EXPERT'S REPORT

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PROTECTING MARINE ECOSYSTEMS FOR SUSTAINABLE DEVELOPMENT

CONTENTS

INTRODUCTION

The World Ocean is a critical global resource sustainable use of which is key to sustainable development. The temperature, chemical processes, currents and life of the world's oceans determine the operation of the global systems that make the Earth habitable. The marine environment directly affects not only weather, climate and coastlines, but also the amount of oxygen we breathe, drinking water and most of all our food.

In today's world, when the environment is being damaged on a daily basis, we must realise the importance of preserving natural resources and treating them with care. Sustainable development of mankind is impossible without preserving the natural environment.

Oceans cover more than 70% of the surface of our planet and are a source of food and income for more than 10% of the world's population. Pollution and climate change continue to seriously affect the state of the oceans. Countries cooperate to protect the marine environment from pollution's harmful consequences and to achieve the UN Sustainable Development Goal (SDG) 14, which stands for the conservation and rational use of oceans, seas and marine resources for sustainable development.

The United Nations Environment Programme promotes the coordination of actions for nature conservation at the system-wide level, including the organisation and implementation of measures aimed at protecting and improving the environment at both the global and regional levels for the benefit of present and future generations. UNEP helps countries to move towards an effective and equitable pathway for the use of marine protected areas through the provision of technical expertise and capacity-building support for the

management and use of marine protected areas as part of broader integrated ocean and coastal zone management systems.

Marine ecosystems are ecosystems formed in aquatic environments that, unlike freshwater environments, are characterised by increased salinity (the sodium chloride content of seawater is about 35%). They account for almost 71% of the Earth's land surface, 97% of the water supply and about 90% of the habitable space on our planet, and produce 32% of all net primary production required by the world's population. Marine ecosystems, being the largest of the aquatic ecosystems, are part of the global ocean system and the structural composition of the Earth's hydrosphere.

Among all the ecosystem types on the planet, marine ecosystems are the most common. They are teeming with life, provide nearly half of the Earth's oxygen, and are home to a wide range of species. Scientists typically classify marine ecosystems into six major categories, but their designations are not always clearly defined, so some categories may overlap or encompass others. There may also be smaller, specialised subcategories within each broad category, such as coastal zones and hydrothermal vents.

One of the main changes in the marine environment is ocean acidification. That happens because oceans absorb excess carbon dioxide from the atmosphere, released mainly as a result of human activity. This leads to an increase in the acidity of ocean waters. Scientists use isotopic and other methods to monitor and study ocean acidification to understand the impact it has on marine flora, fauna and ecosystems, and to find ways to protect the ocean and coastal populations. The International Coordination Center of the International Atomic Energy Agency on Ocean Acidification (MCC-PO) promotes international cooperation, training of scientists

and data exchange in order to develop research in the field of ocean acidification.

Experts also work closely with the IAEA to use isotopic and other methods to track and analyse the effects of pollutants such as microplastics, radionuclides and heavy metals on marine organisms and ecosystems, as well as on the quality of seafood and the transport of pollutants along the food chain.

GLOSSARY

Abbreviations and acronyms

AHEG – Ad hoc Open-ended Expert Group on Marine Litter and Microplastics;
UNEP – United Nations Environment Programme;
IAEA – International Atomic Energy Agency;
IPCC – Intergovernmental Panel on Climate Change;
SDG – Sustainable Development Goals;
IMO – UN International Maritime Organisation;
FAO – Food and Agriculture Organisation of the UN.

Terms and definitions

Biological diversity – the diversity among living organisms, which is essential to ecosystem function and service delivery.
"Blue economy" – special concept of sustainable use of ocean resources for economic growth, improved livelihoods and jobs, while preserving the health of marine and coastal ecosystem.
Ecosystem – a complex of living organisms and the abiotic environment with which they interact in a specified location.
Ecosystem services – the multitude of benefits that nature provides to society.
Macroplastic – any plastic that can be easily seen. Some examples are plastic bags, water bottles and nets. While they still have a negative impact on the environment, they are less likely to enter the food chain because they are hard to ingest due to their size.
Mangrove forest and mangrove ecosystem – mangrove Forest refers to "true mangrove species" which typically form a forest, whilst mangrove ecosystem includes the "associated" community which forms the ecosystem,

such as microbes, fungi, plants and animals.

