynamic (or adapted).

Finally, adaptation planning must also consider the **socio-cultural dimensions of climate change**, protect cultural tangible and intangible heritage and preserve local customs and traditions. Integrating ILK into these efforts and using a participatory approach are critical to relocate communities in a manner that maintains social cohesion and cultural identity. Education and capacity-building are also fundamental to empower island communities to adapt to climate change and lead the action.

- The Cartagena Convention delivered recommendations to respond to the sargassum crisis through the [Sargassum White Paper - Turning the crisis into an opportunity](#) (2021).
- SPREP facilitates mainstreaming and awareness raising on issues related to invasive alien species - prevalent on islands - through their [Guiding Framework for Invasive Species Management in the Pacific](#) (2023). This guide is intended for island jurisdictions, international and regional agencies as well as national and local government departments.

⁹³IPCC. (2022). Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change: [Chapter 15 Small Islands](#).

⁹⁴SPREP, APAN. (2013). [Report on Adaptation Challenges in Pacific Island Countries](#).

⁹⁵GEF (2016). [GEF Pacific Ridge To Reef Programme](#).

⁹⁶Spatz, D. R., et al. (2022). [The global contribution of invasive vertebrate eradication as a key island restoration tool](#).

The specific features of these three contexts must be integrated in RSCAPs guidelines for coastal adaptation, to be used by their Parties. Locally-tailored adaptation could be facilitated by the design of case-by-case cooperation projects at the regional level, to allow for better adaptation to local changes and contexts.

For natural areas, RSCAPs are encouraged to promote:

- The establishment of a streamlined administrative procedure (including environmental and social safeguards) for implementing measures to rehabilitate or restore natural areas ;
- The implement action plans to stop the loss of unbuilt areas and to restore and transform built-up areas into natural areas ;
- The design of basin agencies for water management and pollution management solutions ;
- The creation of “territorial contracts” (river, bay, basin contracts, to coordinate technical and financial efforts with a view to sustainable management).

To adapt coastal cities to climate change, RSCAPs are instrumental in encouraging national and local authorities to:

- Establish requirements for building construction to maximise protection from coastal hazards ;
- Plan for adaptation with neighbouring cities and inland territories ;
- Pay critical attention to the risks of climate gentrification and guaranteeing access to employment, mobility, lifelines, and other essential urban services ;
- Conduct further research to assess the viability of ecosystem-based adaptation in urban conditions of risk reduction potential and social acceptability of these options ;
- Conduct institutional and legal research to to ensure coherence and alignment among various legal domains - such as transport, housing, ocean-related activities, ecosystems, agriculture, and industry - to facilitate the transformation of coastal areas ;
- Integrate whole-of-city systemic detailed spatial urban planning with regard to the functional view of the city and future ecological and social well-being.

RSCAPs can leverage islands adaptation through:

- The development and implementation of cross-cutting mechanisms and programmes within RSCAPs specifically targeting urban and island environments, e.g. infrastructure improvements, regulations on pollution control, sustainable land use, water management and habitat protection ;
- The identification of data, information and expertise required to facilitate the selection of dynamic adaptive pathways ;
- The adjustment of dynamic adaptive pathways depending on the scenario ;
- Engaging effective communication strategies in islands issues ;

- The integration of whole-of-island to encompass all interlinkages between landscapes, seascapes, economic sectors and socio-ecological systems and involving the shared governance of resources⁹⁷.

3. Seas of potential: RSCAPs as powerful allies for climate action

Their format, coordination and links with their Parties could enable RSCAPs to **disseminate coastal knowledge** and encourage the adoption of science-based adaptation responses. Given the magnitude of the challenge, it is paramount to unlock their potential to scale-up adaptation responses worldwide.

Mainstreaming adaptation action regionally and internationally

Thanks to the projects and initiatives mentioned above, RSCAPs contributed to raise awareness among their contracting Parties, aligned with their common goal to “increase reach and mainstreaming of the Regional Seas Programme, including advocacy, political support and dialogue for furthering action”⁹⁸.

Their format seems to be the most appropriate for **disseminating appropriate coastal adaptation solutions**, particularly to their Contracting Parties, and assisting them on the implementation of adaptation responses.

Lately, positive signals have been sent to enhance the role of RSCAPs in climate action. On May 21, 2024, the International Tribunal for the Law of the Sea (ITLOS) delivered the first international judicial opinion on state obligations concerning climate change and recognised that GHG emissions constitute pollution of the marine environment⁹⁹. This ITLOS emphasises the need for integrating climate change adaptation into marine and coastal management practices and po. From now, States are required, as appropriate, to engage in adaptation planning processes and the implementation of actions, including the development or enhancement of relevant plans, policies and/or contributions (para 75) and “to cooperate to promote studies, undertake scientific research, and encourage the exchange of information and data on marine pollution from anthropogenic GHG emissions, its pathways, risks and remedies, including mitigation and adaptation measures” (para 321).

