A ROADMAP TOWARDS

CLIMATE-SMART MARINE SPATIAL PLANNING IN THE UK OVERSEAS TERRITORIES

OVERVIEW

Climate Smart Marine Spatial Planning (CSMSP) is gaining increasing attention globally, with several countries having implemented marine spatial plans that explicitly include climate change adaptation and mitigation measures.

This roadmap has been developed through workshops and focus groups with the UK Overseas Territories (UKOTs). It is intended to support territories considering implementing principles of climate-smart design into their MSP or other marine management approaches.

This roadmap covers the following:

- Executive Summary
- Introduction
- Enabling CSMSP in the UKOTs
- The CSMSP planning cycle

> *"Climate change is having significant impacts on UKOTs and is projected to do so well into the future. This roadmap is an ideal resource to support long-term planning for the marine environment so UKOTs can both adapt and maximise opportunities to create resilience."*

Prof John Cortes MBE
Minister for Education, the Environment, Sustainability, Climate Change, Heritage, Technical Services and Transport
HM Government of Gibraltar and Chair, UKOT Environment Ministers' Council

EXECUTIVE SUMMARY

The UK Overseas Territories (UKOTs) face growing challenges from climate change, including warmer seas, rising sea levels, stronger storms, and ocean acidification. These changes threaten local communities, economies, and marine ecosystems. To protect both people and nature, this guide sets out a practical approach to "Climate-Smart Marine Spatial Planning" (CSMSP) — a way to plan and manage marine areas so they are resilient to climate change while supporting sustainable development.

What is Climate-Smart Marine Spatial Planning (CSMSP)?

Marine Spatial Planning (MSP) helps decide how the sea is used — for example, where fishing, tourism, and conservation should take place — so that activities support both the economy and the environment.

CSMSP takes MSP a step further by:

- **Adapting** to the effects of climate change (for example, protecting areas less affected by warming or storms).
- **Mitigating** climate change by reducing emissions and protecting "blue carbon" habitats such as mangroves, seagrasses, and saltmarshes that store carbon.

By integrating climate objectives into marine planning, CSMSP helps territories future-proof marine economies, protect biodiversity, and align local actions with international commitments such as biodiversity and climate agreements.

Why CSMSP matters for the UKOTs

The UKOTs are home to vast and biodiverse marine areas but are especially vulnerable to climate impacts. CSMSP offers clear benefits, including:

- More resilient ecosystems and livelihoods (e.g., protecting reefs that buffer storms).
- Better investment planning by accounting for climate risks.
- Stronger blue-economy opportunities, such as sustainable fisheries and marine renewables.
- Greater alignment between local marine policies and global climate goals.
- Improved knowledge sharing and cooperation between Territories.

This project

Through a series of capacity building workshops and focus groups, we worked with UKOT government agencies to explore how four key 'enablers' could support the development of CSMSP in the Territories:

1. **Climate Evidence.** Reliable data on changing sea conditions, species, and coastal impacts are vital. UKOTs can already access existing global datasets (e.g. from the Met Office and Copernicus) and local observations, while investing in new data and capacity.
2. **Governance.** Clear responsibilities, coordination across agencies, and inclusion of local and regional frameworks (e.g. UNESCO-IOC initiatives) to support effective decision-making.
3. **Resources.** Access to finance and technical skills are crucial. Innovative funding, such as 'Debt-for-Nature' swaps used in Seychelles and Barbados, can help support planning and implementation.
4. **Communication.** Transparent engagement with communities, fishers, and other stakeholders builds trust and ensures plans reflect local knowledge and needs.

This document outlines a nine-step cycle for developing and implementing climate-smart marine plans. Examples from Anguilla, the Turks and Caicos Islands, Seychelles, and other regions of the world are used to illustrate how these steps could be applied in practice in the UKOTs.

This guide provides a roadmap for action to help the UKOTs design and deliver Marine Spatial Plans that are resilient, inclusive, and climate-aware. By integrating climate science, local knowledge, and collaborative governance, CSMSP can support both nature recovery and sustainable ocean economies, ensuring healthy, productive seas for future generations.

* * *

INTRODUCTION

As reported in the 2022 UKOT climate change assessment[1], and regional summaries in the Inter-governmental panel on climate change (IPCC) Sixth Assessment Report[2], the effects of climate change are readily apparent across the UK Overseas Territories. Warming air and sea temperatures, sea-level rise, ocean acidification, and more extreme weather present major risks to livelihoods, infrastructure and biodiversity, with tipping points thought to have been surpassed in some instances.

Ensuring sustainable use of the marine environment now and into the future requires spatial management practises and policies that address climate-driven change in a wholistic manner.

MSP is a public process to assess and manage the distribution of human activities in a marine area to achieve ecological, economic and social objectives, which is now developing worldwide, across nations, regions and territories[3]. In simple terms, MSP policies are used to set goals about how to use the marine environment, in space and time, being a multi-objective process that can serve as a bridge across sector policies and ambition, and thus cutting across all environmental legislation and governance to help deliver Ecosystem based Management (EbM). Interacting with all marine sectors, in one way or another, MSP is therefore highly dependent on political will, and it is often seen as a key driver for the blue economy. More recently, MSP has become a fundamental tool to deliver climate change resilience and adaptation for the environment and people, that can also deliver climate change mitigation actions through '**climate-smart MSP**' or **CSMSP**[4,5,6].

Climate-smart marine spatial planning

Making MSP 'climate-smart' (CSMSP)[4,5,6], through clearly defined objectives for adapting to climate change (i.e. adjusting to actual or expected climate change effects, for example by creating marine conservation zones where warming impacts are projected to be less severe than in other areas) and by mitigating against climate change (i.e. reducing carbon emissions from human activities or promoting the uptake of carbon by coastal and marine habitats) can help support sustainable blue growth and marine conservation (see Table 1).

Through its linkages across all environmental regulation for the marine environment, CSMSP can help create alignment between National Adaptation Plans, Energy targets, National Biodiversity Action Plans and wider policies for marine space management, helping to deliver climate-action on multiple fronts whilst delivering on ocean based targets. As a result, CSMSP is now growing in momentum worldwide, with best practice beginning to emerge[7,8].

In support of the development and implementation of CSMSP across the UKOTs, this document is the result of knowledge co-creation, delivered through a partnership between representatives of multiple UKOT governments and agencies and the Marine Climate Change Impacts Partnership (MCCIP), with support from leading experts on CSMSP from the Plymouth Marine Laboratory (PML).

The initiative facilitated a number of workshops to:

1. support joint exploration of CSMSP as a concept based on best practice from around the world;
2. to explore MSP and related policy instruments across the territories; and
3. to help outline what steps could be taken in individual UKOTs to deliver CSMSP, including key barriers and enablers.

The outcomes from these workshops have played a critical role in framing this document. Case study examples from Anguilla and the Turks and Caicos Islands (TCI) were co-created based on focus group discussions with government representatives from these Territories, serving to illustrate how climate smart approaches could support their developing MSP processes.