Marine ecosystems – ecosystems formed in aquatic environments that, unlike freshwater environments, are characterised by increased salinity (the sodium chloride content of seawater is about 35%).

Microplastics – plastic particles less than 5 mm in diameter.

Persistent organic pollutants (POPs) – organic chemical substances recognized as a serious, global threat to human health and to ecosystems.

Plastics – synthetic organic polymers with thermo-plastics or thermo-set properties (synthesised from hydrocarbon or biomass raw materials), elastomers (e.g. butyl rubber), material fibres, monofilament lines, coatings and ropes.

Sustainable Development – development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

CHAPTER 1. HISTORY OF THE DEVELOPMENT OF MARINE ECOSYSTEM CONSERVATION

Humanity has depended on resources and services provided by marine ecosystems from the dawn of civilization. For centuries people have been using aquatic species as a source of provision, medication and materials. The exploitation of marine environment, as well as the exploitation of other resources of the planet, reached its apogee with the development of industrial activity in the 20th century. It is not until very recently that humanity was able to realise and acknowledge the damage it's activity causes to the environment.

The effects of human actions on the health of the ocean and seas intensified over the years. In the 20th century the central problem of marine ecosystems was oil pollution, the effects of which are devastating to all life on Earth. In 1954, an international conference was held in London with the aim of developing coordinated action to address this issue. The conference adopted a convention defining the responsibilities of nations in this area.

Later, in 1958, four more legally-binding documents were adopted in Geneva: on the high seas, on the territorial sea and the contiguous zone, on the continental shelf, on fisheries, and on the protection of living resources. These conventions legally enshrined the principles and rules of the law of the sea. They obliged each country to develop and enforce laws prohibiting the pollution of the marine environment with oil, radioactive waste and other harmful substances. A conference held in London in 1973 adopted instruments to prevent pollution from ships. According to the adopted convention, each vessel must have a certificate,

confirming that the hull, machinery and other equipment are in good condition and do not cause damage to the sea.

The United Nations Conference on the Human Environment (Stockholm, 1972) and its outcome document, the Declaration on the Human Environment, proclaimed principles and recommendations of direct relevance to the protection of the marine environment. Principle 7 of the Declaration provides that: *"States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea. Science and technology must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind."*[1].

In 1982, after nearly a decade of negotiations, the Convention on the Law of the Sea was adopted to create a "legal regime for the seas and oceans"[2] that would promote "the equitable and efficient utilisation of their resources, the conservation of their living resources and the study, protection and preservation of the marine environment". The drafters and signatories of the Convention hailed it as the most comprehensive environmental treaty of its time. Since its entry into force on 16 November 1994, the environmental provisions established by the Convention have gained almost universal acceptance and can therefore be regarded as customary international law.

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[1]Stockholm Conference (United Nations Conference on the Human Environment). URL: https://kurl.ru/LCMim

[2]"United Nations Convention on the Law of the Sea" (UNCLOS) (concluded at Montego Bay 10.12.1982) (amended 23.07.1994); URL: https://kurl.ru/FmKLe

CHAPTER 2. THREATS TO THE WORLD'S MARINE ECOSYSTEMS

Due to the combined effect of climate change and various human activities, the well-being of the world marine ecosystem continues to decline. Despite recent efforts to preserve the health of the ocean, aquatic ecosystems are faced with a multitude of issues that, if not addressed, can pose a threat to both nature and human health.

Pollution is arguably the most publicly-known of the existing marine ecosystem problems. It is also one of the most severe ones.

Materials and substances discarded to the ocean by means of vessels leakage, dumping, runoff, etc all constitute marine pollution. Marine pollution can be generally divided into chemical and plastic pollution, with the latter including the problems associated with microplastic pollution.

Plastic pollution has only recently become a significant threat to the environment, as the mass-production of plastics began in the middle of the 20-th century. However, according to recent findings, plastic accounts for as much as 85% of marine pollution[3]. The first recorded case of plastic particles being found in the sea dates back to 1972, when a paper published in the journal *Science* reported having found small particles of plastic in the Sargasso Sea[4]. Over the following years the issue became increasingly popular within both the scientific community and world society in general.

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[3]United Nations Environment Programme (2021). From Pollution to Solution: A global assessment of marine litter and plastic pollution. Nairobi.

[4]Carpenter, E.J., and K.L. Smith. 1972. Plastics on the Sargasso Sea surface. Science 175(4027):1,240–1,241, https://doi.org/10.1126/science.175.4027.1240.

