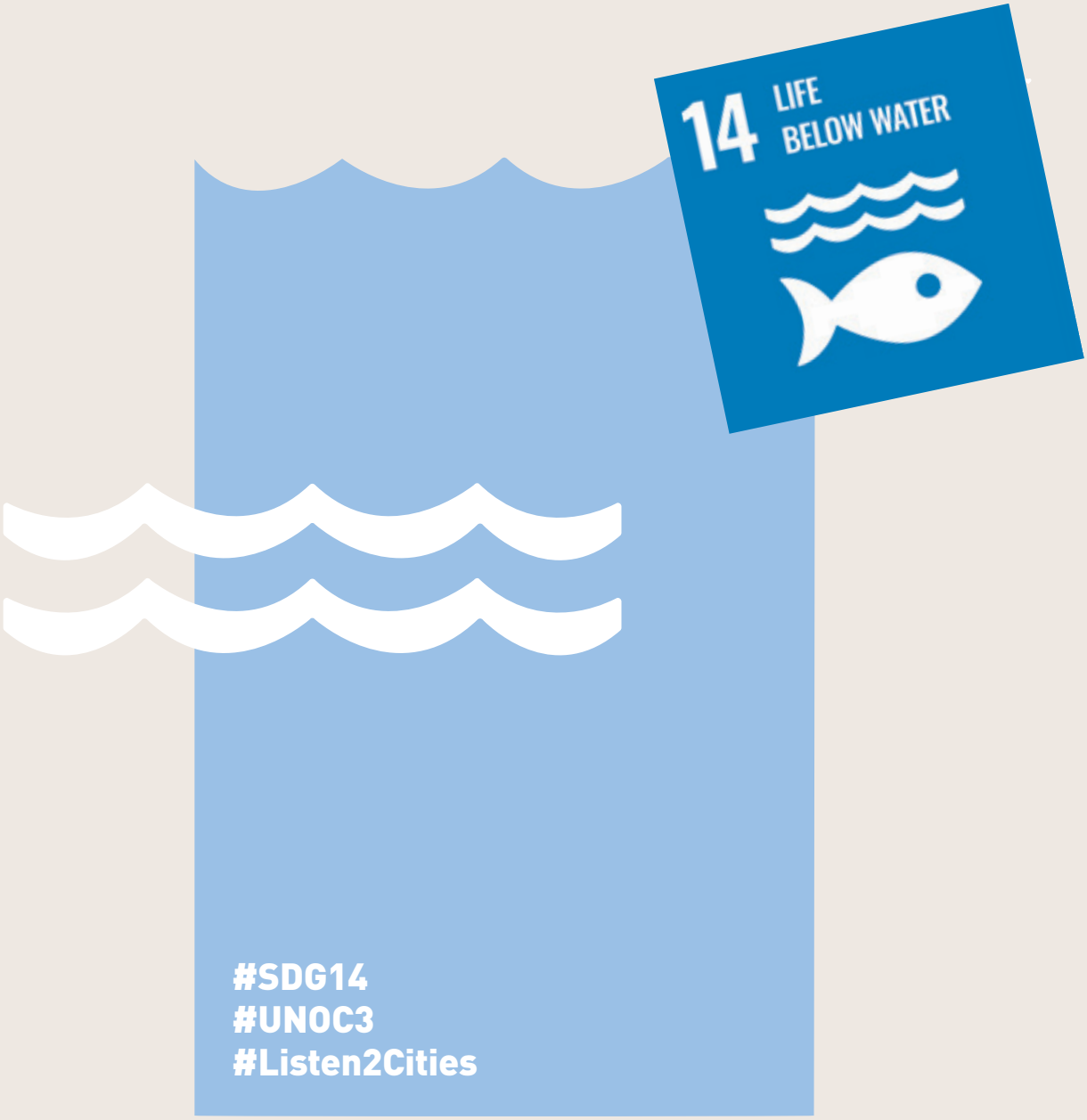
Localizing the

SDGs

UN OCEAN CONFERENCE NICE 2025 FRANCE

Localizing SDG 14 and the 2025 UNOC3 Ocean Action Panels



GLOBAL TASKFORCE OF LOCAL AND REGIONAL GOVERNMENTS

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1. INTRODUCTION

The ocean is fundamental to life on Earth. It covers 75% of the planet's surface, holds 97% of its water and accounts for 99% of the Earth's living space by volume.[1] Sustainable Development Goal (SDG) 14, Life Below Water, which is under assessment at this year's High-Level Political Forum (HLPF), is crucial for local and regional governments (LRGs). They play a key role in protecting maritime, coastal and freshwater ecosystems as well as in regulating pollution and promoting sustainable blue economies that support local livelihoods and climate resilience.

Since the launch of the 2030 Agenda in 2015, two UN Ocean Conferences have taken place (UNOC1 in 2017 and UNOC 2 in 2022). Ten years after the UN Climate Change Conference (COP21) and the Paris Agreement, UNOC3 will be held in June 2025 in Nice, France. The cohosts will be the governments of France and Costa Rica. UNOC was created to bring together governments, civil society, the private sector, academia and the scientific community, philanthropic organizations, Indigenous Peoples and local communities to discuss the implementation of SDG 14. Yet, as the UN Secretary-General's Special Envoy for the Ocean recognized,[2] **SDG 14 remains one of the least funded SDGs, while there is an urgent need for accelerated ocean action due to still-very-fragmented, global ocean governance**. To help bridge this gap, access could be expanded to dedicated funding streams, such as the Global Environment Facility's Blue Economy Financing Project or the Green Climate Fund's ocean resilience programs.

The Sustainable Development Goals Report 2024 states that "efforts to address significant challenges from eutrophication, worsening acidification, declining fish stocks, rising temperatures and widespread pollution remain uneven."[3] The 2024 SDG dashboards by region and income group show that SDG 14 faces either significant or major challenges across all regions, with positive trends stagnating or declining particularly in low-income countries and small island developing states (SIDS). Key actions are needed, such as "implementing sustainable fishing practices, expanding marine protected areas to safeguard key biodiversity areas, increasing capacities to monitor ocean health and addressing the pollution that is choking waterways."

1. "Goal 14: Conserve and sustainably use the oceans, seas and marine resources," United Nations, accessed May 13, 2025, https://www.un.org/sustainabledevelopment/oceans/.
2. "Here's how to mobilize for Sustainable Development Goal 14 ahead of UN Ocean Conference 2025," World Economic Forum, October 21, 2024, https://www.weforum.org/stories/2024/10/sustainable-development-goal-14-un-ocean-conference-2025/.
3. United Nations, *The Sustainable Development Goals Report 2024*, (2024), https://unstats.un.org/sdgs/report/2024/The-Sustainable-Development-Goals-Report-2024.pdf.

Climate change amplifies these pressures. Millions of people are increasingly affected by both chronic and acute climate-related hazards, whether related to temperature (e.g. heatwaves, permafrost thawing), wind (e.g. hurricanes, storms, tornados), water (e.g. sea level rise, precipitation variability, droughts) or solid mass (e.g. coastal erosion, soil degradation or erosion, landslides).[4] As the OECD shows, 6% of touristic beaches in Galicia (Spain) are at risk of coastal flooding. Floods cost 60–70 million USD on average in the Lower Mekong River Basin, and hurricanes Irma and Maria (2017) caused 741 million USD in tourism-revenue loss in the Caribbean.[5]

As key governance actors that are closest to the affected populations, LRGs are at the forefront of these challenges. **Cities and coastal regions are already taking action to protect communities, infrastructure and ecosystems from climate-related ocean threats**. However, their role is still insufficiently recognized in global ocean governance and financing mechanisms. Ensuring a resilient and sustainable ocean future requires stronger multilevel governance, in which LRGs play a strategic role in designing and implementing effective policies. Human and non-human rights to healthy, clean and sustainable, coastal, marine and freshwater environments must be fully recognized at local, national, regional and global levels.

Based on that assessment and those recommendations, the overarching theme of UNOC3 will be "Accelerating action and mobilizing all actors to conserve and sustainably use the ocean." There will be ten so-called "Ocean Action Panels" related to pollution, climate change, biodiversity, fisheries, the blue economy, knowledge, cooperation, finance, and coastal and marine ecosystem-based management. To ensure real impact, these discussions must fully integrate the leadership, expertise and initiatives of LRGs, which are already pioneering solutions for sustainable ocean governance and adaptation, as recognized by the UN Secretary-General's background note for UNOC 2025.[6] Indeed, national figures do not always reflect local initiatives, and efforts to enhance data collection and monitoring at the local level must be prioritized in these discussions. The upcoming 2025 UN Ocean Decade mid-term review presents a strategic opportunity to showcase LRG contributions and advocate for enhanced local-level ocean monitoring and financing.

This paper shall assess the state of SDG 14 localization and provide political recommendations for accelerating coastal and ocean action, with LRGs playing a critical role.

