

Reduced Inequality: Life Below Water

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Abstract

The air, oceans, rivers, land, ice, and biosphere are all parts of Earth's natural environment, and all life depends on them. However, human actions threaten this fragile balance. The seas are a rich source of many natural resources, including food, medicine, biofuels, and more. The diversity of marine and coastal life is crucial to the continued existence of almost three billion people on Earth. All of the water that we use—from precipitation to drinking water, from weather and temperature to coastlines and a significant amount of our food supply—comes from and is regulated by the sea. The oceans cover over three quarters of Earth's surface and hold the vast majority of the water on the planet. However, the ever-increasing quantities of waste in the world's oceans have major financial and ecological implications. Waterways along the shore are becoming worse due to pollution and eutrophication. Without concerted action, coastal eutrophication is expected to have occurred in 20% of major marine ecosystems by 2050. Neglecting to take action to mitigate climate change will result in an additional \$322 billion in annual damages to the seas by the year 2050. Marine protected zones, together with new regulations, may help mitigate ocean acidification, pollution, and overfishing provided they are well-run and supported financially. Greater international cooperation to protect vulnerable ecosystems is essential if the open ocean and deep sea are to remain habitable in the future. The importance of oceans to sustainable development is highlighted in Chapter 17 of Agenda 21. The 10 goals that make up SDG 14 address ocean and sea-related challenges. World leaders reaffirmed their commitment to achieving the Sustainable Development Goals by 2030, with no one left behind, at the SDG Summit in September 2019. They called for a decade of action and delivery for sustainable development and pledged to mobilise funds, improve national implementation, and strengthen institutions. The clock is ticking since there are only 10 years remaining to accomplish the objectives.

Keywords : SDG Goals, Biofuel, Biosphere, Agenda-21, Climate Change

The 17 Sustainable Development Goals for People and the Planet:

An worldwide call to action, the Sustainable Development Goals (SDGs) aim to end extreme poverty, protect the planet, and ensure that everyone has access to better economic opportunities and higher quality of life. All seventeen goals were adopted by the United Nations Member States in 2015 as part of the 2030 Agenda for Sustainable Development, which laid out a fifteen-year plan to achieve the goals. There has been progress, but the international community is still not doing enough to meet the Goals. If we want to reach the Goals by 2030, we need to start a decade of courageous action in 2020 and ensure that no one is left behind on three fronts:

- World-wide effort to get stronger leadership, more funding, and improved strategies for the SDGs.
- Regional initiatives incorporating the essential reforms into regional and municipal budgets, policies, institutions, and regulatory structures.
- A concerted effort by members of all demographics—youth, civic society, media, business, unions, academics, and others—to launch an unstoppable movement demanding the necessary changes.

Aquatic Life:

why is it important?

The seas are a rich supply of many natural resources, including food, medicine, biofuels, and more. Their coastal habitats reduce the impact of storms by decomposing and disposing of rubbish. Seas must be

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maintained in excellent shape if we are to fight and adapt to climate change. Increases in fish catch, improved health, and the overall amount of money gained from fishing all contribute to marine protected areas' ability to reduce poverty. As the main breadwinners in small-scale fishing, women also play an important role in promoting gender parity. The ocean is home to a vast variety of beautiful creatures, from the tiniest crustaceans to the blue whale, the biggest terrestrial mammal in Earth's history. More than that, these areas are home to coral reefs, which are among the most biologically varied ecosystems on Earth. In keeping Earth's ecosystems functioning, the oceans, seas, and coastal areas collaborate significantly.

Numbers and statistics:

Almost all of Earth's water is contained in its oceans, which cover three quarters of the planet's surface and, in terms of volume, make up all of the habitable space on the planet. Given that over 90% of all trade occurs in the ocean and that 40% of the world's population lives within 100 km of its coasts, it's clear that the ocean is crucial. The diversity of marine and coastal life is crucial to the continued existence of almost three billion people on Earth. Every year, marine and coastal resources and industry provide almost \$3 trillion, or about 5% of the world's GDP. The actual number of species in the ocean is closer to 200,000, although the popular belief is that there are millions.