The widespread use of various types of plastics is the main reason for said material occurring in water bodies. Plastic debris is generally divided into four categories according to their size. The division is important, as the size of the particles defines their impact on the biota.

Mega-, macro- and mesoplastics can be identified by the naked eye and usually include single-use plastic bags, wrappers and containers, personal hygiene items, tyres and much more. Most of such waste floats near the surface of the water and is carried around with the ocean currents.

Subjected to ultraviolet light (UV), ocean waves and other forms of weathering, plastic items begin to degrade, breaking down into smaller particles – microplastics and even smaller nanoplastics. Some industrial and consumer products, such as cosmetics and scrubbers used to filter industrial exhaust streams, are also a source of microplastic particles which contribute to marine pollution.

Tiny particles of plastic pose a serious threat to the health of both aquatic organisms and humans for a multitude of reasons. As the plastic floats in the water, microorganisms, algae and other forms of marine life start to gradually inhabit the surface of the debris. This process decreases the waste buoyancy, making it sink to the aphotic (not having light) zones of the ocean and hindering its ability to degrade. In addition to that, due to their small size, microplastics can be accumulated in the digestive systems of fish, as it mistakes the particles for plankton, thus penetrating all elements of the trophic chain.

Taking complex action for battling the issue of growing plastic pollution is crucial, as in the absence of necessary interventions the quantity of plastic waste in marine ecosystems could triple from some 9-14 million tons per year in 2016 to a projected 23-37 million tons

per year by 2040[5].

Chemical pollution can be defined as the presence of contaminants unnatural for the environment in the water. Harmful contaminants can be transferred to ocean waters by a variety of ways, thus the source of the pollution is often located many miles upstream from the coastline, where the harmful substance enters the ocean waters. In other cases, the pollutants are, on the contrary, wastes discharged directly at coastlines. The majority of the substances are transferred to the seas and oceans from internal water bodies and spread with the water current. Therefore, the highest levels of water contamination are commonly found near estuaries and in coastal areas adjacent to them.

Contaminants entering the ocean from internal water bodies usually originate from one of the three main sources: agricultural lands, industrial sites or commercial and residential wastewaters.

Agricultural land runoffs are abundant with nutrient-packed fertilisers, pesticides and herbicides (including persistent organic pollutants). The presence of excessive quantities of nutrients, such as nitrogen and phosphorus (which are the most common components of farmland fertilisers), causes the algae and phytoplankton to grow with intensity much higher than natural. That results in a critical lack of dissolved oxygen in water, making it hostile for all aquatic biota. This process is called *eutrophication*. Climate change and rise of the average water temperature aggravates this process, as the solubility of oxygen drops with a higher water temperature.

Discharge from industrial sites, as well as commercial

[5]United Nations Environment Programme (2021). From Pollution to Solution: A global assessment of marine litter and plastic pollution. Nairobi.

and residential wastewaters, generally includes oil and petroleum, heavy metals (including lead, cadmium, mercury, ets), detergents, road salt and other components harmful for marine ecosystems. Notwithstanding the fact that most marine biota are equipped with adaptation mechanisms allowing them to survive in a degraded habitat, their vitality functions begin to deteriorate, often resulting in population decrease or disability. This takes a toll on economic and social benefits from marine biological resources, as more than 3 billion people rely on the ocean for their livelihoods, the vast majority in developing countries[6].

The world ocean includes a number of more distinct marine communities, each possessing certain peculiarities and playing a specific role in the constitution of a diverse and sustainable environment. Further we provide an overview of those communities and their unique value to the global ecosystem.

Coral reefs are extremely diverse ecosystems that are vital to the well-being of people throughout the tropical region. More than 450 million people live within 60 kilometres of coral reefs, and most of them directly or indirectly receive food and income from them. Properly used coral reefs can produce, on average, 15 tons of fish and other seafood per km^2 per year[7].

Coral reefs provide numerous ecosystem services. They help prevent the leaching of sedimentary rocks and damage to the coastline. Coral reefs act as a physical barrier that helps create a healthier, protected habitat near the coast. They also capture carbon dioxide, which helps create conditions for marine biodiversity. Additionally, coral reefs play a significant part in the economy of the nearby settlements. Polyps are

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[6]OECD. Ocean economy and developing countries

[7]ICRI, GCRMN, Australia Institute of Marine Science, UNEP, (2020). Status of Coral Reefs of the World.

collected for the production of medicines and jewellery. Exotic fish species and marine plants are caught for keeping in aquariums. Also, the magnificent underwater life of coral reefs attracts tourists from all over the world.