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4. European Commission, "Commission Delegated Regulation (EU) 2023/2486," June 27, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023R2486.

5. OECD, *The Blue Economy in Cities and Regions: A Territorial Approach*, (OECD Urban Studies, OECD Publishing, 2024), 29, https://doi.org/10.1787/bd929b7d-en.

6. United Nations General Assembly, "Preparatory process of the 2025 United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development: Note by the Secretary-General," May 13, 2024, https://sdgs.un.org/sites/default/files/2024-06/2408555E.pdf.

2. METHODOLOGICAL APPROACH

Co-constructing narratives that engage with stories that give meaning and security to people in transformational situations could improve the communication of SDG 14, its targets and its connections to other SDGs. The ten UNOC3 Ocean Action Panels should therefore be articulated through the ocean-based SDG model developed by David Obura[7] This model assesses the sustainability of human-nature interactions and offers clear decision-making guidance by looking at the interactions among SDG 14 and the rest of the SDGs. It analyzes the state and changes of the ocean as a form of commons, the direct and indirect benefits arising from our sustainable interaction with it (Society and Economy) and the means of implementation that are necessary to achieve balance among the 2030 Agenda's environmental, social and economic goals (Governance).

It is crucial to approach SDG 14 as a goal that addresses the ocean as a form of global commons,[8] and this approach may be assessed through governance frameworks. That is why the means of implementation also build on and are complemented by the eight principles for commons governance proposed by Elinor Ostrom.[9] Among others, they include community engagement, monitoring and transparency, and sustainable financing. For instance, Ostrom's principle of community engagement is reflected in the locally managed marine areas (LMMAs) approach, which empowers coastal communities to regulate and benefit from sustainable ocean use.

To assess the state of SDG 14 localization, this paper aligns the UNOC3 Ocean Action Panels with the above SDG narrative. The SDG 14 targets are localized and articulated with other SDGs and principles as follows:

7. David O. Obura, "Getting to 2030 - Scaling effort to ambition through a narrative model of the SDGs," *Marine Policy* 117, (2020), https://doi.org/10.1016/j.marpol.2020.103973.

8. The global commons have generally been defined as consisting of several interrelated vital components, including the climate system, Earth's biosphere (water, the ozone layer, the ocean, ice sheets and glaciers) — Ishii, N., Lafortune, G., Esty, D., Berthet, E., Fuller, G., Kawasaki, A., Bermont-Diaz, L. and Allali, S, *Global Commons Stewardship Index 2024*, (Yale Center for Environmental Law & Policy, and Center for Global Commons at the University of Tokyo, 2024), https://s3.amazonaws.com/sustainabledevelopment.report/2024/2024-global-commons-stewardship-index.pdf. UCLG understands the commons as those critical elements which humanity depends on, including the ocean and water; the commons are essential resources, services and social practices that should be collectively managed under democratic principles of participation, inclusion, equity and intergenerational justice to ensure sustainability for all forms of life. - UCLG, "Press Release FEE: The Transforming Power of the Commons for a Sustainable Future," May 5, 2023, https://uclg.org/new/press-release-fee-the-transforming-power-of-the-commons-for-a-sustainable-future/.

9. Elinor Ostrom, "Governing the commons: The evolution of institutions for collective action," Cambridge University (1990).

Table 1. Achieving SDG 14 localization

SDG targets	Interrelated SDGs	UNOC3 Ocean Action Panels	Ocean dimensions (Obura 2020)
14.1 14.2 14.5		b. and d. Addressing marine pollution of all kinds and marine- and coastal-ecosystem conservation and management	**The ocean as a form of commons** Ocean health and coastal-asset health, impacted by climate interactions, generate ecosystem services...
14.2 14.3 14.5		e. Leveraging ocean-climatebiodiversity interlinkages	
14.4 14.6 14.b		a. Fostering sustainable fisheries management and small-scale fisheries support	**Societies and economies** ... that support income and jobs across multiple economic sectors, through extraction and use of resources; provide infrastructure for innovation, potential energy solutions and growing coastal communities and cities; contribute to reducing poverty and hunger, improving health, strengthening gender and social equity...
14.7		f. Advancing sustainable ocean-based economies, sustainable maritime transport and coastal community resilience, leaving no one behind	
14.b		g. Promoting sustainable food from the ocean to eradicate poverty and ensure food security.	
14.2		c. Promoting and supporting all forms of cooperation, especially at the regional and subregional levels	**Means of implementation** ... through governance mechanisms, institutional and stakeholder investment and participation, and which are informed by awareness and knowledge.
14.a		h. Increasing ocean-related scientific cooperation, knowledge, capacity building, marine technology, and education to strengthen the science-policy interface for ocean health	
14.c		i. Enhancing the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the UNCLOS.	
		j. Mobilizing finance for ocean actions in support of SDG14	

Source: authors

3.

ASSESSING THE STATE OF THE OCEAN: FROM GLOBAL TO LOCAL PROCESSES

In 2009, a report entitled An Assessment of Assessments was published under the auspices of the UNEP Regional Seas Programme and the IOC-UNESCO. One of its recommendations was to "develop integrated ecosystem assessments that can inform on the state of systems rather than just individual sectors or ecosystem components and which include social and economic aspects."[10] **The reason was that the blue economy includes non-market benefits provided by freshwater, coastal and marine ecosystems (e.g. natural river systems, lakes, wetlands, mangroves and coral reefs), such as provisioning services (e.g. seafood), regulating services (e.g. coral reefs and mangroves as flood protection barriers or carbon sinks), cultural services (e.g. recreational use of freshwater ecosystems) and supporting services (e.g. mangroves supporting fish nurseries).**[11]

More than a decade later, the European Commission published another Seascape Assessment[12] to analyze global ocean information and scenarios produced over the last five years (2018–2023) by existing organizations and processes. This updated assessment once again highlighted the persistent fragmentation of ocean-related information, which prevents decision-makers and stakeholders from developing a coherent, system-based approach to ocean management. As a result, land-ocean interactions remain inadequately integrated into governance frameworks, particularly at the local and regional levels.

As stated in the Sustainable Development Goals Report 2024,[13] **the continued lack of a unified ocean knowledge system limits the ability of LRGs to implement sustainable solutions effectively**. One of the few examples of stakeholder engagement in ocean assessment is the Ocean Health Index+, which allows independent groups to measure ocean health in their regions, countries, states and communities. This localized approach enables decision-makers to explore the variables influencing ocean health at smaller scales, where policy and management decisions have the most immediate impact.

10. UNEP & IOC-UNESCO, *An assessment of Assessments. Findings of the Group of Experts.pursuant to UNGA Resolution 60/30; start-up phase of a regular process for global reporting and assessment of the state of marine environment including socio-economic aspects*, (UNEP & IOC-UNESCO 2009), ISBN 978-92-807-2976-4.

11. OECD, *The Blue Economy in Cities and Regions: A Territorial Approach,* (OECD Urban Studies, OECD Publishing, 2024), https://doi.org/10.1787/bd929b7d-en.

12. European Commission, Directorate-General for Maritime Affairs and Fisheries, Brodie Rudolph, T., Jacquemont, J., *Seascape assessment: feasibility study for the establishment of an Intergovernmental Panel for Ocean Sustainability (IPOS)*, (Publications Office of the European Union, 2023), https://data.europa.eu/doi/10.2771/903406.

13. United Nations, *The Sustainable Development Goals Report 2024*, (2024), https://unstats.un.org/sdgs/report/2024/The-Sustainable-Development-Goals-Report-2024.pdf.

Regarding global trends in coastal and marine environments, the Global Resources Outlook 2024[14] highlights the three-pronged planetary crisis of climate change, biodiversity loss and pollution — which are issues central to the UNOC3 Ocean Action Panels. G7 and G20 policy-makers (the latter having recently created the Oceans 20 group[15]) refer to this report. This underscores the necessity of **involving governance actors at all levels, particularly LRGs, as they are already at the forefront of adaptation and mitigation efforts**.

Navigating the complexities of human-ocean interactions requires collaborative approaches that address challenges such as species migration; coastal erosion; sea level rise; and coastal, marine and inland pollution. These issues demand coordinated action through a territorial approach among LRGs, scientific institutions, businesses, policymakers, NGOs and Indigenous leaders.[16] In particular, LRGs play a critical role in ensuring that policies and adaptation strategies respond to the realities of coastal communities.

Although data generation and knowledge sharing have increased,[17] further reinforcement is required to enhance both the accuracy and accessibility of ocean-related information. This data is not only produced by scientific research but also by an increasing number of citizen-driven initiatives that promote participatory governance and resource management. Initiatives focused on marine plastics, beach cleanups, education and awareness-raising have demonstrated the power of grassroots engagement. By scaling up local initiatives through networking and partnerships, their impact can be amplified globally.