The seas mitigate the impact of climate change by absorbing a large amount of the carbon dioxide that humans release into the atmosphere. Nearly three billion people depend on the seas as their primary supply of protein, and the oceans offer more protein than any other single source on Earth. Approximately 200 million people rely on marine fisheries for their livelihood. Because fishing subsidies are hampering efforts to protect and restore fisheries worldwide and slow the quick loss of many fish species, ocean fisheries lose US\$50 billion every year. Data gathered from open ocean regions shows that acidity levels have increased by 26% since the start of the Industrial Revolution.

Pollution and eutrophication are making coastal waterways worse. It is projected that by 2050, 20% of significant marine ecosystems would have experienced coastal eutrophication due to a lack of coordinated measures.

Where is the issue?

The growing amount of trash in the world's seas is causing serious problems for ecosystems and economies. Marine debris affects biodiversity because species might get entangled in or swallow trash pieces, which can kill them or prevent them from reproducing. Twenty percent of the world's coral reefs have been severely damaged or destroyed and will not be recovered. The remaining reefs are in danger of collapsing over the next 24 hours due to human activities, while another 26 percent are in danger of collapsing during the next several years. Overfishing is another consequence of poor marine management. An estimated US\$50 billion in yearly economic gains are wasted in the fishing industry. Poor ocean management is costing the global economy at least \$200 billion annually, according to the United Nations Environment Program. Damage to the oceans would cost an extra \$322 billion year by 2050 due to climate change if we don't do anything to slow it down. A sustainable future will include the careful management of this vital global resource. An important issue is the absence of sufficient information. We have a complete map of the Earth, but the oceans have far poorer data resolution compared to land. Despite our heavy dependence on the ocean, almost 70% of its enormous undersea world is still uncharted, undiscovered, and unexplored. For a long time, researchers have depended on sonar and other technology to create maps of the ocean bottom since exploring our ocean using underwater vehicles is very expensive and complex. While much of the ocean floor is poorly mapped, Mars is far better. We know more about Mars's landscape than the ocean bottom since 1991, yet the oceans unquestionably have a much greater influence on our daily lives than Mars's surface.

Ocean acidification and carbon dioxide levels:

A 42 percent rise in atmospheric CO₂ content has occurred since the start of the industrial revolution. The ocean now contains an average of four kilogrammes of carbon dioxide gas per person, per day, due to human activities. When mixed with water, this man-made carbon dioxide gas produces an acid. Ocean acidification occurs when elevated levels of carbon dioxide gas in the atmosphere reach concentrations in the water that decrease the pH of the water, a measure of acidity. Increases in acidity (more hydrogen ions, H⁺) are accompanied by decreases in carbonate ion (CO₃⁻) concentrations. Decreases in carbon dioxide levels have two effects on marine life: first, they make it harder for the ocean to absorb more carbon dioxide, and second, they make it harder for many marine animals to build and maintain their shells and skeletons. As a result of ocean acidification, the surface ocean pH is falling and falling faster than ever before. Ocean pH has been lowering at a rate of 0.0015 to 0.0024 pH units each year, according to data collected at biogeochemical time-series sites worldwide; however, these datasets only cover the previous few decades. Researchers have utilised models and extrapolations from data to make educated guesses about changes that occurred in the past. As a result of a 26% increase in H⁺, the ocean surface pH has decreased from 8.2 to 8.1 since 1860, according to both methods. There hasn't been such a rapid shift in climate for at least 300 million years; the last known natural acidification event, which happened 55 million years ago, was likely 10 times slower. However, pH is only one of several factors to consider. It also has major implications for biological and ocean chemistry.