In territories where MSP is not being used, the approach outlined in this document could be used to help support other approaches to marine management.

CLIMATE ACTION THROUGH CLIMATE-SMART MARINE SPATIAL PLANNING

TABLE 1. How climate-smart approaches can avert 'losses' and provide 'gains' for MSP.

Potential losses without CSMSP
Non-delivery of MSP objectives
Unsustainable human activity in the marine environment
Ineffective long-term nature protection
Loss of marine livelihoods
Impacts on coastal areas (nature, people, infrastructure)
Slower pace of decarbonization
Continued breakdown of the global climate system
Loss of trust and support for MSP
Exacerbation of cross sectoral conflicts

Potential gains with CSMSP
Future-proofed delivery of MSP objectives
Sustainable human activity
Future-proofed nature protection
Sustainable development
Climate resilience for nature and people
Accelerated decarbonization
Improved climate regulation
Trust and improved social license for MSP
Better sectoral management and reduced conflict

Modified from: Queirós et al (2025)[7].

Potential benefits of CSMSP **for the UKOTs** include:

- Supporting opportunities for sustainable marine sector growth and effective marine conservation through clear MSP objectives that make planning 'adjustments' for the expected effects of climate change (adaptation).
- Promoting coastal and ocean carbon sequestration by preserving and restoring coastal and marine habitats such as seagrass, saltmarsh, mangroves and marine sediments (mitigation).
- Helping reduce risk in marine investments by future-proofing decision-making and encouraging investment in green technologies.
- Informing how UKOTs could account for climate change as part of their international marine and environmental commitments (including UKOTs who have had the UK's ratification of the Convention on Biologically Diversity (CBD) extended to them).
- Supporting negotiations and raising awareness of UKOT climate change issues at international fora (e.g. United Nations Framework Convention on Climate Change Conference of the Parties UNFCCC COP, CBD).
- Facilitating knowledge sharing on climate smart marine management between UKOTs.
- Contributing to UKOT biodiversity strategy priorities, e.g. developing cross-sectoral approaches to climate change adaptation that are consistent with the principles of sustainable development.
- Increasing resilience to the impacts of climate change (e.g. by preserving mangroves or coral reefs that can provide resilience to the increased intensity of storms and surge events).
- Facilitating nature-based solutions and ecosystem restoration.

* * *

ENABLING CSMSP IN THE UKOTS

Best practice from around the world suggests that successful implementation of CSMSP is leveraged through four key enablers[7]:

1. **Climate change evidence**
2. **Governance**
3. **Resources**
4. **Communication**.

1. Climate change evidence

As a forward-looking process, access to appropriate coastal and marine climate change evidence (observations and/or models) is key to the successful implementation of CSMSP. Where observational data is only beginning to emerge or is lacking, climate and ocean modelling can serve as useful decision-support tools, especially in informing the development of spatial planning scenarios that account for future, climate-driven changes, in nature and human activities.

Region specific modelling products already exist that could be initially explored for MSP, for example:

- Global subsurface ocean temperature and salinity from Met Office Hadley Centre datasets[9].
- Copernicus Marine Service, e.g. Mediterranean re-analysis for Cyprus and Gibraltar[10].
- HadSST4, Met Office Hadley Centre Sea Surface temperature dataset[11].
- HadISST, sea ice and sea surface temperature dataset[12].
- OSTIA, Operational Sea Surface Temperature and Ice Analysis (OSTIA) system[13].
- Coordinated Regional Climate Downscaling Experiment (CORDEX), part of the World Climate Research Programme (WCRP) framework, which is aiming at producing regional climate projections for relevant regional domains[14].
- The MetOffice Projecting Future Sea Level (ProFSea) tool that generates sea-level projections for specific latitudes and longitudes up to 2300[15].

Where these regional products are not available for UKOTs, global climate modelling products can be used as a starting point to develop climate-smart spatial management scenarios in individual UKOTs, until such time as observations at the right scale are available to validate the models. Existing products include:

- CMIP, the Coupled Model Intercomparison Project[16], is a project of the World Climate Research Programme (WCRP) providing climate projections to understand past, present and future climate changes. It is a coordinated international research effort to improve climate models and projections, and a key source of evidence to the Intergovernmental Panel on Climate Change.
- Bio-ORACLE[17] provides biologically relevant data layers from present-day conditions to the end of the 21st century, including physical, chemical, biological and topographic marine data layers, with global coverage, and a uniform grid system.
- FISHMIP, the Fisheries and Marine Ecosystem Model Intercomparison Project[18], is an international network of scientists who compare computer models to better understand and project the long-term impacts of climate change on fisheries and marine ecosystems, to support policy development. It is also a key source of evidence to the Intergovernmental Panel on Climate Change.
- AQUAMAPS[19] provide computer-generated predictions of the natural occurrence of marine species, based on the environmental tolerance of a given species with respect to depth, salinity, temperature, primary productivity, and its association with sea ice or coastal areas. Modelling datasets (largely not compared to observations yet and so of unknown skill) for thousands of marine species can be found on the Aquamaps website.

To be most useful, such global ocean products should be downscaled, that is, processed to the appropriate resolution to support CSMSP development at the scale of individual UKOTs, as the resolution of original projects may be too coarse to even capture an individual UKOT landmass (i.e. grid size, see for example Impacts of climate change on the Ascension Island marine protected area and its ecosystem services[20]).

1.1 Integrating evidence into the planning process

Crucially, any climate change evidence needs to be integrated within the planning process, alongside other datasets such as observations showing the distribution of human activities (e.g. tourism, fishing, shipping lanes), infrastructure (e.g. ports, hotels), and of key species and habitats of ecological, economic or social value. These maps can be used to identify priority areas to deliver MSP climate objectives (e.g. zoning to protect biodiversity or fished species in areas less impacted by climate change or with high restoration potential). Such actions can be designed to help build climate-resilience and support social and ecological climate change adaptation.

Climate-actions delivered through CSMSP may also include managing activities that may impact the ability of marine systems to sequester or store carbon, such as blue carbon habitats[21] or may support renewable energy developments, both of which are seen as measures supporting climate change mitigation.

1.2 Evidence (and gaps) in the UKOTs

In the present project, workshops and focus groups undertaken with representatives from across the UKOTs (see Annex 1) suggested that important evidence gaps remain, including whether sufficient observational data to establish climate trends currently exists in several UKOTs for use in CSMSP. It may also be the case that some parts within a marine area have better data than others, as recognised in the United Kingdom[22], and there may be opportunities for localised planning where there is better data availability.

During the consultations for this project, many examples were provided where climate information is being applied in the UKOTs, including to:

- Inform climate action plans and policies within territories (e.g. Cayman Islands).
- Map habitat and species change (e.g. for reef management in Anguilla, climate smart fishing in Montserrat, and marine habitat and species distribution modelling in St. Helena).
- Manage coastal community impacts (e.g. climate change coastal erosion models in SBA).