However, while local actions are crucial, they cannot address large-scale challenges such as ocean warming, sea level rise, acidification and deoxygenation on their own. **In this context of policy- and competency fragmentation, local and regional governments are taking ownership of SDG 14 localization, which is currently off-track**.

Thus, it is crucial to analyze shifts in local-level approaches to SDG 14 implementation to enhance national and global coordination. This will enable the mainstreaming of best practices and ensure that local innovations are effectively integrated into broader frameworks. A structured assessment of these locally led transformations is essential to achieving sustainable management of ocean- and coastal-ecosystem management.

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14. United Nations Environment Programme, *Global Resources Outlook 2024: Bend the Trend - Pathways to a liveable planet as resource use spikes.* (International Resource Panel 2024), https://wedocs.unep.org/20.500.11822/44902.

15. G20 Brasil 2024, "Oceans 20 (O20)," accessed May 13, 2024, https://g20.gov.br/en/g20-social/engagement-groups/oceans-20-o20.

16. OECD, *The Blue Economy in Cities and Regions: A Territorial Approach*, (OECD Urban Studies, OECD Publishing, 2024), https://doi.org/10.1787/bd929b7d-en.

17. United Nations Environment Programme, *Measuring Progress: Water-related ecosystems and the SDGs*, (2023), https://wesr.unep.org/measuring-progress/water-related-ecosystems-and-sdgs/sdgs/pdf/DEWA_Measuring_Progress_2023.pdf.

4.

GLOBAL SDG 14 IMPLEMENTATION TRENDS: RESPONSES AND ACTIONS AT LOCAL AND REGIONAL LEVELS

This section provides a broad framing of SDG 14, recognizing that its targets and indicators do not always directly align with the competencies of LRGs. Drawing on global and regional data, this section assesses the current state of SDG 14 implementation, identifies key trends and examines how LRGs are both impacted by and contributing to progress. This section also highlights key LRG-led initiatives aimed at preserving marine ecosystems, reducing pollution, maximizing ecosystem services, promoting sustainable marine resource management, and fostering equitable and inclusive ocean governance.

4.1 The ocean as a form of commons: ocean health and coastal-asset health impacted by climate change

4.1.1 Addressing marine pollution and coastal ecosystem conservation (targets 14.1, 14.2 and 14.5)

Coastal areas encompass transitional aquatic systems (SDG 15) at the convergence of freshwater (SDG 6) and seawater, including river mouths, coastal lagoons, salt marshes and mangroves. These ecosystems provide essential services such as natural protection against sea level rise and extreme weather events (SDG 13). However, only 16% of the world's coastal regions remain ecologically intact, while 48% are heavily impacted by human activities. Additionally, in 84% of countries, more than half of coastal areas have experienced significant degradation.[18]

The increasing intensity of human activities continues to exert pressure on aquatic ecosystems, affecting future generations. Ocean acidification continues to increase; it has risen by 30% compared to pre-industrial levels and impacts marine biodiversity and regional climate patterns. When combined with ocean warming and deoxygenation, these factors push marine ecosystems to critical thresholds.[19]

Climate-induced changes in rainfall patterns may result in extreme flooding, carrying plastics, nutrients and pollutants across vast distances. All this will affect coastal and marine ecosystems (e.g. sand dunes, wetlands, beaches, intertidal flats, mangroves, seagrass beds, kelp forests, coral reefs), which in turn will affect coastal and island communities and threaten food security in those that are particularly reliant on small-scale fishing.

[18] Williams, Brooke A., James EM Watson, Hawthorne L. Beyer, Carissa J. Klein, Jamie Montgomery, Rebecca K. Runting, Leslie A. Roberson et al., "Global rarity of intact coastal regions," *Conservation biology 36*, no. 4 (2022), https://doi.org/10.1111/cobi.13874.

[19] Statistics Division of the United Nations Department of Economic and Social Affairs, "The Sustainable Development Goals. Extended Report 2024; 14 Life Below Water," (2024), https://unstats.un.org/sdgs/report/2024/extended-report/Extended-Report_Goal-14.pdf.

Given the rapid acceleration of climate-related pressures, **coastal infrastructures and urban areas face risks that may unfold far sooner than originally projected**.[20] To respond to these cumulative threats, **an ecosystem-based approach (target 14.2) must integrate ecological, social and economic considerations into marine and coastal governance**, and it must align with principles outlined in the Convention on Biological Diversity — from watersheds through coastal areas, to offshore marine waters. These integrated approaches include many activities, such as the protection of coastal and marine areas (target 14.5). A key example is the **Baltic Sea Challenge**, launched by the mayors of **Turku** and **Helsinki** (Finland) in 2007.

This initiative fosters inter-city cooperation in water conservation. Similarly, the **Espoo Baltic Sea Action Plan** (2024–2028) (Finland) applies an ecosystem-based approach across 42 targeted measures, addressing challenges such as eutrophication, biodiversity loss and marine pollution. Another noteworthy initiative is **Istanbul**'s (Türkiye) urban water management plan (2018–2024), which integrates water supply, rainwater collection, river management and wastewater treatment into a comprehensive governance framework. Through the VaLEUr-Gabès project, the **Metropolitan Area of Barcelona** (Spain) reinforces **Gabès**' (Tunisia) capacities on water management in a context of climate crisis — specifically targeting municipal rainwater planning to face the challenges of a semi-desert climate, the chemical industry, and scarce marine and coastal resources.

Over the past 30 years, coastal oxygen dead zones have increased tenfold due to excessive nutrient runoff.[21] To counteract these challenges, LRGs are implementing ecosystem-based management strategies that integrate freshwater- and marine conservation efforts.

For example, various LRGs have launched The Sea Starts Here awareness campaigns to emphasize upstream pollution prevention, such as **San José** and **Desamparados** (Costa Rica); **Chiclana** and the district of Sarrià-Sant Gervasi in **Barcelona** (Spain); and **Collioure**, **Villerville**, **Saint-Malo** and **Rouen** (France). In **Yala** (Thailand), local policymakers have institutionalized community participation in waste management. Relevant training on integrated solid waste management was given to residents and community leaders.

These examples underscore the pivotal role of LRGs in mitigating coastal and marine pollution, integrating conservation initiatives and broader urban planning strategies, and ensuring community engagement in environmental stewardship. Ultimately, achieving SDG 14 requires reinforcing local, regional and national cooperation; fostering innovative solutions and scaling up best practices to align local efforts with global sustainability goals.

Ecosystems are among the first to suffer from anthropogenic inflows of excess nutrients and pollutants, including nitrogen and phosphorus from chemical fertilizers[22] as well as plastic waste. These issues are particularly pronounced in rapidly growing coastal cities (SDG 11). Each year, over 8 million tons of plastic enter the ocean; 81% of this pollution originates in Asia, followed by Africa (8%), Latin America (5.5%), North America (4.5%), and Europe and Oceania (less than 1%).[23] Additionally, around 80% of the

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20. The OECD survey highlights that 86% of survey respondents see climate change as the top threat to the blue economy at the local level. Disaggregated survey results indicate that cities and basins consider climate change threats the greatest (90% and 82% respectively), while regions consider environmental threats the highest (82%). - OECD, *The Blue Economy in Cities and Regions: A Territorial Approach*, (OECD Urban Studies, OECD Publishing, 2024), https://doi.org/10.1787/bd929b7d-en.

21. United Nations Environment Programme, *Measuring Progress: Water-related ecosystems and the SDGs*, (2023), 99, https://wesr.unep.org/measuring-progress/water-related-ecosystems-and-sdgs/sdgs/pdf/DEWA_Measuring_Progress_2023.pdf.

22. Sachs, J.D., Lafortune, G., Fuller, G., The SDGs and the UN Summit of the Future. Sustainable Development Report 2024, (SDSN and Dublin University Press, 2024), 56, https://s3.amazonaws.com/sustainabledevelopment.report/2024/sustainable-development-report-2024.pdf.

23. "Build a resilient, equitable and circular waste management system to address plastic waste in our oceans," Resilient Cities Networks, accessed May 13, 2025, https://resilientcitiesnetwork.org/resilient-equitable-circular-waste-management-urban-ocean/.

270 billion m3 of municipal wastewater produced annually is discharged untreated, which further exacerbates coastal and marine pollution.[24]

To combat these challenges, coastal cities are actively implementing measures to regulate plastic waste and nutrient runoff, expand wastewater collection networks and establish water treatment plants. In **Melbourne** (Australia), an innovative project has developed new technologies to recover energy, water and valuable nutrients from wastewater. These are scalable alternatives to traditional wastewater treatment systems. In **Jinja** (Uganda), Cities Alliance and the LRG, in partnership with a social enterprise, are piloting a digital waste management approach. This initiative equips grassroots recyclers and waste agents with training, technical resources and financial tools, including a waste insure wallet system that allows them to redeem points for cash, school fees and microinsurance. A digital platform will link 9,000 households, 3,000 waste pickers and 300 waste agents to a formal plastics-recycling value chain. Their goals are to collect over 1,200 metric tons of waste — equivalent to over 10 million plastic water bottles — and reduce CO^2 emissions by more than 2,450 tons.