Moreover, the significance of coral reefs for biological diversity is invaluable. Occupying less than a quarter of 1% of the marine environment, coral reefs are home to more than 25% of all known marine fish species.

Sadly, both the quality and quantity of the coral reef ecosystems are in great danger. Today the living coral cover on Caribbean reefs has decreased to 8%, compared with more than 50% in the 1970s. Coral polyps colonies may be completely destroyed in the next few years. This fact was recently confirmed by a study conducted by scientists at the University of Hawaii at Manoa, USA. It states that about 70-90% of the reefs will disappear over the next 20 years as a result of climate change and pollution[8].

This is just the beginning of the trend: rising sea surface temperatures and acidic waters could destroy almost all existing coral reef habitats by 2100.

According to experts, by 2045, most of the ocean, where there are coral reefs, will cease to be a suitable habitat for corals. And the future of these underwater ecosystems remains very uncertain, as ocean temperatures continue to rise, and environmental restoration projects in these areas face serious problems. Warm waters load the corals, forcing them to release the symbiotic algae living in them. Consequently, brightly coloured corals turn white, that is, a process called bleaching. In the absence of their symbiotics, corals are less viable and are at a higher risk of death.

One of the proposals to save coral reefs is the intention to take care of them as a garden. Introducing plants

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[8]ICRI, GCRMN, Australia Institute of Marine Science, UNEP, (2020). Status of Coral Reefs of the World.

to remove sediment and excessive algae growth can help temporarily keep coral reef ecosystems in balance. Reducing pesticide runoff from fields can also help reduce nitrogen levels in the sea. Reducing carbon dioxide emissions from human activities can improve the overall condition of coral reefs.

Seaweeds, evolved over 70 million years ago from terrestrial grasses, are one of the most diverse and valuable marine ecosystems on the planet. They have a critical role in combating climate change, ensuring food security, protecting coastlines, enriching biodiversity, controlling disease and filtering water.

Underwater algae meadows – expanses of green, grass-like shoots and flowers – are an extremely effective "natural solution" to climate change. They cover only 0.1 per cent of the world's ocean floor, while storing about 18% of the ocean carbon. They are also home to fish stocks that not only provide food and livelihoods for coastal residents, but also help increase ocean biodiversity.

According to a study by the United Nations Environment Programme (UNEP), algae habitats are in serious danger. They have been in decline since 1930, and today 7% of seaweed habitat is lost each year, equivalent to the disappearance of an area the size of one football field every 30 minutes. Climate change, as well as increasing coastal populations, dredging of the seabed and ocean floor, and uncontrolled fishing have all contributed to this decline.

Algae-covered areas are among a growing number of ecosystems, including forests, savannahs and mountains, under pressure from human activities. The world loses so many trees each year that they could fill the Republic of Korea, and 30% of natural freshwater ecosystems have disappeared since 1970.

Mangroves are one of the most unique forms of flora

to exist. It grows in the tropics, where nearby islands or coral reefs protect the coast from huge waves, or where large rivers flow into the sea and ocean. Its distribution is not limited to tropical climates; mangroves grow north of the Northern or south of the Southern Tropic, where warm ocean currents are favourable.

Mangroves make up less than 1% of Earth's forests, but they support thriving ecosystems and are extremely efficient at sequestering carbon in the soil. On land, they provide shelter for animals such as insects, lizards, snakes and birds, while their ocean-immersed roots provide habitat for marine fish and large mammals such as dugongs.

75% of the world's mangroves are found in just 15 coastal countries. Indonesia has the largest mangrove forests, followed by Brazil, Australia, India, Malaysia, Papua New Guinea and Australia.

Mangroves are an important asset for humanity, serving as a protective barrier to island shores and reducing flooding and erosion caused by storms and tsunamis. Preserving mangrove ecosystems is important for coastal communities because the mangrove-rich climate is prone to hurricanes.

In the course of the last 24-27 years there was a loss of approximately 5,245 km2 of mangrove forests, accounting for 3.4% of their total area[9]. Due to technical limitations, it is not yet possible to attribute changes in the mangrove ecosystems to specific reasons. However, it is quite certain that it is the consequences of human interference and climate change that pose the greatest threat to said ecosystems[10].