Based on information gathered during the project, enabling a climate-smart path for MSP in the UKOTs will likely require targeted investment for capacity building activities leading to fit-for-purpose climate change observations to support the development and exploration of CSMSP scenarios (i.e. maps exploring alternative spatial management choices and interventions in support of climate change adaptation and mitigation). This path can build on existing UKOT-specific datasets and data gathering tools (e.g. data repositories portals, such as the Turks and Caicos islands' Department of Environment and Coastal Resources Data Portal[23] and SeaSketch in Bermuda[24]). Additionally, further capacity building could involve the development of bespoke MSP-specific climate modelling and decision-support tools (DST) and products. Good examples of such DSTs are beginning to emerge elsewhere but are not yet widely available globally. Examples include SYMPHONY (Sweden)[25], ASPACE (UK)[26] and EB-MSP (Spain)[27].

It is widely recognised that resolving climate change challenges remains an equitability issue[28]. As such, good practice around CSMSP[7,8] suggests that continued investment in engaging with and gathering indigenous and local knowledge (ILK) is key to ensure any climate action supported by CSMSP is just and equitable. Such an approach is already taking shape in Anguilla. Furthermore, the use of social and economic metrics (e.g. impacts of designating an MPA within an area less sensitive to ocean warming on the numbers of jobs or income in the local fishing sector) can help make climate change evidence more tangible for decision-makers and stakeholders (see for example the UK ASPACE tool[26]). Such work should be supported by stakeholder engagement on CSMSP scenario development, including the use of storylines for alternative scenarios (and their impacts). Such approaches help ensure the development of informed and evidence-based climate-resilient planning, where stakeholders of different backgrounds are able to understand the impacts of alternative climate actions on metrics that have a direct link to their livelihood[7], promoting evidence-based decision making and buy-in for CSMSP, and further supporting justice and equity targets.

Finally, engagement at the science-policy interface, and co-production of evidence and knowledge, is needed to ensure evidence gaps are appropriately addressed during the preparation of CSMSP. This is particularly important where skills, funding or capacity may prevent planners from being able to access or use climate evidence in decision-making.

This challenge was raised by some of the UKOT practitioners engaged in this project. Investment in technical skills development (e.g. creation of data products, use of DSTs), including through partnerships with external organisations in the science and NGO communities, are seen as has having the potential to help support use of climate evidence in decision-making.

2. Governance

In the UKOTs, management of the environment is a devolved responsibility. Consequently, who is responsible for the status of marine plans, marine plan policy and their delivery varies across territories, with no single MSP decision-making process suiting all UKOTs. For example, in Anguilla, the lead agency is the Ministry of Economic Development, Industry, Commerce, Lands, Planning, Water and Natural Resources. In this case, an MSP Board will be setup to provide technical and sectoral advice and make recommendations to the Executive Council and Minister, and the Blue Anguilla Ocean Governance Committee (a cross-governmental committee) will act as the MSP Board. In contrast, the British Antarctic Territory (BAT) does not have a devolved government structure, being administered by staff in the Polar Regions Department of the Foreign, Commonwealth and Development Office. As such the BAT does not require a marine plan.

Furthermore, there are broader regional plans and strategies that individual Territories are part of, which can support the development of planning processes, including CSMSP. For instance, Anguilla, Bermuda, the British Virgins Islands, Cayman Islands, Montserrat and Turks and Caicos Islands are signatories to the Tropical Americas and Caribbean Region Roadmap[29].

This is a framework for action within the United Nations Decade of Ocean Science for Sustainable Development (2021-2030), which highlights MSP as an enabler to deliver ocean climate-resilience and blue economic growth, just and equitable ocean food production and Sustainable Ocean Planning in the region. Such coordinated frameworks, which help integrate objectives across marine activity sectors, conservation and other policy objectives at the regional sea scale, support the establishment of common goals, good communication across government bodies (with distinct statutory responsibilities) and marine stakeholders.

With sufficient resource allocation to MSP, these frameworks can also help establish a facilitating governance landscape for the development of CSMSP. For instance, the UNESCO's IOCARIBE (i.e. Sub-Commission for the Caribbean and Adjacent Regions) has launched a Marine Spatial Planning Task Team (MSP-TT) under their Capacity Development Working Group, which will seek to foster collaboration, share best practices, and support implementation of MSP across the region, including UKOTs. Indeed, the presence of appropriate governance structures has been identified in the 2022 UKOT climate change assessment[1] as a fundamental element in building an enabling environment to promote EbM more widely across the UKOTs, including delivering effective marine planning in the face of climate change.

CSMSP is enabled by engagement and integration of governance between planning processes, marine sectoral management, climate change adaptation and mitigation policies, as well as with terrestrial planning. These conditions enable MSP to be a conduit to deliver climate-action but are not always in place in the UKOTS, or indeed elsewhere[7].