Inspiring national and local actions

RSCAPs can **support national and local actions**, in cities or islands in the implementation of coastal adaptation projects acknowledging their unique environmental challenges and their significant role in regional economies and ecosystems. Although coastal cities have been unmentioned in Protocols and Conventions, few cooperation projects have been undertaken among the different levels of governance.

⁹⁷Ocean & Climate Platform. (2024). Adapting Coastal Cities And Territories To Sea Level Rise In The Pacific: Challenges and Leading Practices.

⁹⁸UN Environment Programme (2021). Regional Seas Strategic Directions (RSSD) 2022-2025.

⁹⁹International Tribunal for the Law Of the Sea (2024). Request for an advisory opinion submitted by the commission of small island states on climate change and international law.

Since the adoption of the Mediterranean ICZM Protocol, more than 10 local governments, regions and cities have been proactive in developing coastal management strategies, starting with the adoption of a coastal plan in 2014-2016, by the Šibenik-Knin County in Croatia¹⁰⁰ and the adoption of Morocco Coastal law.

Another opportunity is for RSCAPs to support national and local efforts to develop context-specific adaptation responses while supporting local projects. This can be facilitated by local training and awareness campaigns developed with local communities.

Strengthening RSCAP advocacy potential in international fora for a coordinated action

Consistent with the acknowledged urgency for UN institutions and stakeholders to break silos and implement a coordinated action to tackle the current triple crisis, the RSCAPs appear as well-placed in advocating and achieving international synergistic action. As recalled at the 6th assembly of UNEP (UNEA-6) and its resolution on “[Strengthening ocean efforts to tackle climate change, marine biodiversity loss and pollution](#)” (UNEP/EA.6/Res.15) which calls to “strengthen, without prejudice to and within the scope of the organisation’s mandate, the Regional Seas Programme in order to further support the regional seas conventions and action plans” (article 3.a).

The opportunities they offer to address the triple crises through a single platform has also been pointed out by the [G7 Italian Presidency](#) that reaffirmed their role in “addressing marine pollution and enhancing the conservation and sustainable use of the ocean and its resources, supporting the implementation of the international commitments and processes related to the ocean [...]”.

Indeed, RSCAPs play a vital role in the implementation of other MEA goals such as the Kunming-Montreal Global Biodiversity Framework (GBF).

COBSEA [Marine and Coastal Ecosystems \(MCE\) Framework](#), adopted in 2023, is a guidance of COBSEA’s strategy on ecosystems and biodiversity conservation and management. It provides a clear direction to achieving the relevant targets from the GBF, notably through spatial planning.

The role of RSCAPs to ratchet up the ambition in UNFCCC process has also been underscored, e.g., during the 2024 Ocean and Climate Change Dialogue which laid a stress on integrated governance and the incorporation of coastal solutions in countries’ NDCs and NAPs to be revised at COP30 in 2025. Given their long-lasting commitment to ICZM and MSP, RSCAPs are strategic platforms to mainstream nature-based solutions for climate action.

The current context presents opportunities for RSCAPs to expand their reach, mainstream ocean-based climate action and improve coherence and collaboration across international fora. UNOC 3 could be a catalyst and open a new era in ocean governance, based on

¹⁰⁰: Ocean & Climate Platform. (2022). [Adapting Coastal Cities and Territories to Sea Level Rise in the Mediterranean Region: Challenges and Best Practices](#).

synergies across international fora and levels of governance. However, to do so, main RSCAPs challenges identified must be addressed while taking in consideration the following recommendations.

RSCAPs have the ability to mainstream climate adaptation while:

- **Encouraging contracting Parties to integrate coastal NbS adaptation measures in their next Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs) and National Biodiversity Strategies and Action Plans (NBSAPs) ;**
- **Providing support to Parties for the definition and submission of their NDCs, NAPs and NBSAPs ;**
- **Promoting the participation of RSCAPs in all relevant global processes and fora to play a key role in their preparation and implementation of the relevant outputs.**

PART 3: ENABLING CONDITIONS

RSCAPs are well positioned to perform a pivotal role in establishing an integrated and unified seascape vision for the regions, facilitating the exchange of knowledge, best practices, and capacity, and translating international commitments and agreements into national and regional action. Their format, coordination and links with their Contracting Parties could enable the RSCAPs to disseminate coastal knowledge and encourage the adoption of science-based adaptation responses.

Therefore, it is paramount to unlock their potential in the following areas.