In **Panama City** (Panama) plastics recovered from beach and river cleaning are converted into raw materials for fabricating urban furniture installed in municipal parks. In **Kisii County** (Kenya), aquaculture effluents rich in nutrients are reused to irrigate kitchen gardens across the county. In **Gijón** (Spain), oyster waste is being analyzed for subsequent use as fertilizer. **Salvador** (Brazil) supports innovative businesses such as Gbcycle, a start-up that uses a biorefinery with a microalgae-based process to eliminate and transform pollutants into high-added-value biomass and bioproducts to prevent waste and pollutants from entering the city's coast and ocean.[25] In **Mombasa** (Kenya), the Urban Resilience Programme has integrated climate-responsive planning with wastewater- and solid-waste-management strategies into informal settlements prone to flooding and marine pollution. Co-financed by the national government and international donors, the initiative created local composting stations, supported youth-led waste cooperatives and introduced a nature-based stormwater system using bioswales and wetlands. These interventions reduce pollution loads entering the Indian Ocean and build community capacity, reinforcing the role of LRGs in bridging the gap between service delivery and environmental protection.

Often, restoration efforts are combined with coastal, marine and freshwater plans;[26] instruments such as marine protected areas (MPAs); and other effective area-based conservation measures (OECMs). **Because MPAs are unevenly distributed, there is a strong need to build coherent MPA networks at subnational, national, regional and global levels**. Indigenous Peoples live on many of the islands where nations have designated large, remote MPAs. This requires fair, diverse and equitable representation and inclusion in the decision-making process, including in monitoring.[27] Interestingly, at a larger scale, the currently developing concept of maritime transport blue corridors[28] can help connect relevant areas like MPAs or OECMs to Ecologically and Biologically Significant Areas (EBSAs). This facilitates the safe movement of species to all their essential habitats and functional areas. **Durban**'s (South Africa) Green Corridors initiative demonstrates how LRGs can reduce marine pollution at source

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[24] United Nations Environment Program, "Sustainable Development Goals Policy Brief; Oceans: Marine Pollution," (2017), https://wedocs.unep.org/bitstream/handle/20.500.11822/22331/SDG_Brief_001_MarPollution.pdf?sequence=1&isAllowed=yf.

[25] OECD, *The Blue Economy in Cities and Regions: A Territorial Approach*, (OECD Urban Studies, OECD Publishing, 2024), https://doi.org/10.1787/bd929b7d-en.

[26] Ibid

[27] Beth Pike, "Where is Global MPA Coverage Concentrated?," Marine Conservation Institute (2024), https://marine-conservation.org/on-the-tide/largest-100-mpas-and-ecoregions/.

[28] "Blue Corridors," European Maritime Spatial Planning Platform, European Commission, accessed May 13, 2025, https://maritime-spatial-planning.ec.europa.eu/practices/blue-corridors.

while restoring freshwater-marine linkages. By working with community groups to clean river catchments, remove invasive species and rehabilitate degraded land along watercourses flowing into the Indian Ocean, the city improves water quality, biodiversity and local climate resilience. This integrated model directly advances SDG 14.1 by intercepting land-based pollution and supports urban nature-based solutions aligned with SDGs 6 and 11.

Until now, OECMs have been under-utilized, despite the framework recognizing that conservation outcomes are possible outside protected areas. The people that govern those natural resources should be valued, respected and supported. Doing so could promote a new conservation model that fosters inclusive approaches and the equitable governance of land, forests, freshwater and the ocean, to achieve long-term conservation as well as social, economic and cultural wellbeing.[29]

Community-based and co-management approaches between LRGs and communities are key strategies for marine conservation and sustainable management. LMMAs have spread throughout SIDS in the South Pacific. In Fiji, about 60 LMMAs involving 130 communities and their local/traditional authorities have been officially declared. They designate reefs or include grass areas and mangroves. In their initial planning for an LMMA, LRGs and communities typically prioritize the need to generate greater local income and see a restored environment. [30]

4.1.2 Ocean-climate-biodiversity nexus (targets 14.2, 14.3 and 14.5)

Biodiversity is one the best indicators of climate change (SDG 13). In one of its recent reports, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services states that "the underlying causes of biodiversity loss and nature's decline, combined with the magnitude of the multiple interconnected global crises, including climate change and pollution, seriously and irreversibly threaten human wellbeing and life on Earth, decreasing quality of life and leading to substantial economic costs." As mentioned earlier, "there is a serious risk of crossing several irreversible biophysical tipping points, including die-off of low latitude coral reefs, die-back of the Amazon rainforest and loss of the Greenland and West Antarctic ice sheets, with possible cascading negative impacts across linked, social and ecological systems."[31] While significant progress has been made over recent years towards safeguarding key biodiversity areas in North America and Europe, progress has stagnated overall — especially in Asia, Oceania and North Africa. Marine protected areas now cover 8.2% of coastal waters and the ocean, of which only 1.4% are international waters. In the Canadian Arctic, areas of particular ecological importance (such as **Tuvaijuittuq**), are now protected through the participation of LRGs and Inuit populations, whose role in marine Arctic ecosystems is expected to become even more critical as Arctic sea ice continues to decline at a rapid pace.

Through its Resilient Coastal Program, **Durban** (South Africa) exemplifies the power of local action in advancing SDG 14. **Da Nang**, a rapidly growing coastal city in Vietnam, has embedded climate- and biodiversity considerations into its urban planning by developing a comprehensive Resilience Strategy under the 100 Resilient Cities initiative. This strategy includes coastal wetlands protection, mangrove replanting and flood-sensitive zoning regulations. In partnership with academia and civil society,

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29. "OECMs: A new paradigm for area-based conservation," WWF, accessed May 13, 2025, https://www.worldwildlife.org/stories/oecms-a-new-paradigm-for-area-based-conservation.

30. "Learning Centre," Locally Managed Marine Area Network International, accessed May 13, 2025, https://lmmanetwork.org/learning-centre/.

31. IPBES, *Summary for Policymakers of the Thematic Assessment Report on the Underlying Causes of Biodiversity Loss and the Determinants of Transformative Change and Options for Achieving the 2050 Vision for Biodiversity of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, O'Brien, K., Garibaldi, L., Agrawal, A., Bennett, E., Biggs, O., Calderón Contreras, R., Carr, E., Frantzeskaki, N., Gosnell, H., Gurung, J., Lambertucci, S., Leventon, J., Liao, C., Reyes García, V., Shannon, L., Villasante, S., Wickson, F., Zinngrebe, Y., and Perianin, L., (IPBES secretariat 2024), https://doi.org/10.5281/zenodo.11382230.

the city developed decision-making tools to integrate coastal ecosystem health and infrastructure development plans. This approach demonstrates the practical value of the ocean-climate-biodiversity nexus for fast-growing coastal cities.

In coastal and marine environments, the most important stressors identified to date are chemical contamination, marine litter (target 14.1), plastics, nutrient- and organic enrichment (eutrophication/deoxygenation), climate change consequences (global warming, acidification — target 14.3 — and sea level rise), damage to seabed habitats (abrasion and extraction of non-living resources), introduction of non-indigenous (invasive) species and overexploitation of fish and shellfish stocks (target 14.6), including the effects of underwater noise.[32] Among these stressors, climate change is a major global threat to coastal and marine habitats, consequently changing the distribution of species that can survive and reproduce there.

Therefore, **there is a strong need for transformative change to shift our relationships with nature**. This calls for greater attention to the visions and practices of Indigenous Peoples, local communities and underrepresented groups. The synergetic coexistence of humans and nature within coastal ecosystems is a central tenet of the **Satoyama Initiative**, as applied in the Beibu Gulf in the northwest of the South China Sea, in China's **Guangxi Zhuang Autonomous Region**. This initiative aims to develop an interdisciplinary and multi-stakeholder participatory approach to create an OECM-like community-based conservation mechanism in a rich fishing area, which is home to endangered, threatened and protected[33] species, such as the white dolphin, horseshoe crab and mangroves. Apart from biodiversity outcomes, this kind of LRG-community-based management contributes to disaster risk reduction and the well-being of local communities, including health, economy, culture and education among others. ICLEI's Climate Neutral and Smart Cities Community of Practice includes 15 leading LRGs from Asia-Pacific to co-develop climate solutions through targeted strategies in circular economy, energy transition, sustainable urban planning, resilient mobility systems and innovative finance mechanisms.