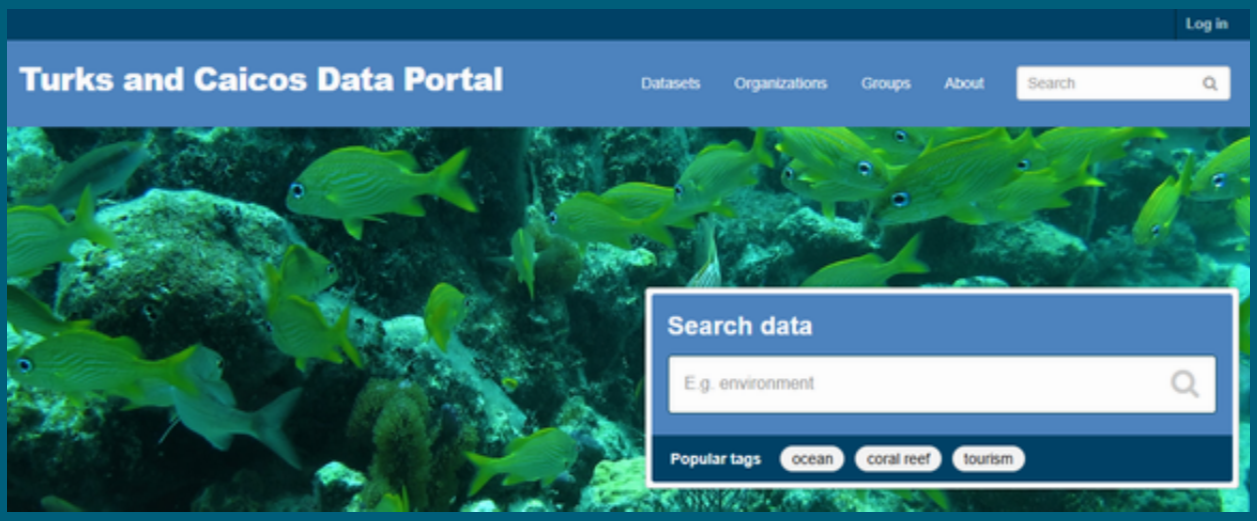
3. Resources

A key enabler for CSMSP is access to necessary technical skills (including ILK), and fit-for-purpose data products and tools, all of which rely on dedicated human resource and finance, especially when climate-smart scenario development is required. Multiple UKOT policy sector representatives working on this initiative, identified access to appropriate financing mechanisms (including relevant global climate funds) as important to support CSMSP development. This is a common feature in MSP processes around the world, which can be supported by central government funding where resource exists, or through external collaborations and partnerships with regional and international bodies. Strong science-policy engagement programmes[30] can bring about additional access to bespoke resources, for example, through Debt for Nature Swaps (DfN, also known as Debt for Climate Swaps) which have been used in this context. Indeed, DfN are seen as means to access finance to deliver outcomes in ocean climate change adaptation, helping bridge the financial burden at the national level. DfN have the ambition to create new financial flows that support governments in reaching climate and nature targets and, locally, these can lead to credit enhancement and commercial capital, hopefully leading to a reduction in debt outstanding, lower interest rates, and/or longer repayment periods, along with savings for governments which can then be applied to the development of improved governance and nature management. DfN have been used by some Small Island States, such as Seychelles and Barbados, to deliver CSMSP. Participation in DfN, however, has been restricted primarily to countries where the risk of default on debt payments is high, whereby the funder can purchase the debt at well below its face value.

While negative criticism of this financial mechanism exist, it is also seen as a key route to deliver funds to develop capacity in ocean management and climate change resilience development.

In some UKOTs, bespoke DSTs for planning are already embedded into existing governance processes (e.g. data portals with information on habitats and marine sector activities, and some climate variables such as sea temperature, see Figure 1). Such tools provide entry points to host climate change evidence necessary to support CSMSP governance and policy development. The ability of policy and local government teams to access and use climate change evidence within decision-making chains and stakeholder consultations linked to MSP are key to enable scenario development required to deliver CSMSP.

a)



b)

FIGURE 1. Examples of data portals in the UKOTs: Turks and Caicos Islands Government Data Portal (a), and Seasketch interactive map of Bermuda (b).

4. Communication

MSP[31] is intended to be a process during which stakeholders are actively consulted and remain engaged. Participation is stimulated from the outset, as stakeholders are notified of the intention to develop a planning process, and are given clear guidance on the opportunity to engage (when, where and how, see the CSMSP planning cycle below). CSMSP has been found to be most effective[7] where relationships of trust between policy, governance and stakeholders are developed as part of planning. Indeed, the delivery of climate actions through MSP can be a source of conflict with local communities where communication is not effective, leading to poor buy-in and even the blocking of interventions. Examples include the public opposition groups "Kein CO_2 Endlager" (No CO_2 Repository) in Germany, opposing the injection of CO_2 gas into Carbon Capture and Storage sites, and many other examples exist from around the world. When engagement and communication with local communities is not optimal, this can lead to disengagement and a lack of trust in governance structures, as voiced by fishers in previous planning activities in smaller islands in Turks and Caicos Islands, which has led to the design of specific engagement mechanisms around MSP to increase participation (pers. comm., Blue Belt Programme).

The establishment of effective communication processes and fora, where all stakeholders feel involved and their voices heard, is key to successful CSMSP. Stakeholders for CSMSP include marine and coastal sectors, NGOs, government agencies responsible for sectoral management and environmental conservation, and indigenous people and local communities, among others. Indigenous and local knowledge systems are now widely recognised as key evidence sources to enable MSP, including a long history of climate related issues, and should be key actors in such fora[32].

* * *

THE CSMSP PLANNING CYCLE: AN IMPLEMENTATION SUPPORT TOOL FOR THE UKOTS

Climate change is not yet a mainstream consideration in planning processes. In the cases where is is considered, this is typically as part of the initial stages of planning and evidence collection, rather than in the planning objectives or their delivery[7]. Effective CSMSP development requires consideration of climate change through all stages of marine planning, from drafting to delivery (Figure 2). Learnings from this project (through established networks, webinars, surveys, and workshops) has provided useful insights into current UKOT MSP and wider marine management practices, and the use of climate information to support decision-making within those processes.

Project engagement activities also stimulated discussion about what steps toward CSMSP would be appropriate in different Territories, and the relevance of CSMSP approaches to those UKOTs that manage their marine space through non-MSP approaches.

The CSMSP diagram below (see Figure 2) was developed specifically for this project following the capability development workshops, as an idealised vision of MSP that enables climate actions to be considered throughout the planning process (or cycle), based on best practice from around the world. The diagram was used to frame discussions with UKOT representatives during the case study focus groups with Anguilla and TCI, which included policy teams making decisions on natural resource use, marine planning and consenting.

