18th SESSION IOCARIBE

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Intergovernmental Oceanographic Commission

Sub-Commission for the Caribbean and Adjacent Regions

Subcomisión para el Caribe y Regiones Adyacentes

Technical science meeting: Marine Spatial Planning and climate change

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Role of the Ocean in Climate Change

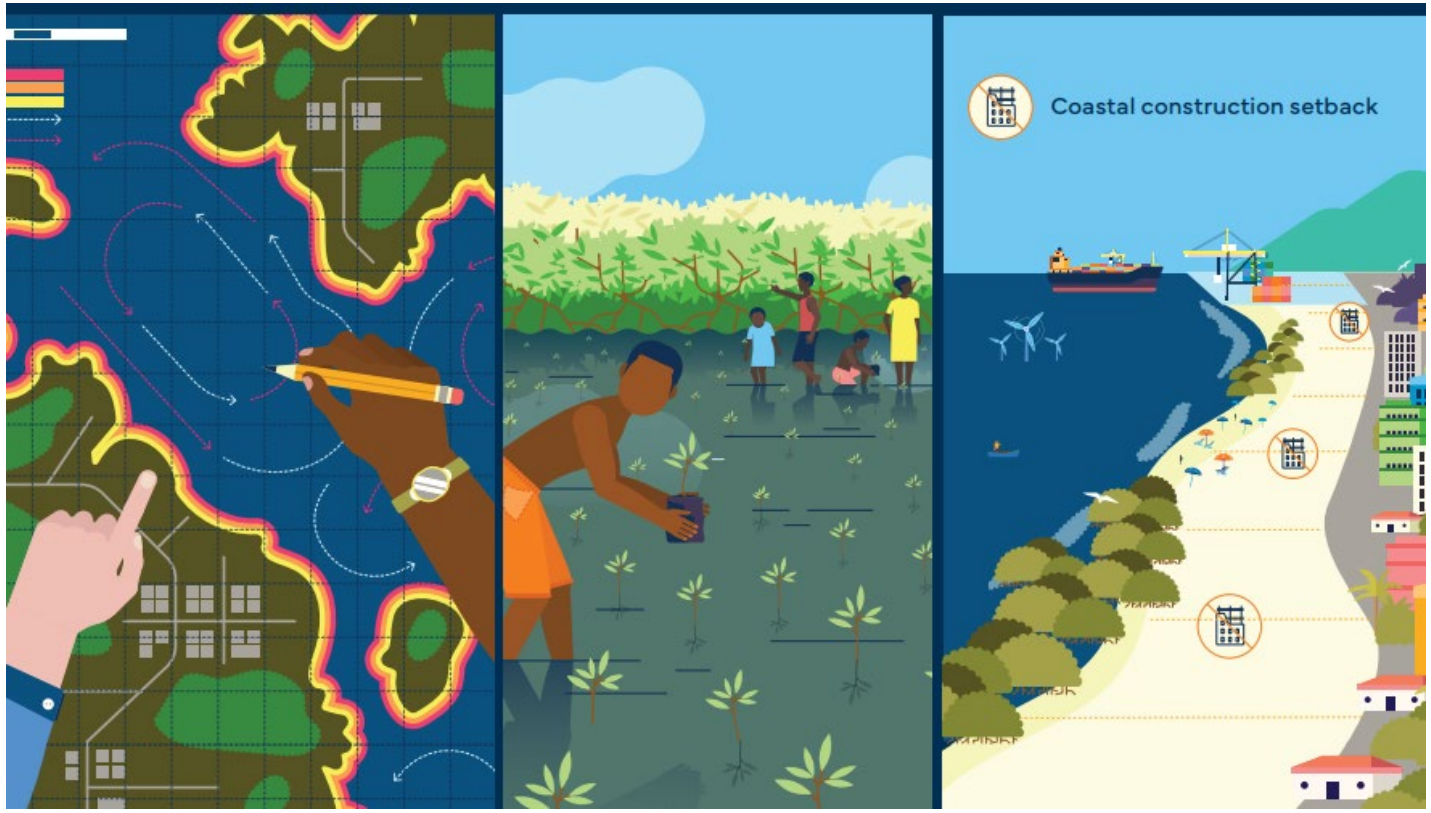
The ocean absorbs a significant portion of the heat from the atmosphere, It also acts as a carbon sink, absorbing about 30% of human-produced carbon dioxide (CO_2).