In its "Map of solutions," the **Sea'ties project**, which is led by the Ocean & Climate Platform, identifies more than one hundred local adaptation initiatives to address sea level rise and related risks (erosion, submersion, salinization) in cities as diverse as **Southend-on-Sea** (UK), **Vlissigen** (The Netherlands), **Saint Louis** (Senegal), **San Diego** (USA), **Aichi** (Japan) and **Guayaquil** (Ecuador). These initiatives range from the development of nature-based solutions to accommodation- or protection measures, retreat management, capacity building, knowledge sharing and integrated coastal zone management plans, including climate change adaptation. Among these initiatives, one significant example is the Declaration of Mayors of 29 coastal municipalities of the Republic of Côte d'Ivoire, who agree to cooperate on coordinated and integrated management of their respective coastal areas. They have created a network of coastal municipalities focused on protecting their coastal environment and resources, which strengthens the capacity of LRGs and civil society to adapt to climate change. Another example is **Sustainable and Resilient Coastal Cities**, a network among cities along the North Sea and the English Channel, which includes seven coastal cities in four countries.

Coastal "blue carbon" ecosystems (e.g. mangroves, tidal marshes and seagrass beds) are known for their efficient CO_2 sequestration. These coastal habitats also serve as crucial

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[32] International Council for the Exploration of the Sea, "ICES ecosystem overviews," In Report of the ICES Advisory Committee. (ICES Advice 2021, Section 16.2), https://ices-library.figshare.com/articles/report/Technical_Guidelines_-_ICES_ecosystem_overviews_2021_/18638165?file=33417566

[33] Convention on International Trade in Endangered Species of Wild Fauna and Flora, United Nations Environment Program, "Appendices I, II and III," valid from 7 February 2025, https://cites.org/eng/app/appendices.php.

breeding grounds, nurseries and feeding areas for a diversity of marine life. Zanzibar's Blue Economy Strategy (2022–2027), which was developed through participatory processes with coastal communities, focuses on integrating biodiversity conservation, small-scale fisheries, aquaculture and tourism. LRGs, in conjunction with the Western Indian Ocean Marine Science Association and international partners, have supported community-led mangrove restoration and introduced seaweed farming for women's cooperatives. These initiatives link ecological protection with livelihood generation. By integrating coastal-resource governance and economic opportunity, this approach aligns closely with SDG 14's call for inclusive and sustainable marine use and showcases a replicable model for other small-island and coastal LRGs.

The variety of these local initiatives on coastal-ecosystem preservation and restoration simultaneously offers opportunities for nature-based approaches to climate-change mitigation and the protection of biodiversity and the ocean. Because freshwater and seawater are intrinsically linked through the global water cycle, water security should be considered a critical element for resilient blue economy sectors.[34] In Brazil, the state of **Pará** and the civil society organization *Rare do Brasil* are jointly implementing the *Pesca para Sempre* (Fish Forever) program to promote sustainable management of fishery resources and biodiversity conservation. The program strengthens community participation, particularly within marine extractive reserves and the coastal zones of Pará, where Indigenous populations engage in artisanal fishing. **Barranquilla** (Colombia) has begun works to recover the Mallorquin Swamp, a coastal lagoon on the western bank of the mouth of the Magdalena River, as it enters the Caribbean Sea. The project aims to restore mangroves and build an ecopark, which is part of the municipality's broader strategy to support migrants from Venezuela who have recently settled in informal communities around the lagoon. The **Smith Cove Blue Carbon Pilot Project** in the Port of **Seattle** (USA) is investigating how aquaculture and vegetation within port waters can effectively capture and store carbon.

A growing number of LRGs are localizing SDG 14 targets and indicators, often through Voluntary Local Reviews (VLRs), climate strategies and coastal plans that align with national SDG frameworks. In Japan, **Yokohama** includes coastal conservation and blue economy indicators in its VLR, linking local SDG 14 actions to the city's marine biodiversity targets and port-sustainability strategies. **Niterói** (Brazil) has embedded SDG 14 goals into its Municipal Climate Adaptation Plan, tracking coastal ecosystem resilience, flood mitigation from mangroves and urban beach restoration outcomes. This data is being used to inform its next climate budget cycle and is shared through Brazil's National SDG Commission.

4.2
Societal and economic benefits of sustainable nature use

4.2.1 Sustainable aquatic food systems (targets 14.4, 14.6, 14.7 and 14.b)

Sustainable management of the ocean and coastal areas provides both direct and indirect benefits, often referred to as ecosystem services, for societies and economies. Aquatic food plays a critical role in the livelihoods, food security and nutrition of over 600 million people globally, especially in developing countries that are vulnerable to climate change and humanitarian emergencies.[35] Aquatic food sources depend on fisheries (including lakes and rivers) and aquaculture (fresh- and marine waters).

34. OECD, *The Blue Economy in Cities and Regions: A Territorial Approach*, (OECD Urban Studies, OECD Publishing, 2024), https://doi.org/10.1787/bd929b7d-en.

Over the 25 years following the endorsement of the Code of Conduct for Responsible Fisheries, capture-fishery production remained relatively stable, while aquaculture production grew by 250%.[36] This growth helped meet the rising demand for aquatic food, especially fish feed. Fisheries contribute to increasing global incomes and expanding trade. In SIDS, fisheries' contribution to GDP showed promising growth, from 0.46% in 2019 to 0.51% in 2021.[37] In the Pacific SIDS, which are heavily reliant on fisheries, this contribution rose from 1.54% in 2019 to 1.63% in 2021.

At the same time, various legal-, policy- and institutional frameworks — particularly in North Africa and West Asia — are beginning to recognize and protect access rights for small-scale fisheries, which often face competition from larger corporations.[38] Despite economic growth, fishery sustainability is declining globally. While international efforts to combat illegal, unreported and unregulated (IUU) fishing have become stronger, it is estimated that **one in every five fish comes from IUU fishing**, which is often tied to labor- and human rights abuses.

International agreements and measures focus primarily on regulating large-scale aquaculture, industrial fisheries and IUU fishing. However, small-scale fisheries — which employ more than 90% of the world's fishers (half of whom are women) — are central to socio-economic development in local communities. There is a need to enhance aquaculture governance and expand legal, institutional and policy frameworks, particularly at the local level. FAO initiatives, such as the **Code of Conduct for Responsible Fisheries** and the 2014 **Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries**, have acknowledged the roles that LRGs and communities play in developing effective co-management strategies.

Some case examples of co-management approaches are:

- In Costa Rica's Gulf of Nicoya, municipal governments have supported small-scale fisheries by integrating mangrove conservation into local fisheries management. Under the leadership of local fishers' associations and supported by the Ministry of Environment and the municipality of **Paquera**, seasonal closures and restoration of degraded mangrove forests were introduced to boost fish nursery areas. Simultaneously, communities piloted responsible-fishing agreements, combining gear restrictions with habitat protection. This co-management model led to improved catch volumes and incomes over a three-year cycle, while safeguarding key coastal ecosystems — a direct demonstration of how nature-positive strategies enhance aquatic food production.

- In **eastern Indonesia**, co-management strategies led by LRGs and supported by traditional councils have aided sustainability by implementing area closures to manage coral reef fisheries.

- In the Philippines, the Local Government Code and the amended Fisheries Code Provision reserve a 15-km zone of municipal waters for the artisanal fisherfolk under the jurisdiction of coastal municipalities. This focuses on the significance of local autonomy, socio-economic conditions (especially of local communities and municipal fisherfolk), environmental sustainability and food

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35. WorldFish, Lala-Pritchard, T., Johnstone, G., *2030 Research and Innovation Strategy: Aquatic Foods for Healthy People and Planet*, Strategy:2020-38 (2020), https://worldfishcenter.org/strategy-2030/.

36. Fishery News, "FAO Forecasts Global Aquaculture to Contribute 59% of Total Fish Consumption by 2030," (2024), https://www.fishery.news/fao-forecasts-global-aquaculture-to-contribute-59-of-total-fish-consumption-by-2030/ .

37. Food and Agriculture Organization of the United Nations, "SDG Indicators Data Portal; Indicator 14.7.1 - Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries," accessed May 13, 2025, https://www.fao.org/sustainable-development-goals-data-portal/data/indicators/1471-value-added-of-sustainable-fisheries/en

38. Food and Agriculture Organization of the United Nations, "SDG Indicators Data Portal; Indicator 14.b.1 - Degree of application of a legal / regulatory / policy /institutional framework which recognizes and protects access rights for small-scale," accessed May 13, 2025, https://www.fao.org/sustainable-development-goals-data-portal/data/indicators/14b1-access-rights-for-small-scale-fisheries/sdg-14---indicators-of-fish-stocks-sustainability-of-fisheries-and-illegal-fishing/en.

security. In the province of **Palawan**, a grouper-livelihood program promoted sustainable, grouper aquaculture as an alternative to overfishing. With NGO support, LRGs provide hatchery-reared fingerlings for local fishermen to grow them to market size.