Environmental effects on living organisms:

over 91% of marine species are still unidentified, and over 95% of the ocean has never been studied, according to scientists. The ocean absorbs a quarter of the carbon dioxide that humans produce into the atmosphere, leading to a 30% rise in seawater acidity compared to the preindustrial era. Because of this shift, ocean chemistry is changing, which has serious consequences for marine resources and the people whose livelihoods depend on them—especially calcifying creatures like mollusks, corals, and calcareous plankton. Ocean acidification's possible effects on marine life are complex and multi-faceted. Since the capacity to construct skeletal or shell material (via calcification) was shown to be dependent on the concentration of CO₃⁻, the first investigations focused on calcifying creatures, including mollusks, corals, coralline algae, and some plankton. Another worry, however, is that physiological systems relying on stable chemistry inside cells might be impacted by variations in ocean pH. Keeping intracellular chemistry under control would require more energy from aquatic species, cutting into their capacity for growth and reproduction. The chemical ability of the near-surface ocean to absorb additional CO₂ is reduced as a result of this buffering process, which uses up CO₂. The current capacity is 70% of what it was at the beginning of the industrial period, and by the end of this century, it may fall to 20%. According to the same models, tropical coral reefs may be unable to sustainably develop CO₂ concentrations that are too low by the middle of the century.

H₂O with salt added:

Ballast water, which is used for ship stability, may include thousands of marine or aquatic organisms, plants, and animals. There is a risk of introducing a new invasive species to the maritime environment when ships deposit untreated ballast water at their destinations. There have been hundreds of these invasions, and each one has had disastrous effects on the local ecology.

Plastic trash from the seas:

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All over our seas and oceans, you may find plastics of all sizes and forms. When submerged in water, their decomposition takes more than 400 years. There are serious ecological and economic consequences to the ever-increasing amounts of trash in the world's seas. Marine debris affects biodiversity because species might get entangled in or swallow trash pieces, which can kill them or prevent them from reproducing. Approximately 20% of the world's coral reefs have been completely damaged or killed and will not be able to recover. Human pressures pose an immediate danger to some 24% of the surviving reefs, while a more distant 26% face a longer-term threat of collapse. There is a serious issue with marine debris in our waters; in fact, some experts have predicted that, by the year 2050, there will be more plastic than fish in the seas. Micro plastics, which are particles five milli-metres or less in size, and macro plastics, which include things like water bottles, fishing gear, and plastic bags, both end up in the ocean and have detrimental consequences on marine life, biodiversity, and human health. Numerous marine organisms, such as whales and plankton, have been shown to contain micro plastics, which have a diameter of less than five milli metres (0.2 inches). When bigger animals ingest the tiny creatures that ingest micro plastics, the harmful chemicals end up in their tissues. Micro plastic contamination moves up the food chain in this manner, ultimately ending up in human diets. A quarter of marine debris ends up floating on the ocean's surface, another quarter stays in the water column, and the other 70% settles to the ocean floor, according to UN Environment. According to further study, 5.25 million pieces of plastic, weighing a total of 268,940 tonnes, are already floating about.

Pollution of the oceans is a problem for both pleasure and commerce ships.

These days, more and more people are concerned about marine contamination. The two most common forms of pollution in our water are chemicals and garbage. More and more, among the most polluting vessels are cruise ships and commercial ships the size of small towns. The Cruise Lines International Association predicts that in 2019, the ships will transport over 30 million passengers, which is almost twice as many as they carried a decade ago. The cruise ships, which are like floating metropolises, produce enormous amounts of pollution as they sail the oceans. There is some garbage that is processed before being deposited, and then there is rubbish that is carelessly thrown into the ocean. On a one-week journey, a massive cruise ship—the largest of which can accommodate more than 7,000 guests and crew—is expected to produce 210,000 gallons of human sewage, which is equivalent to 10 backyard pools, and 1 million gallons of graywater, which is equivalent to 40 additional pools, from sources such as sinks, baths, showers, laundry, oily bilge water, sewage sludge, garbage, hazardous waste, and the galleys. Furthermore, while providing passengers with an unprecedented opportunity to see some of the world's most delicate ecosystems, these luxurious liners release a myriad of pollutants into the atmosphere, worsening public health and adding to the challenge of climate change. The expansion of the sector has outpaced the development of environmental regulations. We desperately need new regulations and benchmarks.