This process helps to moderate global temperatures but also leads to ocean warming and ocean acidification.

As the ocean warms, thermal expansion occurs, causing sea levels to rise. warmer oceans can also intensify hurricanes and typhoons.

Therefore, we need to take care of our oceans and being MSP SMART is one way to do it.

Marine Spatial Planning (MSP)



Marine Spatial Planning (MSP) is a process that guides where and when human activities occur in the ocean. It aims to balance ecological, economic, and social objectives by organizing the use of marine spaces in a sustainable way.

In Marine Spatial Planning we are looking at reducing conflicts between different marine users, such as fishing, shipping, and tourism.

As well as protecting marine ecosystems and biodiversity.

Climate SMART MSP

Climate Smart MSP is a proactive approach to marine spatial planning that incorporates climate change considerations to enhance the resilience of marine ecosystems and coastal communities

MSP processes need to include climate change, for example, risk assessment, adaptation strategies (to mitigate risks), it could be through ecosystem-based management, stakeholder engagement, adaptive management, spatial tools, and supportive policies, for example contribution to NDCs, establishment of Marine Protected Areas, adoption of an MSP draft plan, etc.

Variable impacts of Climate Change on sectors, civil society and biodiversity at different scales

Near the Equator, fisheries will be more affected due to shifts in species distribution at higher latitudes, and although there may be a gain in terms of biomass and potential catches (COACCH, 2019), this may not translate into increases in revenue because of the likely higher dominance of lower value species

Fisheries

1

By 2100, 630 million people could be living below the current high water line.

Tourism, shipping: Coastal Flooding

2

Over the last three decades, ocean acidity increased by 30%. Climate modelling for 2100 predicts further increases in acidity. More acidic waters will further weaken the shells of many organisms (e.g. oysters), slow the growth of some coral reefs and reduce the number of calcareous algae species

Marine Conservation: Ocean Acification

3

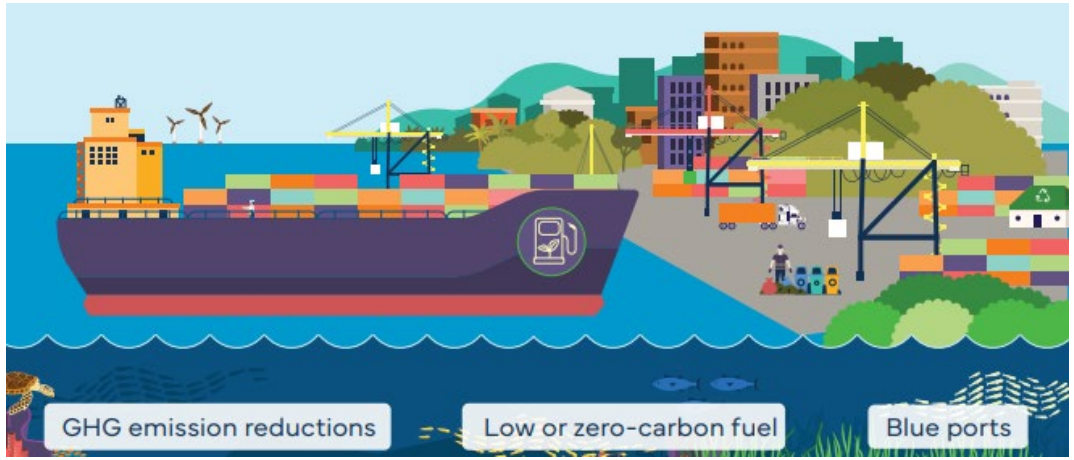
Key Areas for Climate Informed MSP

Nature Based Solutions

- Plantation of Kelp and seagrass meadows for example, can help decrease ocean acidification locally and provide refuge for vulnerable shell-forming organisms.
- Establishment of MPAs protecting blue carbon ecosystems constitute nature-based mitigation tools with clearly quantifiable carbon sequestration benefits

- Establishing limits to urban sprawl and removing or relocating barriers (hard structures such as seawalls, roads, buildings) will allow ecosystems to shift inland if space is available, and therefore increase their adaptability to sea-level rise.
- Plantation of Mangroves and seagrasses dissipate wave energy and trap sediments to build and maintain the seafloor and buffer the impacts of rising sea level and wave action from climate change.