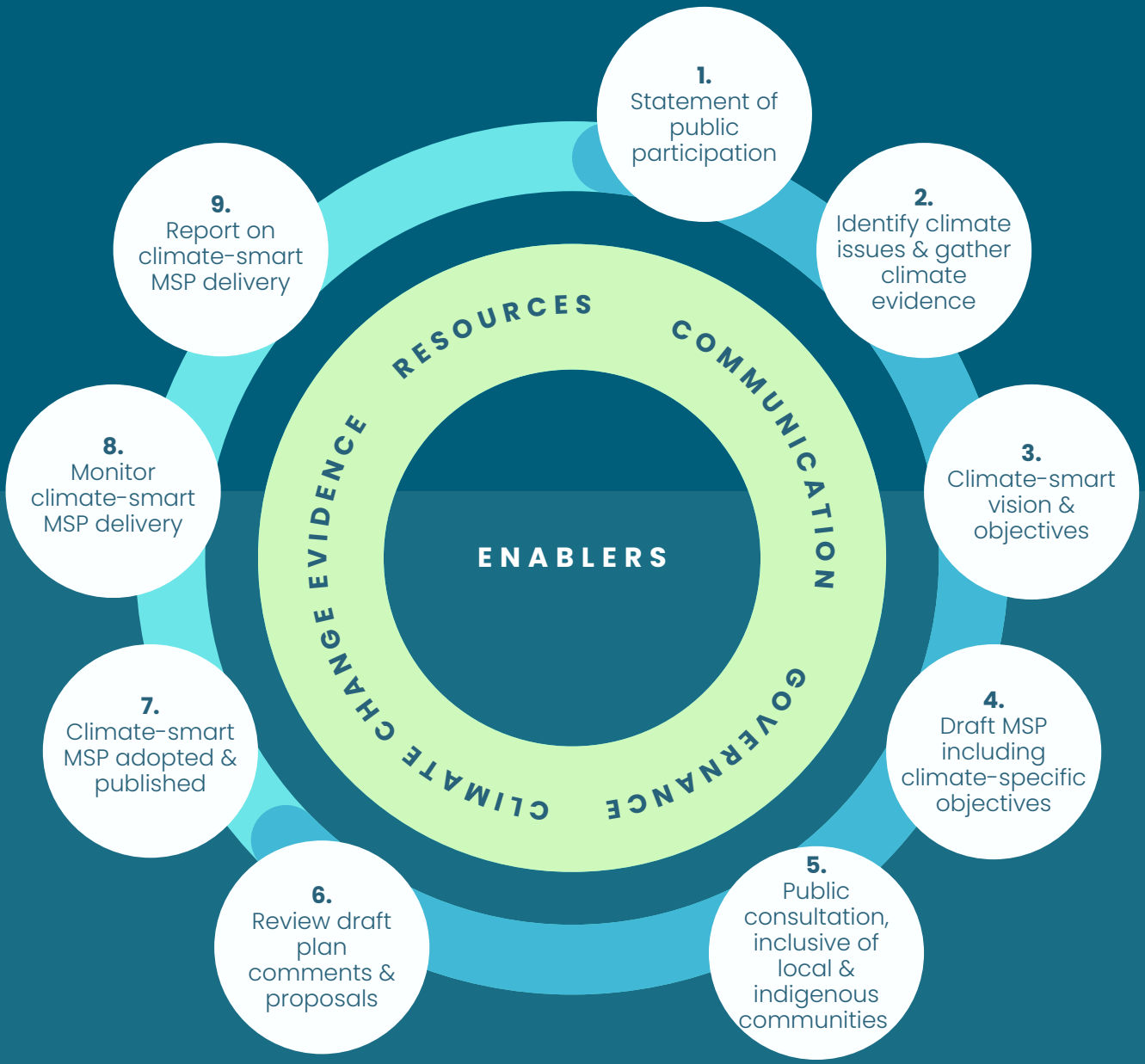


FIGURE 2. An idealised climate-smart Marine Spatial Planning cycle diagram to enable CSMSP in the UKOTs.

The following section describes each step in the CSMSP cycle, followed by brief examples from the UKOTs (where available), or from similarly sized Small Island (and other) States and regions, where climate-smart approaches have been successfully implemented.

Step 1: Statement of public participation (SPP)

Any planning process is preceded by pre-planning activities such as setting up the governance framework, terms of reference of the MSP process, and scoping[6,8]. Once those policy instruments are in place, the government agency or body with statutory responsibility for MSP may be ready to start. In a phase commonly referred to as "setting the scene", the agency will have identified which sectors are affected, which stakeholder groups will be involved, which environmental zones are of interest, what pressures exist, what wider policy and governance may be needed, and what public budgets are available. At this point, an SPP or similar can be issued to all stakeholders indicating that the planning process has begun. The SPP sets out how and when the agencies responsible for planning will engage with stakeholders during MSP. This can include surveys and consultations to raise awareness of the planning process across stakeholder groups. CSMSP would include encouragement for the gathering of evidence or perceptions on climate change risks, their impacts, and adaptation and mitigation needs.

Best practice example: SPPs specifically are legally mandated for UK waters, with the East of England Marine Plan SPP[33] the most recently updated version at time of publication. However, with planning being a devolved responsibility, similar legal frameworks aren't in place across all the UKOTs to begin developing formal SPPs ahead of implementing MSP.

The concept of stakeholder engagement is crucial to successful MSP. For example, in the Turks and Caicos Islands (TCI), public stakeholder engagement from the outset included a focus on prioritising vulnerable communities such as those engaged in fisheries and tourism, which is thought to help ensure buy-in. This approach was also taken in Dominica, a Small Island, Large Ocean State in the Eastern Caribbean region, similar in geography and location to a number of Caribbean UKOTs. Whilst this process is still ongoing in TCI, at the end of the initial phase in Dominica, it was noted that some sectors were better represented than others and more needed to be done to ensure the public were aware of why planning needed to be done in a climate-smart context. This may also be the case in the UKOTs.

Ensuring all societal actors are engaged is a key recommendation for anyone establishing an engagement process, because knowledge of the impacts of climate change and why CSMSP is required is widespread in sectors such as academia and government agencies, but not in wider society. Ensuring communication pathways exist between marine and terrestrial interests, and all key stakeholders is paramount to successful planning, but especially so in the context of CSMSP.

Step 2: Identify issues and gather climate evidence linked to wider climate policy

The agency with statutory responsibility for MSP gathers existing evidence on the environment, policy, socio-economics and sectoral activities that are relevant to the planning process, including those submitted by stakeholders. Evidence may relate to legislation, stakeholder views, national policy, spatial information, plans and strategies and research, both climate and non-climate related. Evidence should be quality assured and evaluated to ensure it is robust and fit for purpose.

Issues and evidence documented at this stage provide quality assurance to ensure they are robust and fit for purpose. Subsequently, consideration is required of what priorities have already been identified for use of marine space in the context of different territories, as part of local policy, as well as part of agreements with external parties, and which ones have not and require further thought. An opportunity or a challenge to the marine plan area is likely to drive change (such as port infrastructure) or be affected by change (such as climate change) over the time period the marine plan covers. Priorities may include increasing understanding of existing policy and community ambitions around sectors such as fisheries, aquaculture, conservation, tourism, and use of ecological, economic, cultural and social data. In CSMSP specifically, evidence gathering focuses on known and projected climate change impacts and opportunities for nature and marine sectors, and the identification of data, capability or resourcing gaps, as noted in the earlier section on enablers.

Stakeholder engagement is essential to this stage of the planning process. In the context of CSMSP, this step should require a targeted focus on those stakeholders that will be most affected by climate change, i.e. local communities, and those with local ecological knowledge about climate change on the local marine environment.

Best practice example 1: An MSP framework for TCI (produced by the Blue Belt programme on behalf of the TCI government) has identified that regional projected increases in sea surface temperatures and tropical storms could lead to a decline in natural resources that support tourism, fisheries and human health and wellbeing.

Local studies of sea-level rise and erosion also indicate an increasing level of coastal risk, and flood mapping has been conducted as part of the Shoreline Management Plan, although there are some data limitations. The framework proposes that developers should demonstrate they have considered climate change projections in the design of their projects and include adaptive measures over the lifespan of developments.

More broadly, the need for further evidence and collaborative decision-making is highlighted to ensure climate change is adequately factored into spatial or strategic plans (with due consideration given to the likely nature and extent of impacts over the marine plan area, with effectiveness monitored as part of the review cycle) whilst ensuring the most vulnerable sectors of society are not disproportionately impacted. The TCI Climate Change Charter (2022) also highlights the importance of marine renewables and protecting blue carbon habitats in the islands' efforts to mitigate climate change.

Best practice example 2: In Tanzania, participatory mapping approaches have been used to assess if coastal communities were already perceiving risks from climate-driven changes (see Figure 3). The main changes identified, highlighted in all communities, were a reduction in fish abundance and degraded environments, with the close alignment between participatory mapping and observed data confirming coastal communities had good knowledge of habitat condition, including the role of climate change (e.g. coral bleaching events) in environmental degradation[34].