- To counter the decline of sea cucumber stocks in Madagascar, an LMMA that incorporates aquaculture as a conservation strategy was established in the **Velondriake** region. It represents one of the most extensive community-led marine-conservation networks in the Western Indian Ocean. Local fishing communities co-manage designated no-take zones, seasonal fishing closures and mangrove restoration projects. Supported by NGOs and national frameworks, these areas have recorded significant increases in fish biomass and coral recovery. The success of Velondriake has led to the replication of the model in 14 coastal districts. This exemplifies how LRGs and communities can partner to deliver both conservation outcomes and local economic benefits.

- In the **Lake Victoria Basin** in Uganda, LRGs have partnered with fisher cooperatives and youth-led enterprises to support the development of sustainable cage aquaculture, especially for tilapia. Faced with overfishing and declining wild stocks, the **Kalangala** District's local government provided regulatory backing, training and access to floating cage infrastructure. This initiative created alternative income streams for local fishers, reduced pressure on capture fisheries and promoted ecosystem recovery in overexploited nearshore zones. It also implemented gender-sensitive practices by targeting women and youth as direct beneficiaries of start-up support and marketing schemes. This initiative illustrates how LRGs can shape inclusive, aquatic food systems.

- **Iloilo** (Philippines) has become a national leader in promoting a localized, inclusive blue economy by simultaneously protecting marine ecosystems and supporting artisanal fishers. The city revitalized degraded mangrove forests, introduced regulated no-take zones and partnered with local cooperatives to develop eco-tourism ventures. Women and youth play leading roles in conservation tourism, contributing to income diversification, ocean literacy and ecosystem restoration. This integrated approach advances SDG 14.b and demonstrates how coastal cities can unlock blue economic potential for marginalized groups.

These co-management models are legally legitimate under decentralized governance structures, which ensures local autonomy and legal recourse in the case of conflicts. Partner agencies, such as NGOs and research organizations, have played a key role in facilitating these efforts through funding, training and ensuring local government engagement.[39]

4.2.2 Sustainable ocean-based economies: Leaving no one behind (target 14.7)

The ocean and blue economy can be powerful drivers of local and regional development. In SIDS, fisheries are crucial to the economy, representing 8% of GDP in Comoros (2017) and 1% in the Seychelles (2019).[40] The second progress report (2024) from the High Panel for a Sustainable Ocean Economy highlights growing commitments for equitable and inclusive ocean economies,[41] extending beyond ocean-based industries to include freshwater-based ecosystems.[42]

The ocean not only connects ecosystems but also people, driving economic activity and trade throughout ocean-based and land-based economies, while linking cultures and ecosystems in a unique and balanced way. In

[39] OECD, *The Blue Economy in Cities and Regions: A Territorial Approach*, (OECD Urban Studies, OECD Publishing, 2024), https://doi.org/10.1787/bd929b7d-en.

2017, **2.4 billion people lived in areas within 100 km of the coast**. The consequences of ecosystem degradation are not shared equally. The severity of its impact varies depending on factors like gender and socioeconomic status, often placing the greatest burden on vulnerable communities. Those with fewer resources and opportunities face disproportionate hardships, while the actions of more economically privileged groups often contribute to the environmental damage they endure.

The ocean economy encompasses traditional activities like maritime transport and aquaculture, as well as emerging sectors like renewable energy, food processing and high-tech marine products. **The sustainable development of the ocean economy can offer increased prosperity, jobs and well-being — provided there is an equitable distribution of benefits for current and future generations**.

Coastal communities and Indigenous Peoples are the historical stewards of the ocean. They play a crucial role in finding practical solutions by bridging the gap between traditional knowledge and scientific research and innovation.[43] Coastal cities are hubs for trade, industry and commerce. For example, coordinated planning across blue economy city sectors is a key objective in **Mombasa** (Kenya). The county government established a new Blue Economy Unit in order to effectively frame the blue economy sector through blue economy value addition, manufacturing, tourism, transport and logistics, and blue economy training, especially for the local youth population. A Mombasa Blue Economy Plan is under development. In Chile, **Valdivia** coordinates with rural communes and the Indigenous Mapuche communities to manage river-ocean ecosystems. This integrated territorial-planning process includes upstream pollution controls, estuarine habitat conservation and zoning rules for aquaculture development. With technical support from national agencies, coastal district councils in Mauritius have led participatory mapping of marine resource use and facilitated blue entrepreneurship incubators focusing on women and youth. The roadmap explicitly includes artisanal fisheries, coastal tourism and ocean farming as key pillars for equitable development. These efforts are supported by a decentralized Blue Economy Fund that provides seed capital for community-led marine innovations, which enhances local ownership and sustainability.

Beira (Mozambique) is vulnerable to storm surges and coastal erosion, so the city's approach integrates coastal resilience and blue economy strategies. With support from the World Bank and the African Development Bank, the city launched the Beira Master Plan for Urban Resilience, which aligns port infrastructure upgrades with ecosystem restoration in mangrove and dune systems. Local SMEs are receiving support to engage in low-impact aquaculture and ecotourism around rehabilitated coastal wetlands. This integrated planning approach not only protects critical infrastructure but also creates local economic opportunities that prioritize long-term environmental health.

LRGs that are engaged in ocean-based economies (such as maritime transport, fisheries, aquaculture and tourism) are actively working to reduce carbon emissions and transition to renewable energy sources to ensure sustainability. Ports are a focal point: globally, 50% of trade (by value) moves by sea, and ports contribute to local economies.[44] In a notable transatlantic collaboration, the

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40. OECD, *The Blue Economy in Cities and Regions: A Territorial Approach*, (OECD Urban Studies, OECD Publishing, 2024), 20, https://doi.org/10.1787/bd929b7d-en. Further examples of the importance of the blue economy for local economies: it represents 4.3% of the GDP of Barcelona (Spain) and 1.4% of the city's workforce; in the state of California (US), 1 in 9 jobs is connected to port-related activity.

41. Ibid. According to an OECD survey, job creation and economic growth are considered the most significant drivers for the blue economy at the subnational level, with respectively 90% and 88% of respondents deeming them "very relevant" and "relevant" drivers.

42. Ibid.

43. Intergovernmental Oceanographic Commission, *Ocean Decade Vision 2030; White PapersChallenge 4: Develop a sustainable and equitable ocean economy*, (UN Decade of Ocean Science for Sustainable Development (2021-2030), 2024), https://unesdoc.unesco.org/ark:/48223/pf0000390118.

Halifax Port Authority (Canada) and Hamburg Port Authority (Germany), together with their corresponding governments, are working to decarbonize the shipping corridor between the two cities. This effort includes the promotion of green hydrogen technology, regulatory measures, financial incentives, safety protocols and strong community engagement.

Complementing these shifts, **many LRGs and their communities are embracing circular-economy principles, focusing on reducing waste, reusing resources and recycling materials**. The Resilient Cities Network's Urban Ocean cities program and its Circularity Assessment Protocol help decision-makers identify opportunities to reduce waste leakage into the environment and promote circular materials management. Since 2019, the program has supported 12 cities globally; such as **Can Tho** (Vietnam), in advancing river-waste management and recycling facilities; **Chennai** (India), in developing near-zero-waste neighborhoods; **Melaka** (Malaysia), in improving river- and coastal-area cleaning and the city's recycling infrastructure; **Semarang** (Indonesia), in piloting an adaptive and inclusive waste-management model; and **Panama City** (Panama), in enhancing the recovery of recyclable material.

Particularly as climate impacts intensify, **LRGs are central to resilient urban planning and the delivery of equitable public services. In Miami-Dade County** (USA), the Connect 2 Protect initiative addresses the dual challenges of aging infrastructure and a failing septic system. By extending sanitary sewer services to residents that depend on septic tanks, the county is safeguarding public health and helping preserve critical ecosystems like Biscayne Bay. The program incorporates sensor technology that tracks stormwater- and wastewater flows. Miami-Dade's broader adaptation strategies are inspired by approaches used in the Florida Keys — such as elevating buildings on pilings and raising land levels using artificial fill — and demonstrate how cities are learning to live with water while maintaining essential public services.

In coastal regions, LRGs play a vital role in integrating conservation and economic development, ensuring that marine resources support livelihoods while preserving biodiversity. The municipality of **Santa Rosa**, in the Jambelí Archipelago (Ecuador), has launched a mangrove reforestation project aimed at combating coastal erosion, enhancing biodiversity and supporting sustainable livelihoods. Backed by local conservation ordinance and strong community participation, the initiative strengthens fisheries and supports ecotourism through planting 2,000 red mangrove seedlings across 4 hectares.

In **California** (USA), the state's Ocean Protection Council provides strategic direction and funding to initiatives such as the California Fisheries Fund, a revolving loan fund managed by California FarmaLink. It supports sustainable fisheries and strengthens port communities, especially where traditional financing is unavailable. Over five years, the state of Chiapas (Mexico) has also contributed to sustainable fisheries by providing 500 small fishing boats, over 4,061 fishing gear kits and marketing support. The initiative has benefited more than 28,706 fishers, through an investment of 1.1 million USD.