Shipping and Transportation



- Mitigation measures to reduce ships' GHG emissions by at least 50% by 2050.
- Blue ports are important to reaching the target since 45%-55% of the emissions occur while ships are in port.
- Blue ports can contribute to mitigation and adaptation efforts by ensuring projects include GHG emission reductions, energy use and efficiencies and climate change resilience.

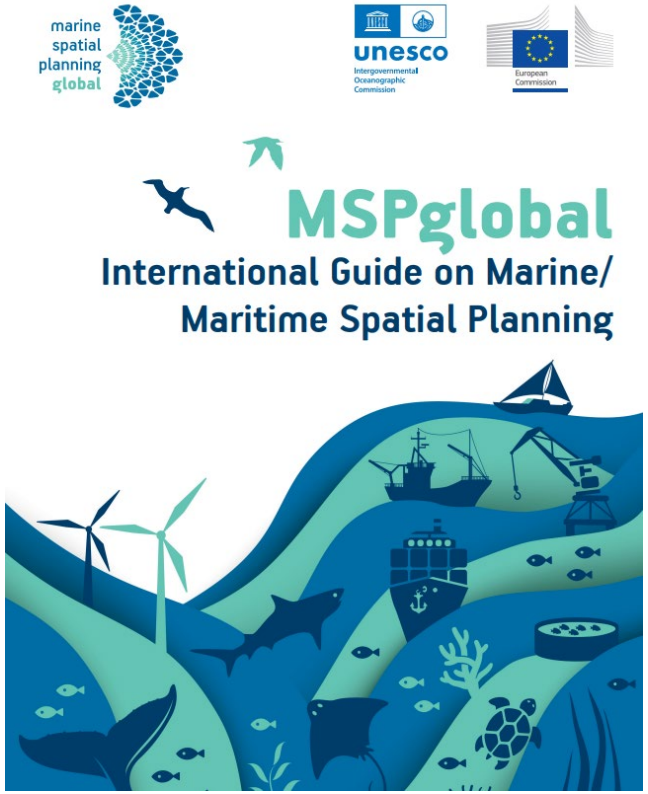
- Transitioning to low or zero-carbon fuel is key to achieving this target.
- MSP also needs to consider suitable marine areas for nature- based solutions to reduce the impacts of dredge spoils, rebuild or relocate climate-proofed blue ports and reconsider shipping channels

Fisheries and Aquaculture

- Marine spatial plans can use marine protected areas, other closures and fish management measures to adapt to climate change impacts.
- Other approaches include “dynamic zoning”, which facilitates changing area uses and regulations in response to resource distribution dynamics.
- Aquaculture’s potential role to mitigate climate impacts may include bio-extraction using seaweeds.
- Using feed-efficient species or genetic strains that reduce GHG emissions, and tolerate a wide range of temperature and salinity levels

Offshore Renewable Energy

- Oil and Gas energy can be replaced by Offshore wind turbines, floating solar photovoltaic, and wave, tidal, salt gradient and ocean thermal conversion energy technologies.
- A typical 500 MW offshore wind project can reduce CO2 emissions by 945,000 tons annually . It also has a role in achieving the 1.5°C pathway by contributing to mitigating carbon emissions.



- Setting the Scence: Identify appropriate governance/regulatory frameworks dealing with climate change and marine resources (tenured and not tenured) and relevant institutions, and include them in all MSP processes. Integrate NDCs into MSP and implementation.
- Designing the Planning Process: Include local stakeholders and communities to evaluate and validate historical climate change, current impacts, and propose climate change adaptation and mitigation actions.
- Assessment of planning: Consider potential economic opportunities arising from decarbonized blue investments, including offshore wind and as drivers of revenue through international carbon markets.

Upcoming MSP Capacity Building Products

▪**Complementary Guides UNESCO-IOC & European Commission:** Biodiversity inclusive MSP (w/UNEP; reviewed by CBD Secretariat & OBIS)
- Climate-smart MSP (reviewed by UNFCCC and IOC/OSS)

▪**Data Toolboxes:** How to develop a Spatial Data Infrastructure for MSP (w/IODE)
How to integrate ocean observation into MSP (w/GOOS & OBIS)

▪Engaging **Offshore Wind Sector** (w/UNGC)
- Sector overview
- Good practices

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THANK YOU
MUCHAS GRACIAS
MERCI BEAUCOUP

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