The extermination of mangroves is accompanied with releases of large amounts of carbon into the

[9]United Nations Environment Programme (2023). Decades of mangrove forest change: what does it mean for nature, people and the climate? UNEP, Nairobi

[10]UNEP, Decades of mangrove forest change: what does it mean for nature, people and the climate?, 2023

atmosphere, contributing greatly to the greenhouse effect and aggravating the effects of climate change.

Deep-sea ecosystems constitute another distinct area of the aquatic world. 50% of the oceans are less than 3,000 m deep, with the average ocean depth being 3,800 m. Therefore, the largest biome on the planet comprises deep-sea ecosystems with approximately one billion cubic kilometres of deep water and 326 million square kilometres of deep seafloor[11].

It is believed that the deep sea begins at a depth of 200 m, where solar energy is insufficient to sustain the process of photosynthesis. This depth varies depending on the body of water, but is generally similar to the shelf break where the seafloor transitions to the continental slope and is marked by a significant increase of the slope angle[12].

The deep sea has long been considered a lifeless, stable environment, but it has been proven to be a home to some of the greatest biodiversity on the planet in a variety of interconnected habitats[13]. These ecosystems provide essential ecosystem services, including nutrient regeneration and carbon sequestration, as well as cultural and educational services[14], many of which are vital for the health of the well-being of the planet and humanity.

Over the past half century, technological advances have facilitated access to deep-sea ecosystems, leading to the discovery of significant resources, both mineral

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[11]Tyler PA, Baker MC, Ramirez-Llodra E 'Deep-Sea Benthic Habitats', in Clark MR, Consalvey M, Rowden AA (eds) Biological sampling in the deep sea (John Wiley & Sons Ltd., West Sussez, 2016), pp. 1–15.

[12]Tyler PA, Baker MC, Ramirez-Llodra E 'Deep-Sea Benthic Habitats', 2016.

[13]Tyler PA, Ecosystems of the Deep Oceans Ecosystems of the World (Elsevier, Amsterdam, 2003) p. 569.

[14]Thurber AR, Sweetman AK, Narayanaswamy BE, Jones DOB, Ingels J, Hansman RL 'Ecosystem function and services provided by the deep sea', Biogeosciences (2014) 11: 3941–3963. https://doi.org/10.5194/bg-11-3941-2014

(hydrocarbons, minerals) and biological (fishing, genetic resources). As demand for raw materials continues to grow and onshore and offshore reserves become depleted, interest in the exploration and development of deep-sea resources is rapidly increasing.

Exploitation of deep-sea marine resources is accompanied by a number of negative effects, including the increasing problem of marine waste, deep-sea mining and disposal of fine waste produced in the process of extraction of the metals from the ore and an irresponsible approach to fishing.

CHAPTER 3. BLUE ECONOMY: OCEANS AS THE NEXT GREAT ECONOMIC FRONTIER

The concept of the "blue economy" is becoming increasingly widespread in the agenda of international organisations and in the formation of national development strategies. The peculiarity of the concept is the emphasis on the systematic and sustainable development of economic sectors related to the use of the resources of the oceans and seas. Meanwhile, there remains a terminological and sectoral differentiation in the understanding of the "blue economy", which makes it difficult to conduct international comparisons.

The development of the "blue economy" concept reflects the recognition of the exceptional role of the ocean and seas in the global economy. The World Wildlife Fund estimates the global value of the oceans at $24 trillion. According to FAO estimates, oceans and seas provide food for 10-12% of the world's population. The IPCC estimates that the oceans absorb 30% of the carbon dioxide produced by humans.

The rapid degradation of the ecosystems of the world ocean and the depletion of its resource base due to an increase in environmental and economic burden inevitably have an impact on the well-being and health of people living in countries dependent on the ocean and seas.

Renewable ocean energy has huge potential: wave energy, tidal energy, offshore wind energy, marine solar energy, marine bioenergy. The ocean floor contains minerals necessary for mankind for a "green transition", marine biotechnologies allow the development of new pharmaceuticals, medicines, cosmetics, feed additives for animal husbandry that reduce methane emissions

into the atmosphere.

National approaches to sustainable and integrated management of the "blue economy", which are based on such tools as integrated coastal zone management, marine spatial planning, and the creation of protected marine territories, are being formed. Not only developed, but also developing countries include the development of the "blue economy" in their national economic priorities.