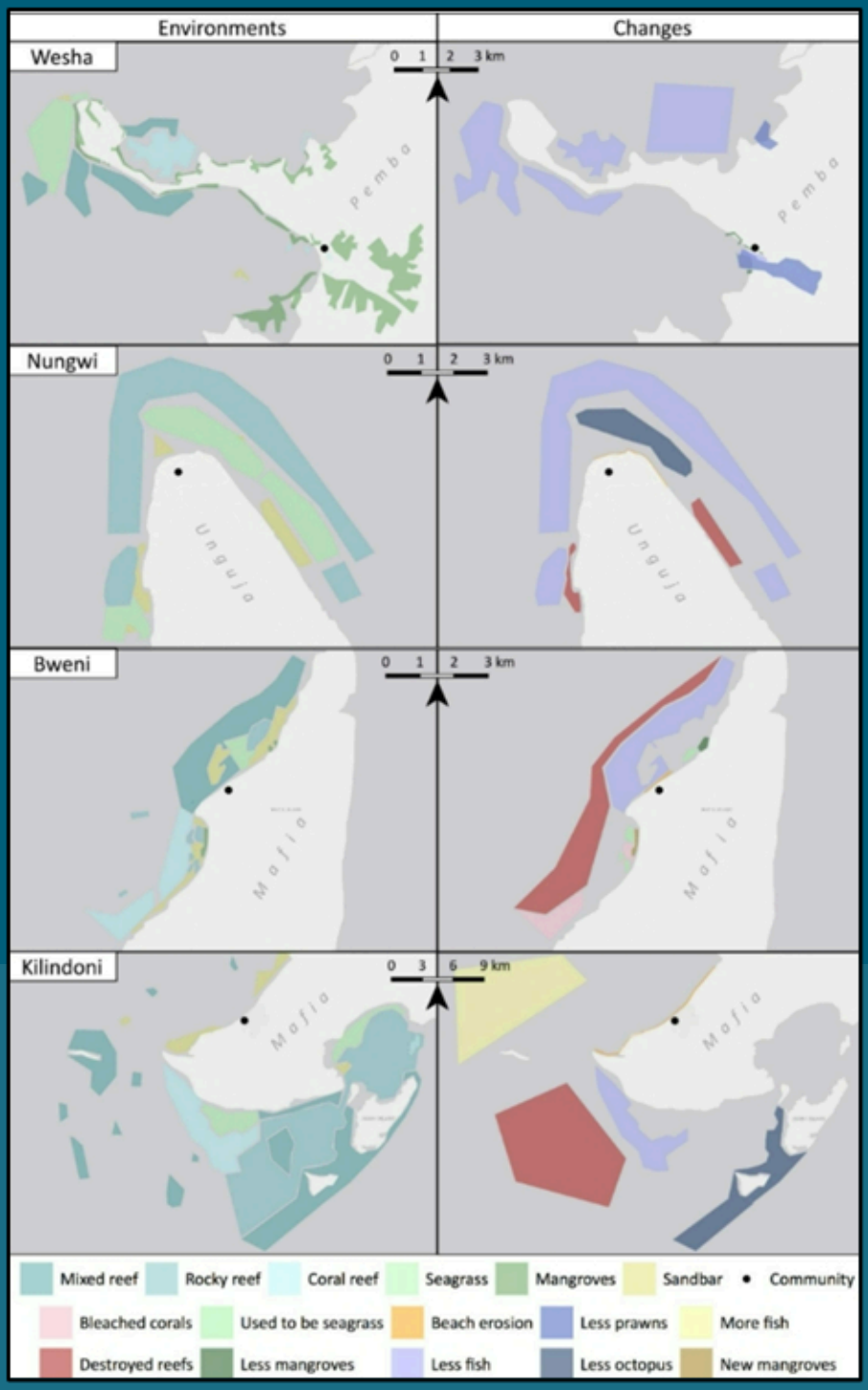


FIGURE 3. Participatory mapping undertaken though focus group surveys, in 4 communities across the 3 main islands of Tanzania. Left hand panels indicate key habitat types as identified by communities, and right hand side panels indicate where communities perceive changes in habitat conditions have taken place. From Queirós et al (2024)[34].

Step 3: High-level climate-smart plan vision and objectives

Building on the priorities identified in step 2, this is the "what" part of the plan. Plan development begins with setting out a high-level vision for the management of the planning area. It includes broad-scale ambitions for both environmental protection and sectoral growth, as well as governance and societal benefits. In CSMSP, the plan's high-level vison to address climate change mitigation and/or adaptation, which are then reflected in more detailed plan objectives, and how particular measures are/are not encouraged.

Best practice example: Orkney Islands Council (OIC) in the UK consulted in late 2024 on a new regional marine plan[35]. This plan takes account of climate-smart thinking with the stated high-level objective "Regional marine plans must set economic, social and marine ecosystem objectives, and objectives relating to mitigation of, and adaptation to, climate change" and with a policy intent that activities are managed in a way that "adapts to the current and future impacts of climate change". As a result, once the plan is adopted (awaiting Ministerial approval in late 2025) dedicated climate-action interventions are being planned by the OIC, affecting licensing and other decisions.

Step 4: Draft marine spatial plan including climate-specific plan objectives

The plan document is then further developed, including what measures are supported to deliver on its high-level vision, detailed through a series of objectives. This part of the plan is the "how", "where" and "by when".

CSMSP should support the delivery of measures that create good links to the territory's wider climate change and energy targets or policies, that increase the climate change resilience of nature and marine sectors, and that seek to improve conservation and sectoral management in the face of climate change pressures, as well as the resilience of coastal communities. Best practice should consider multiple approaches, and what the impact of each could be. CSMSP can include addressing climate change as a specific objective of the plan or, as in recent examples in the UK, climate-action could be embedded in all objectives of a plan, resulting from the high-level vision statement.

Examples of climate action that can be set out in CSMSP objectives could include:

- seeking to avoid, minimise or mitigate impacts on climate change refugia, maximising their use for the benefit of associated sectors or nature (see for example MSPACE Early Warning System: Climate-smart spatial management of UK fisheries, aquaculture and conservation[36]), as these represent places where climate impacts are likely to be less acute;
- addressing sea-level rise, minimising or avoiding impacts on people, marine sectors and infrastructure; or
- growing renewable energy, or protecting blue carbon habitats to support climate change mitigation and the delivery of net zero.

Best practice example: The Seychelles Marine Spatial Plan[37] included a Specific, Measurable, Achievable, Relevant and Timebound (SMART) objective that states: "*By 2020, develop climate change risk mapping for coral reefs and coastal protection to better understand the most important climate risks in Seychelles, and better understand options for adaptation measures and feasibility of implementing them*".

The approach taken in the Seychelles was to map climate change risks to coral reef habitats using almost 20 years of globally available remotely sensed data for sea surface temperature and chlorophyll. This data was used to identify areas most, and least, affected by high temperatures (including the potential for mass coral bleaching events). The data and maps produced then informed the zoning element of Seychelles MSP, included areas of high biodiversity protection where persistently cool areas or thermal refugia were identified, and affected subsequent discussions on 'trade-offs' between economic, social and ecological objectives at the implementation level (see Figure 4).

Delivering climate change objectives as part of an MSP often involves a step-wise process, with a bearing on different phases of its implementation which have different implications for different sectors, depending on the specific objectives.