Because development at sea occurs in a three-dimensional, globally shared environment, it requires new forms of governance. Innovative models now combine renewable energy with sustainable marine use. For example, offshore wind is paired with low-trophic aquaculture to deliver clean energy, nutrient-rich seafood and ecosystem services, such as carbon capture.[45] In **Copenhagen** (Denmark), the Middelgrunden offshore wind farm is a prime example. It was developed by Københavns Energi (owned by

[44] Verschuur J., Koks E.E., Hall J.W., "Ports' criticality in international trade and global supply-chains," Nature Communications 13(1), (2022), https://doi.org/10.1038/s41467-022-32070-0.

[45] Maar, M., Holbach, A., Boderskov, T. et al., "Multi-use of offshore wind farms with low-trophic aquaculture can help achieve global sustainability goals," *Communications Earth & Environment* 4, 447, (2023), https://doi.org/10.1038/s43247-023-01116-6

the Copenhagen municipality) and the private cooperative Middelgrunden Vind (owned by 8,000 citizens). The farm includes 20 turbines that generate 100,000 MWh of electricity annually. It has also become a tourist attraction and offers in-person tours, visits to turbine foundations, climbing experiences, lectures and virtual excursions. This demonstrates how wind-energy infrastructure can also deliver educational and economic co-benefits.

4.3 Governance and governments: Means of implementation

4.3.1 Multilevel governance, finance and integration of action

Ocean governance frameworks at global, regional and national levels are still largely shaped by sector-based policies. This results in institutional fragmentation and limited coordination in addressing the complex dynamics of coastal and marine socio-ecosystems. **The road toward greater coherence lies in aligning policy frameworks across multiple SDGs, particularly SDGs 16 (peace and strong institutions), 10 (no inequalities), 5 (gender equality), 1 (no poverty), 17 (partnerships) and 4 (awareness and knowledge)**.

Equally critical is the need for vertical coherence across levels of government, from national policy objectives to local implementation. This requires alignment not only in strategy but also in regulatory instruments, budget allocations and institutional roles. Implementation is shaped by local realities and capacities, and it must account for dynamic feedback loops among levels of governance.[46]

Territorial approaches to marine and coastal governance enable collaboration across jurisdictions, sectors and knowledge systems. Across the world, more LRGs are adopting ecosystem-based management (EBM) approaches — including Integrated Coastal Zone Management (ICZM) and Maritime Spatial Planning (MSP) — to guide the sustainable use of marine resources. **EBM, ICZM and MSP frameworks are increasingly integrated into climate-change-adaptation planning, especially as urbanization and population growth put additional pressure on coastal ecosystems**.

LRGs are key in delivering services that directly affect coastal and marine health, such as waste management, sewage treatment and biodiversity protection. For example, long-degraded coastal environments in **Elefsina** (Greece) have improved in recent decades through the implementation of environmental regulations, modern infrastructure and a reduction in polluting industrial activity.[47]

In politically or economically unstable contexts, maintaining continuity of effort is especially crucial. **In many low-income countries and SIDS, coastal management initiatives remain fragmented and project-based**. In East Asia, the PNLG Network exemplifies effective collaboration among coastal cities. Member cities engage in regular policy-learning exchanges, joint workshops and exchange visits that have led to the adoption of integrated coastal zone management frameworks. In France, the **French Basque-Country Urban Community** designed and deployed a local strategy of coastal-risks management on the Basque shoreline to both preserve its attractiveness and safeguard man-made assets and populations. The local strategy has allowed the eight coastal cities to assess erosion and marine submersion risks up to 2043, as well as to compare different management scenarios. As an effective decision-making tool, this local strategy seeks to formalize management

46. International Council for Science (ICSU), *A guide to SDG interactions : from science to implementation*, (2017), https://council.science/wp-content/uploads/2017/05/SDGs-Guide-to-Interactions.pdf

47. Kontopyrakis, K.E., Velegrakis, A., Monioudi, I.N. et al., "Prioritizing environmental policies in Greek coastal municipalities," *Anthropocene Coasts 7*, 1 (2024), https://doi.org/10.1007/s44218-023-00035-5.

options to combat or adapt to the receding coastline by 2043. These coordinated actions help address transboundary marine pollution and expand marine protected areas, while also building institutional capacity. This model shows that sustained intermunicipal cooperation not only enhances local implementation but also strengthens advocacy for international funding and policy support.

Local stewardship will only succeed if perceived as fair and not detrimental to people's quality of life.[48] This underscores **the need to nest local initiatives within larger regional, national and international frameworks** and to connect them to long-term funding mechanisms (such as the **UNEP Regional Seas Programme**) or **Large Marine Ecosystems frameworks**, which are both supported by the Global Environment Facility.

Australia's Great Barrier Reef Marine Park Authority provides a leading example of multi-level and multi-stakeholder governance. Local coastal management plans developed by **Queensland** municipalities are integrated into national policies and international research networks. Through participatory planning — engaging traditional owners, scientists and local businesses — the Reef regime has implemented ecosystem-based management strategies that safeguard both marine biodiversity and the livelihoods of coastal communities. Innovative financing mechanisms, including environmental bonds and public-private partnerships, further support sustainable management and demonstrate how coherent policy action across different government layers can deliver long-term benefits.

The costs of coordinated inaction have been starkly illustrated by the OECD, which quantified the estimated economic value of blue ecosystems and the projected consequences of their degradation (Table 2).

Table 2. Estimated value and consequences of inaction on blue ecosystems

Ecosystems	Estimated value of ecosystem services	Status and projections	Examples of consequences of action or inaction
Rivers, streams, lakes, aquifers, inland wetlands (freshwater)	58 trillion USD per annum or 60% of GDP	One third of global freshwater biodiversity has already been lost and further loss is projected by 2050	19% of global GDP comes from watersheds with high-to-very-high physical water risk
Peatlands (freshwater)	17.5 trillion USD for 2011	15% of the world's peatlands are currently drained and degraded	Degradation at current rates will consume 41% of the remaining CO_2 emissions budget to keepglobal warming within +1.5 °C
Mangroves (coastal)	2.7 trillion USD for 2011	7.6% of mangrove cover was lost or degraded between 1996 and 2016	Without mangroves, global flood damage would cost an additional 65 billion USD and 15 million more people would be at risk of floods each year

Source: OECD, based on several sources[49]

[48] Olsen, S.B., and D. Nickerson, *The governance of coastal ecosystems at the regional scale : an analysis of the strategies and outcomes of long-term programs*, Coastal Management Report # 2243. (University of Rhode Island, Coastal Resources Center. Narragansett, R.I., 2023), ISBN #1-885454-51-1.

[49] OECD, *The Blue Economy in Cities and Regions: A Territorial Approach*, (OECD Urban Studies, OECD Publishing, 2024), 25, https://doi.org/10.1787/bd929b7d-en

The Seychelles' blue bond- and debt-for-nature swap initiatives have received global recognition for integrating local community stewardship and national marine conservation goals. Although this initiative is directed at the national level, proceeds are reinvested into marine protected areas that are co-managed by coastal communities. The initiative has supported sustainable fisheries, expanded protected zones and facilitated small-scale blue-enterprise development. It exemplifies how innovative finance can be channeled to local levels to deliver on SDG 14.5 and create sustainable coastal livelihoods aligned with SDG 8 and SDG 17.

At the same time, loss- and damage mechanisms must meaningfully include LRGs, especially in SIDS and vulnerable coastal areas. **While calculating monetary loss is vital for accessing climate finance, calculating non-economic loss — such as cultural heritage, displacement and traditional knowledge — requires direct community engagement and should inform how reparations are determined**. Instruments like the Loss and Damage Finance Facility must reflect both economic and sociocultural dimensions of loss.

4.3.2 Building trust and institutional arrangements to support long-term multi-stakeholder cooperation (target 14.2)

The first half of the 21st century presents interrelated challenges, from pandemics to armed conflicts and from biodiversity collapse to the mounting impacts of climate change. These challenges cannot be addressed by single disciplines or sectors. Collaborative approaches among national governments, LRGs, businesses, policy advisors, NGOs and local communities are needed to address issues such as shifting species distributions, coastal erosion, sea level rise and marine pollution.[50]

Trust is one of the most essential enablers of such cooperation, and it is one of the most difficult to build and sustain. It thrives most effectively in smaller-scale place-based settings, which means that **LRGs have a unique advantage in creating institutional arrangements that cultivate long-term, multi-stakeholder trust**. According to Ostrom, successful cooperation is shaped by well-defined boundaries, locally adapted rules, inclusive decision-making, effective community-led monitoring and graduated sanctions for violations. In this view, trust is not only interpersonal but also deeply institutional.