Modern challenges of the development of the "blue economy" create the need for the formation of international approaches to their settlement[15]. New formats of international cooperation in the field of the “blue economy” are being created, an international legal framework for the development of ocean resources is being formed, new financing mechanisms for “blue economy” projects are being created, indicators are being developed to assess progress in improving the social and environmental sustainability of “blue economy” industries.

The United Nations Human Settlements Programme (UN-Habitat) notes that the "blue economy” is not limited only to the oceans, but represents an integrated and innovative approach to the use of the resources of oceans, lakes, rivers and other water bodies for economic purposes, aimed at stimulating economic growth, responsible production and consumption, social integration and preserving or improving the well-being of the population while ensuring the environmental sustainability of the open ocean and coastal areas, as well as other coastal territories through the development of a closed-cycle economy.

[15]Brears, R.S. (2021) Developing the Blue Economy. Cham, Palgrave Macmillan. Available from: doi:10.1007/978-3-030-84216-1.

International agreements and arrangements on the “blue economy”

International Convention for the Prevention of Pollution from Ships (MARPOL)	1973
United Nations Convention on the Law of the Sea (UNCLOS)	1982
International Convention on Civil Liability for Oil Pollution Damage	1992
UN Convention on Biodiversity	1992
Agreement relating to the Implementation of Part XI of the UN Convention on the Law of the Sea	1994
Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea of the Year relating to the Conservation of and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks	1995
FAO Code of Conduct for Responsible Fisheries	1995
Seoul Ocean Declaration	2002
Hong Kong International Convention on the Safe and Environmentally Sound Recycling of Ships	2009
Agreement on Port State Measures to Prevent, Deter and Eliminate IUU fishing	2009
APEC Paracas Declaration	2010
APEC Xiamen Declaration	2014
Addis Ababa Action Programme	2015
FAO Guidelines for Sustainable Small-scale Fisheries	2015
UNCTAD's Blue BioTrade Framework	2018

UNCTAD's Blue BioTrade Framework	2018
Bangkok Declaration on Combating Marine Debris in ASEAN	2019
UNCTAD Principles on BioTrade	2020
UN Declaration on Plastics	2021

CHAPTER 4. UN ACTIONS IN THE MANAGEMENT OF MARINE RESOURCES

The United Nations acknowledges the significance of marine ecosystems in achieving global sustainability, taking a place at the forefront of ensuring the peaceful, co-operative and legislated use of the seas and oceans, for the benefit of both individual countries and humanity as a whole. UN activities led to the adoption of the Convention on the Law of the Sea (UNCLOS) in 1982.[16] This was a defining moment in extending the scope of international law to the Earth's vast, shared water resources. The United Nations Environment Programme has been leading the primary position in solving marine ecosystems problems, the newest of them have been prepared and declared in the special document named Proposal for a new Marine and Coastal Strategy of the UN Environment Programme for 2020-2030.

Proclaimed by the UN General Assembly in March 2019, the UN Decade for Ecosystem Restoration, which runs from 2021 to 2030, is a global initiative to revitalise ecosystems and the services they provide. Among its objectives is the restoration of habitats and species that are components of ecosystems to ensure that social-ecological systems are productive and immune to the impacts of current and foreseeable stresses (such as global climate change, increasing pollution, habitat degradation and fragmentation, and market-related stresses).

Ecosystem restoration is a fundamental component of working towards the Sustainable Development Goals (SDGs) on poverty eradication and food security, as well

[16]United Nations Convention on the Law of the Sea of 10 December 1982. URL: https://707.su/VQiA

[17]The Rio Conventions. URL: https://www.cbd.int/rio/

as the goals of the Rio Conventions.[17]

Particular attention should be paid to SDG 14. The 14th of the UN Sustainable Development Goals is to conserve and sustainably use the oceans, seas and marine resources for sustainable development.

This goal is containing a number of ocean-related issues such as reducing marine pollution, protecting marine and coastal ecosystems, minimising water acidification, stopping illegal fishing and overfishing, increasing investment in scientific research and marine technology. UN experts note the need to create and regulate international legislation controlling the safe and rational use of the ocean and its resources.