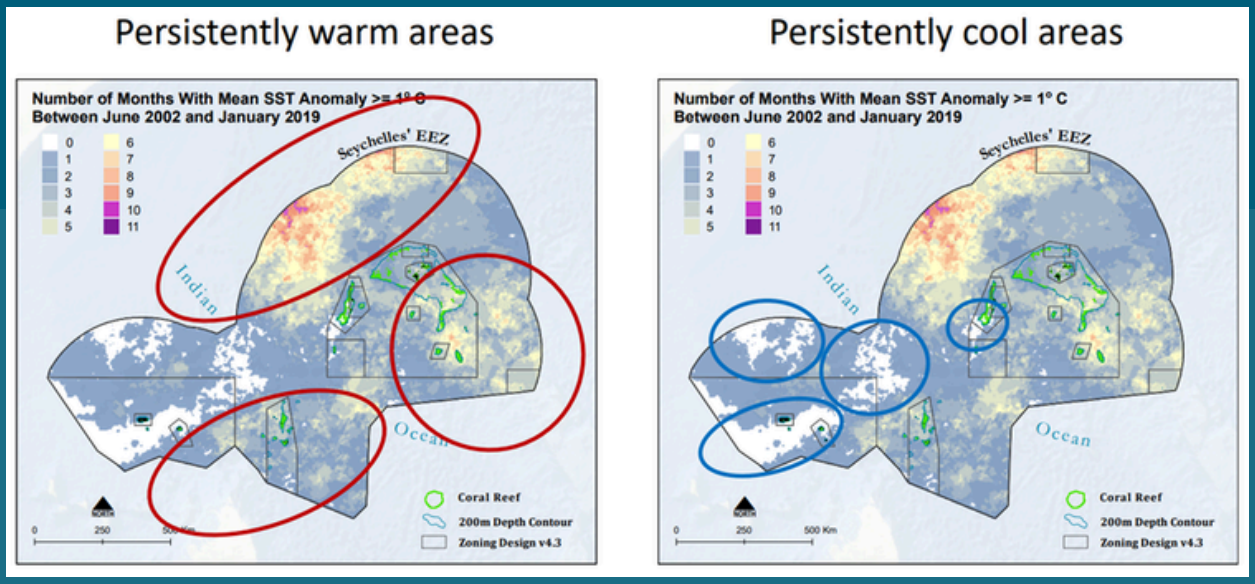


FIGURE 4. Seychelles climate risk mapping[38] has informed climate-smart marine spatial planning. The final zoning design includes several areas that represent persistent cold spots relative to a long-term average.

Step 5: Public consultation inclusive of local communities and indigenous people

In this phase or phases, the agency with statutory responsibility for MSP carries out the stakeholder engagement activities set out in the SPP, providing the draft version of the plan for consultation. In CSMSP, views are also invited on the explicit climate action elements of the plan. All stakeholders are invited to respond, including local communities and Indigenous Peoples[32] as they are a reliable source of information on climate change whilst being stewards of the marine environment.

Step 6: Review draft plan comments and proposals

The agency with statutory responsibility for MSP must now review comments and proposals received from stakeholders on the draft plan and seek to find a balance for inclusion of those elements in a plan. Stakeholders are able to trace how their comments have been considered and addressed (noting that 'addressing' can be no action required where this is reasonably justified), and this step is seen as good practice to support trust in the planning process. In CSMSP, this includes comments and proposals that affect measures in the plan that deliver climate action. A useful addition at this stage could be testing scenarios in which the plan is used, to understand its potential effects.

Best practice example: In the UK (England, Northern Ireland, Scotland and Wales) and in European Union nations, draft plans are open to public consultation, which is supported by public events and online submissions. Agencies with planning responsibility (at the national and regional level) are then tasked with responding to comments received.

The lead agency should provide feedback to stakeholders who have responded to the consultation on how their responses have been considered, i.e. how the Plan has been revised as a result and if it hasn't been revised, why not (e.g. the "modification reports" developed by the Marine Management Organisation (MMO) in the UK[39] clearly state 'you said, we did' for each stage of the process).

Step 7: Climate-smart plan adopted, published and implemented

The agency with statutory responsibility for MSP must finalise the plan and submit it for the approval of a higher government representative, usually a government minister. In CSMSP, the Marine Spatial Plan approved includes explicit measures that deliver climate action, which will guide implementation. In most cases, this is the process implemented, allowing for a final check of how plans align with national policy objectives. The nature of MSP implementation will vary between regions and nations, depending on whether MSP are advisory or executive policy instruments, and the degree to which they have the legal basis to affect or not affect the implementation policies on climate, energy, biodiversity and marine sectors.

Step 8: Monitor climate-smart policy delivery

Monitoring and evaluation (M&E) have been identified as key best practices to determine if the high level MSP vision and objectives are being delivered effectively through implementation[6].

In CSMSP, monitoring and evaluation of the plan includes the delivery of its climate change objectives[7]. Data availability is key to this stage, e.g. monitoring change in temperature and shifts in habitats, and how actions driven by a plan may be increasing resilience through adaptation or mitigation potential of people and sectors. CSMSP should be adaptable to new evidence emerging, and monitoring and evaluation enables changes to be identified and acted on where needed.

Best practice example: The UNESCO-IOC recommends that monitoring and evaluation are part of MSP processes, as a means to hold authorities accountable and to improve MSP[6]. This is the case in the UK and EU nations, where MSP is a cyclic process, aligned with other governance processes, and where monitoring and evaluation are expected to lead to improved policy outcomes over time. Using the results from monitoring and evaluation ensure that policies remain relevant and achievable and can then lead to improved outcomes. In practice, with CSMSP being a newer area of MSP development, monitoring and evaluation specific to climate change objectives of plans are still not widely common practice[7], but have been called for, requiring the definition of specific indicator frameworks and targets[40]. Best practice recommendations in the UK suggest the M&E framework to assess plans is set out at the same time objectives are being set (i.e. steps 2 -7)[41].

Step 9: Report on climate-smart policy delivery

Ensuring MSP is an effective process requires delivery through a cycle that takes account of the evidence gathered during monitoring and evaluation into 'lessons learned'[6] that improve the next iteration of the MSP cycle. This analysis is ideally compiled and made available via reporting. In CSMSP, this phase includes reporting monitoring, evaluation and learning (MEL) with regard to the measures of the plan that are designed to deliver climate action. As noted in Step 8, the learning phase of MEL still requires that the definition of specific indicator frameworks and targets are set out, for MSP in general, but also for climate change objectives.

Best practice example: In England, the Marine Management Organisation compiles reports on marine plans on behalf of the government, for each of its 11 planning regions every three years after the adoption of a plan, e.g. for the North East marine area[42], with the whole cycle of implementation expected to last 20 years. These focus on whether the legislative and regulatory landscape has changed, requiring amendments to the plan (context monitoring); whether and how plans are being used (process monitoring); and assessment of the effects and effectiveness of the Policies (outcome monitoring), and of the progress made towards securing the relevant plan objectives[43]. The three-year report on the North East Inshore and North East Offshore Marine Plan[44] provides an example of a clear output that informs future planning. The second iteration of the English marine planning cycle has just started, in the East of England.