Reporting / Monitoring	• Developing robust monitoring schemes to evaluate the impacts/benefits of RSCAPs • Reinforcing the revision of existing international institutional infrastructure (Protocols, Action Plans) • Reinforcing the reporting on implementation of Protocols and projects • Relying on Champion Parties in each RSCAPs to enhance adaptation implementation
Data and knowledge	• Measuring data gaps and developing alternatives to complement missing information • Transferring technology, know-how and experience among RSCAPs and with their Contracting Parties
Advancing long-term financing	• Securing sustainable long-term financing for RSCAPs secretariats and projects (through innovative financial mechanisms)
Strengthening existing regional ocean governance	• Enhancing cooperation and coordination with existing mechanisms • Enhancing communication on the role of RSCAPs, notably with decision makers, in international fora (CBD and UNFCCC COPs, UNOC 3, G7 meetings, IUCN Summit, etc.)

Annex: Typology of adaptation responses (source: IPCC, 2019)

Adaptation responses may take different forms. The following table provides an overview of potential responses.

Types of adaptation responses	Definition	Examples	Advantages	Drawbacks	Economic efficiency	Location
Hard protection	Infrastructures aimed at reducing risks from coastal hazards such as storms, erosion, and flooding through physical structures or engineered solutions.	Dykes, levees, seawalls, breakwaters, artificial headlands, artificial reefs	- Predictable levels of safety - Provides immediate protection against coastal hazards - Safeguards infrastructure and property - Multifunctional dikes such as for recreation, or other land use	- Often unaffordable for poorer areas. - Potential risks of conflicts Destruction of habitat through coastal squeeze, flooding & erosion downdrift, lock-in, disastrous consequence in case of defence failure - Propensity to accelerate or displace erosion and to contribute to “ocean sprawl”¹⁰¹ and facilitate the establishment of invasive species	High if the value of assets behind protection is high, as found in many urban and densely populated coastal areas	Northwestern Europe, East Asia, and in deltas or densely populated areas such as coastal cities (IPCC, 2019).
Accommodation	Technological, architectural, and urban planning aimed at improving the understanding and awareness of coastal risks that accommodate changing coastal conditions while maintaining human activities and ecosystem	Flood-proofing buildings, early warning systems, flood hazard mapping, contingency plans	- Flexible and adaptable to changing conditions - Preserve natural habitats and ecosystems - Maintain landscape connectivity	- Do not prevent flooding/impacts - Resource intensive in terms of monitoring systems, studies, communication, development of new strategies for coastal protection, and management - Requires ongoing maintenance and replenishment - Potential adverse impacts on ecosystems	Very high for early warning systems and building-scale measures	Tourist destinations and urban beaches prone to erosion e.g., Gold Coast, Queensland, Australia.
Planned relocation	Strategies involving the relocation of vulnerable	Managed Retreat	Reduces exposure to coastal hazards and	Loss of social cohesion, cultural identity and well-being.	Limited evidence	Jakarta (Indonesia)

¹⁰¹Bishop, M. J., Mayer-Pinto, M., Airolidi, L., Firth, L. B., Morris, R. L., Loke, L. H., Hawkins, S. J., Naylor, L. A., Coleman, R. A., Chee, S. Y., & Dafforn, K. A. (2017). [Effects of ocean sprawl on ecological connectivity : impacts and solutions](#).

	communities and infrastructure away from high-risk coastal areas to safer locations		long-term risks • Preserves natural habitats and ecosystems • Access to improved services, job opportunities and economic growth	• Depressed services, job opportunities and economic growth • Complex process given property and land values in some coastal areas • Face psychosocial factors – such as attachment to a place, sense of identity tied to the coastline making retreat highly controversial • Requires careful planning and significant community engagement		Guet'Ndar Saint-Louis, (Senegal), Is de Jean Charles (USA), Small Islands State threatened by SLR
Ecosystem-based Approach (EbA)	“The use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change”¹⁰² EbA includes adaptation interventions implemented at the ecosystem level that often preserve ecological structure and biodiversity.	Restoration of mangroves, corals, dunes, Seagrass meadows, wetlands, salt marshes and other coastal ecosystems	• Provides multiple ecosystem services • Potential income from marine tourism • Enhanced fishery productivity • Provide nursing grounds for fish and shellfish, and resting places for migratory birds • Provision of food, medicine, fuel, wood and cultural benefits	• Requires long-term monitoring and maintenance • Long-term effectiveness depends on other climate change factors including rates of SLR ocean warming, acidification and emission scenarios • May face challenges from land-use conflicts.	Limited evidence on benefit–cost ratios; Depends on population density and the availability of land	Emerging worldwide

¹⁰²Lo, V. (2016). [Synthesis report on experiences with ecosystem-based approaches to climate change adaptation and disaster risk reduction](#).