Strategic objectives in order to achieve the goals:

- By 2025, ensure the prevention and substantial reduction of any marine pollution, including from land-based activities, including marine litter and nutrient pollution.
- Minimise and eliminate the impacts of ocean acidification, including through the promotion of scientific cooperation at all levels.
- Improve the conservation and sustainable use of the oceans and their resources by complying with international law as enshrined in the United Nations Convention on the Law of the Sea, which, as noted in paragraph 158 of The Future We Want, provides the legal framework for the conservation and sustainable use of the oceans and their resources.
- By 2030, increase the economic benefits accruing to small island developing States and least developed countries from the sustainable management of marine resources, including through sustainable fisheries, aquaculture and tourism.

[17]The Rio Conventions. URL: https://www.cbd.int/rio/

FAO's marine conservation activities are predominantly related to fisheries control.[18] Fisheries make a significant contribution to global food security, but in cases of unmanaged sustainably, fish shortages can occur. This can lead to a reduction in biodiversity, disrupt ecosystem functioning, and negatively affect international socio-economic development. The Food and Agriculture Organisation of the United Nations estimates that the proportion of the world's marine fish stocks within biologically sustainable levels has declined from 90% to 69% in 40 years.

The main role on fisheries is managed by a subsidiary body of the FAO Council – Committee on Fisheries (COFI). Since its establishment, COFI has been actively engaged in the development of legal and other norms to regulate fisheries in general and its individual aspects. Codes, international plans of action, guidelines adopted by the Committee are not formally binding documents containing opinio juris. However, it should be noted that many States have adopted laws that provide for sanctions for violations of FAO codes and plans of action. Moreover, these sanctions are also applied by another State.

International action plans are also developed and adopted by the COFI. Currently, four such plans have been adopted:

- International Plan of Action for Shark Conservation and Management (1999);
- International Plan of Action for the Management of Fishing Capacity (1999);
- International Plan of Action to Reduce Incidental Catch of Seabirds in Longline Fisheries (1999);

[18]Harrison, J., Lobach, T., Morgera, E., Diz, D., Kuemlangan, B., Manoa, P. and Hamley, G. 2019. Step-wise guide for the implementation of international legal and policy instruments related to deep-sea fisheries and biodiversity conservation in the areas beyond national jurisdiction. Rome. FAO.URL: www.fao.org/3/ca5628en/ca5628en.pdf

- International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and UnregulatedFishing 2001.

FAO has been providing technical and financial support in the field of agriculture (crops, fisheries, and livestock)and the environment sector and managing different projects. One of the is FAO's Blue Transformation Programme[19] which offers high-impact ways to address the twin challenges of food security and environmental sustainability. The programme aims to achieve sustainable intensification and expansion of aquaculture production, effective management of all fisheries and modernisation of value chains that ensure the social, economic and environmental resilience of aquatic food production systems. Key aspects of programme implementation include preserving aquatic ecosystems, reducing pollution and protection of biodiversity.

One of the methods of control over fisheries regulation is the division of water resources into fishing zones. FAO divides the world's oceans into 19 fishing grounds to ensure sustainable management of fisheries resources. These measures include fishing quotas and fish sizes, season length and the obligation to use sustainable fishing methods. The aim of such measures is to prevent overpopulation and reduce fish production, thus allowing for population recovery and preservation of the marine ecosystem.

A huge work on conserving of marine ecosystems is being done by another UN organisation – International Maritime Organisation.

[19]FAO official website. Blue Transformation. URL: https://www.fao.org/fishery/en/bluetransformation

CONCLUSION

The significance of the world's marine ecosystems for prosperity of the global ecosystem and for the livelihood of mankind is undeniable. However, human activity continues to deplete biological marine resources, pollute the environment and undermine the ability of the ecosystems to maintain homeostasis, regenerate and provide the services humanity depends on.

One of the main challenges humanity faces today in terms of protecting the marine environment and ensuring its sustainability is the need to align the exploitation of marine ecosystem services for economic development with the environment's carrying capacity. This task seems even more complicated in the light of unresolved issues of malnutrition, poverty and social inequality.

Global cooperation is a key for saving our oceans which must remain a priority. The biodiversity of the marine environment is critical to the health of people and our planet. Marine protected areas must be effectively managed and adequately resourced, and regulations must be put in place to reduce overfishing and marine pollution.

Protection, restoration and preservation of marine ecosystems are essential for achieving the the 2030 Agenda, especially for small island states and coastal communities. Global community, with the UN and its Environment Programme, must work towards a more comprehensive understanding of ocean conditions and the impact humanity has on them.

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