* * *

BOX 1 - Anguilla and Turks & Caicos Islands case study examples (for potential implementation of CSMSP)

Two case studies were undertaken with **Anguilla** and the **Turks and Caicos Islands**, framed around the CSMSP 'enablers' and planning cycle. Focus group discussions with representatives from ministries and government departments in the Turks and Caicos Islands and Anguilla formed the basis of the case studies, supported by information from recent climate change and marine planning activities and outputs in each territory.

They provide illustrative examples of how climate change considerations might support MSP processes in these UKOTs, which in turn provides learnings for other UKOTs looking to build climate change into their marine management practices. The full case study reports can be accessed here.

ANGUILLA

TURKS AND CAICOS IS.

MOVING FORWARD

This roadmap sheds a light on how the UKOTs could consider integrating principles of climate-smart ocean management into strategies for the use of their marine space, based on existing examples from around the world. Whilst supporting climate-resilient Ecosystem-based management, the development of CSMSP in UKOTs can also support dialogue on climate funding and support for climate-change adaption, mitigation, and to build climate resilience as detailed in the UK and Overseas Territories Joint Ministerial Council 2024 Communique.

Alignment with ambitions with other agreed strategies for the UKOTs will also support implementation. For example, this roadmap is relevant to all six goals of the 2025 UK Overseas Territories Biodiversity Strategy, including Goal 5 (Enhance environmental resilience) where a key aim of the territories is to "identify opportunities to safeguard vulnerable ecosystems and develop resilience-based management plans".

Initial knowledge co-creation carried out by this project, along with building on previous work from MCCIP and the Blue Belt programme, can help guide future developments and held develop buy-in. MCCIP can support these developments into the future.

* * *

ADDITIONAL RESOURCES

- UKOT consultation summaries (see Annex 1).
- Overview of CSMSP in the context of UKOTs ('guided' presentation to facilitate local discussions)
- Case studies.

LINKS TO REFERENCED MATERIAL

1. UKOT climate change assessment
2. Inter-governmental panel on climate change (IPCC) Sixth Assessment Report
3. Marine spatial planning: a step-by-step approach toward ecosystem-based management
4. integrating climate change in ocean planning
5. Bright spots as climate-smart marine spatial planning tools for conservation and blue growth
6. UNESCO-IOC guidance for MSP
7. The opportunity for climate action through climate-smart Marine Spatial Planning (CSMSP)
8. UNESCO-IOC Climate-smart MSP
9. Met Office Hadley Centre observations datasets
10. Copernicus marine service mediterranean re-analysis for Cyprus and Gibraltar
11. HadSST4, Met Office Hadley Centre Sea Surface temperature dataset
12. HadISST, sea ice and sea surface temperature dataset
13. Sea Surface Temperature and Ice Analysis (OSTIA) system
14. Coordinated Regional Climate Downscaling Experiment (CORDEX)
15. Met Office Projecting Future Sea Level (ProFSea)
16. CMIP: the Coupled Model Intercomparison Project
17. Bio-ORACLE: A global environmental dataset for marine species distribution modelling
18. FISHMIP: the Fisheries and Marine Ecosystem Model Intercomparison Project
19. AQUAMAPS for marine species
20. Impacts of climate change on the Ascension Island marine protected area and its ecosystem services
21. The role of blue carbon in climate change mitigation and carbon stock conservation
22. Exploring the challenges, opportunities and barriers to local decision making in the context of marine planning
23. Turks and Caicos Islands Department of Environment and Coastal Resources: Data Portal
24. SeaSketch in Bermuda
25. SYMPHONY (Sweden): A tool for ecosystem-based marine spatial planning
26. ASPACE (UK): Web-based and AI-assisted decisions support system
27. EB-MSP assessment tool (Spain)
28. 100% Sustainable Ocean Management: An Introduction to Sustainable Ocean Plans
29. Tropical Americas and Caribbean Region Roadmap
30. Marine Spatial Planning Addressing Climate Effects - Ocean Decade
31. MSP Global International Guide on Marine Maritime Spatial Planning
32. Engaging Indigenous Peoples and local communities, and embracing indigenous and local knowledge in marine spatial planning
33. East Inshore and Offshore Marine Plan Areas - Statement of Public Participation
34. A sustainable blue economy may not be possible in Tanzania without cutting emissions
35. Orkney Islands Regional Marine Plan Consultation Draft
36. MSPACE Early Warning System: Climate-smart spatial management of UK fisheries, aquaculture and conservation
37. The Seychelles Marine Spatial Plan
38. Seychelles climate risk mapping
39. South West Marine Plan Modifications: overview and summary of consultation
40. Key components of sustainable climate-smart ocean planning
41. Magenta Book: Central government guidance on evaluation
42. The North East Marine Plans Documents
43. North East, North West, South East and South West Marine Plans Approach to Monitoring
44. Three-year report on the North East Inshore and North East Offshore Marine Plan

ANNEX 1 – KEY PROJECT ENGAGEMENT ACTIVITIES

Building on the engagement activities conducted during the production of the MCCIP UKOT climate change assessment, a series of engagement activities were undertaken to inform the outputs for this project. These were:

- Distribution of **UKOT CSMSP flyer** to introduce the concept of CSMSP to the UKOTs and provide an outline of project activities

- **Online survey** of marine climate change management and stakeholder activities in the UKOTs and interest in CSMSP

- **Workshops**. This project's capability workshops included around 100 participants from across the UKOTs, as well as relevant UK organisations (e.g. government agencies and NGOs) with an interest in the Territories. Around 400 individual responses on CSMSP enablers and blockers, relevant governance mechanisms (including specific climate change policies and plans), marine sector and public engagement, marine use maps, and applied marine planning projects emerged form those workshops and have informed this Roadmap. These workshops were delivered over two sessions:

  - Introduction to CSMSP for the UKOTs, on 30th January 2024.
  - Capability workshop to explore enablers and barriers, on 10th September 2024.

- **Case study focus groups** to explore CSMSP in the context of emerging MSP processes in Anguilla and the Turks and Caicos islands (TCI). Two virtual focus group meetings were held:

  - Anguilla government representatives, on 11th February 2025 and 12th March 2025.
  - TCI government representatives, on 25th February 2025.

A brief summary of the survey findings and workshop outputs can be found here, and the case studies output is here.

We would like to acknowledge the contributions from the **MCCIP UKOTs Working Group**, representing the UK Department of Food and Rural Affairs, the Marine Management Organisation, the UK Overseas Territories Association, the UK Foreign Commonwealth & Development Office, the Joint Nature Conservation Committee, Plymouth Marine Laboratory, and the Centre for Environment, Fisheries and Aquaculture Science.

This document should be cited as:

Queirós, A.M., Buckley, P., Frost, M., S Lincoln (2026). A roadmap towards climate-smart marine spatial planning in UK Overseas Territories. Marine Climate Change Impacts Partnership. DOI: 10.14465/2026.csp.01.rdp

MCCIP Marine Climate Change Impacts Partnership

PML Plymouth Marine Laboratory