A case in point is the municipality of **Texel** (the Netherlands), where the local and provincial governments are on the board of the Duinen van Texel National Park. Participatory processes and science-policy dialogues are used to integrate diverse forms of knowledge into adaptive planning. For example, adjustments to municipal zoning regulations reflect dynamic changes in coastal geomorphology, which enables more responsive beach-nourishment strategies. Local knowledge and expertise is taken seriously — not just consulted, but embedded into formal planning mechanisms.

The **Basque Country** (Spain) has pioneered a model of building trust through multi-stakeholder advisory panels in coastal management. Local councils, fishing-community representatives, environmental NGOs, academic institutions and private-sector actors convene regularly to co-develop adaptive management plans and resolve conflicts over resource use. These transparent and inclusive forums have not only accelerated the implementation of innovative policies but also fostered a deep sense of collective ownership and mutual trust. These elements are key to ensuring lasting coastal resilience in politically and socially dynamic contexts.

The aforementioned examples illustrate that institutional trust cannot be imposed top-

50. ECOSOC President Ambassador Bob Rae, "Partnering as equals in co-creating a better future," Interview, (4 February 2025), https://www.un.org/en/desa/partnering-equals-co-creating-better-future.

down. It must be built over time through shared processes, participatory governance and recognition of diverse actors and knowledge systems. LRGs are well-positioned to lead this shift, given their proximity to communities and their ability to tailor institutional arrangements to specific socio-ecological realities.

4.3.3 Strengthening the science-policy interface with useful knowledge (14.2, 14.a)

Strengthening the science-policy interface is paramount to the sustainable management and protection of marine and coastal ecosystems. The successful implementation of adaptive and ecosystem-based management approaches depends on bringing together governance (SDG 16) and diverse knowledge systems (SDG 4). The **press statement** for the 2024 Ocean Decade Conference in Barcelona emphasized that advancing ocean science, improving long-term observation systems and integrating technological innovations is crucial.

LRGs are stepping up to bridge data- and governance gaps at the coastal interface through the use of spatial tools, community science and digital platforms to generate decision-ready insights. For example, **Cape Town** (South Africa) has developed a Coastal Risk Viewer to integrate spatial data on sea level rise, flood risk and coastal erosion into planning processes. The tool is updated with local inputs and enables targeted climate-adaptation investments in coastal neighborhoods. In Indonesia, the **Jakarta Bay** monitoring program combines municipal data with community-led water-quality testing to assess impacts of land-based pollution. The city's partnership with local universities has improved data credibility and supported more sustainable shoreline-infrastructure planning. In Mozambique, coastal municipalities, such as I**nhambane** and **Pemba**, are implementing marine-spatial-planning processes in tandem with mangrove restoration and sustainable-fisheries programs, including technical support from the Blue Action Fund, to enhance municipal staff capacity in GIS and biodiversity monitoring. Yet, in general, persistent gaps in funding and capacity remain, with ocean science infrastructure and expertise unevenly distributed across countries and regions.[51]

Closing this gap requires integrating scientific knowledge and local and Indigenous knowledge — lived experiences and policy implementation. Co-produced knowledge strengthens participatory governance, encourages shared ownership and fosters more effective and inclusive management.

The **Texel** example in the Netherlands demonstrates the benefits of such an approach. The municipality facilitated participatory planning sessions, in which disciplinary experts and local knowledge holders collaborated to envision the future of southwest Texel's coastal systems. The process respected the lived experiences of residents, which ensured relevant outcomes and built trust in decision-making.

Concepts that are traditionally rooted in economic frameworks, such as "ecosystem services" and "natural capital," are now being broadened through social- and environmental-justice lenses to include ideas like "blue growth" and "blue justice."[52] These emerging narratives help bridge the perceived divide between nature and culture and honor Indigenous cosmologies that see humans as part of — rather than apart from — nature. In Chile, the inclusion of **Indigenous Peoples' traditional ecological knowledge** in the governance of Indigenous Marine and Coastal Areas has allowed them to be recognized as an OECM.

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51. Kirsten Isensee, Intergovernmental Oceanographic Commission of UNESCO, "The Global Ocean Science Report 2020 - Much more than SDG indicator 14.a.1," (2020), https://www.unescwa.org/sites/default/files/event/materials/The%20Global%20Ocean%20Science%20Report%202020%20-Much%20more%20than%20SDG%20%20indicator%2014.a.1.pdf.

52. Nathan James Bennet, Jessica Blythe, Carole S. White, Cecilia Campero, "Blue growth and blue justice: Ten risks and solutions for the ocean economy," *Marine Policy 125*, (2021), https://doi.org/10.1016/j.marpol.2020.104387.

5. CONCLUSION AND RECOMMENDATIONS

SDG 14 is deeply interconnected within the broader 2030 Agenda. It offers a clear, integrative entry point for cross-sectoral action and serves as a narrative roadmap for addressing overlapping global goals. Per the UNOC, to truly "accelerate action and mobilize all actions to conserve and sustainably use the ocean," **the full leadership potential of LRGs, SMEs, civil society and other local actors must be recognized and leveraged**. Based on the examples and analysis presented, the following key recommendations emerge:

Understanding coastal and marine resources as vital assets. Territorial planning must embrace the ocean, not turn away from it. Policies that tackle poverty (SDG 1), inequalities (SDG 10) and climate change (SDG 13) should integrate sustainable use of marine resources (SDG 14) and support sectors like small-scale fisheries, aquaculture and sustainable tourism (SDG 8). Nature-based solutions should be mainstreamed into coastal and marine planning to enhance climate change resilience.

Recognizing the role of LRGs in bridging the gap between local action and global agendas. LRGs are vital in translating global goals into local action. Their proximity to communities allows for context-specific solutions and inclusive governance. Global governance frameworks should make space for the voice and role of LRGs and ensure they are equipped with adequate resources, capacities and political space to lead.

Strengthening multilevel governance and institutional coordination. Integrated, multilevel governance frameworks are essential to aligning national, regional and local efforts for sustainable coastal- and marine-resource management. Prioritizing cross-sectoral collaboration — especially across water, fisheries, agriculture and coastal planning — can reduce policy fragmentation and foster synergies. Empowering local governments and communities through decentralized decision-making ensures context-sensitive, equitable and effective implementation.

Mobilizing finance. Tailored financing mechanisms must be developed to support locally led, gender-responsive and nature-positive solutions. Local and regional governments need access to funding that aligns with their realities — leveraging public and private investment to strengthen coastal resilience. Blue finance tools, blended finance models and long-term funding frameworks can help move beyond short-term, donor-driven project cycles and enable sustainable, context-specific action.

Addressing the fisheries-conservation-agriculture-water nexus. A nexus approach to fisheries, agriculture (SDG 2), clean water and sanitation (SDG 6) and coastal- and marine-ecosystem management can help LRGs navigate trade-offs and enhance synergies. This approach supports circular resource flows and the efficient reuse of water and materials. Applying the OECD's "whole of water" perspective fosters a comprehensive understanding of the blue economy's dependence on and impact across freshwater, coastal and marine ecosystems. Integrating circular economy principles (SDG 12) into local policies can improve resource efficiency and reduce waste.

Fostering alternative livelihoods. Urbanization, climate change and development transitions are reshaping coastal economies and placing pressure on traditional livelihoods. Inclusive policy interventions are needed to support the creation of green and blue jobs — especially for women and youth — and to promote sustainable alternatives where Indigenous practices are at risk of being replaced. Investing in local, climate-resilient employment opportunities is essential to ensuring just transitions and equitable development.

Building trust and ownership through citizen literacy, science and engagement. Fostering public engagement — with a strong emphasis on children and youth — is critical, through enabling communities to contribute to marine monitoring, conservation and planning. LRGs should support these efforts by investing in partnerships with research institutions, providing tools and platforms to amplify community-generated data, and integrating this data into coastal management and local policy. This approach can enhance public understanding and ownership, as well as accelerate the application of research into actionable, community-driven solutions.

Encouraging local voluntary commitments. LRGs and coastal communities are already driving impactful actions that contribute to SDG 14. These efforts should be made more visible, through support for LRGs in submitting measurable voluntary commitments that are aligned with national targets. Whether focused on restoring mangroves, reducing pollution or enhancing community resilience to climate change, these commitments foster synergies and promote mutual learning across scales.

Involving the private sector. Public-private partnerships are crucial for scaling local solutions and making them inclusive and sustainable. LRGs should engage private-sector actors and co-create partnerships to turn their negative impacts into positive ones and align their interests with the SDGs and those of Indigenous Peoples and local communities. This approach can help foster shared value and drive progress toward SDGs 8 and 9.

Leveraging technological and financial innovation. Investing in coastal- and marine-monitoring infrastructure, alongside innovative financing mechanisms, is essential for enhancing data collection, improving planning and supporting community-led conservation. Systems thinking and integrated approaches — backed by data, technology and inclusive finance — are crucial for scaling up coastal resilience and achieving SDG 14. Public-private partnerships, sustainable investment strategies and blue finance models can help local governments access new funding avenues and integrate sustainability into financial systems.

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