What is the next step?

Overfishing, pollution, and acidification of the ocean may be significantly reduced with well-managed and adequately-funded marine protected zones and new rules. Greater international collaboration is necessary to safeguard delicate ecosystems in the open ocean and deep sea if these regions are to remain habitable in the future. Reduce your impact on the environment by making little adjustments in your everyday life. For example, purchase or eat only what you need, use certified goods, use public transportation, turn off gadgets when not in use to conserve energy, and cut out plastic as much as you can. By doing so, we lessen our impact on the environment, which in turn lowers sea levels. The most critical thing we can do is raise awareness about the need of protecting marine life. All people on Earth must work together in response to

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the present catastrophe, which is global in scope and has significant implications. A few global approaches are summarized below:

Ship pollution prevention:

The International Convention for the Prevention of Pollution from Ships, more often known as MARPOL, is the primary convention that the IMO has enacted to curb ship pollution.

Areas of Particular Concern: take into account the fact that, because of their unique ecosystems and high volume of maritime traffic, these areas need stricter regulations for management and protection.

Preserving the Antarctic and Arctic regions :

Areas of Extremely High Marine Biological Diversity: Those Encompassing Marine UNESCO World Heritage Sites, Like the Papahānaumokuākea Islands, the Galápagos Archipelago in Ecuador, the Great Barrier Reef in Australia, and both the United States' Marine National Monument and the Wadden Sea are located in Europe. Preventing the spread of aquatic species that might be invasive is an important part of protecting marine biodiversity. The protection of marine animals from ship strikes is supported by efforts to improve ship safety and reduce pollution. Many ship routing techniques have been used to ensure that whales and other cetaceans are not hit during their mating seasons. The international community has acknowledged that underwater-radiated noise from commercial ships may have both short- and long-term detrimental consequences, and it is believed that a large amount of the underwater noise that is caused by humans is associated with commercial shipping.

Seas of cooperation;

- Reducing atmospheric carbon dioxide levels, which may cause ocean acidification, is one strategy for combating climate change.
- Using geoengineering, carbon capture, and garbage disposal at sea.
- Safety of shipping and marine security regulations assist in promoting sustainable ocean usage.

What would the cost be to fix this?

From an economic perspective, the Convention on Biological Diversity estimates that the public will need to pay US\$32 billion as a one-time expense and US\$21 billion annually to preserve the world's oceans. Supporting the implementation of the agreements and promises made at the three main international conferences on Financing for Development—in Monterrey, Mexico in 2002, Doha, Qatar in 2008, and Addis Ababa, Ethiopia in 2015—is at the heart of the Financing for Development process. This procedure also ensures that the Sustainable Development Goals (SDGs) and the 2030 Agenda, two important economic and social symposia held by the United Nations, are adequately funded. With the new global framework for sustainable development funding laid forth by the Addis Agenda, the 2030 Agenda—which includes the SDGs—can be put into action. Priorities in economics, social policy, and the environment are all brought into harmony by the Agenda, which coordinates local and foreign resource flows, policies, and agreements. The Addis Agenda outlines the following particular areas for action:

- State funds inside the country

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- Commercial banking and business on a global scale
- Cooperation between nations for development
- Promoting global commerce as a catalyst for progress
- Solvency and the management of debt
- Take on problems at their root
- Research, development, innovation, and enhancing capabilities

What Party Certain International Bodyparts Play:

The World Meteorological Organization (WMO)

The water has always played a significant role in the work of the World Meteorological Organisation (WMO). When it comes to climate change, weather patterns, water resource allocation, and its interactions with land and sea, the United Nations system now looks on WMO as an authority. Ensuring the safety of ships and persons at sea is of the utmost importance, and WMO collaborates with the International Maritime Organisation (IMO) to enhance navigational warning systems. These alerts are based on weather data that is also used to improve navigational routes.

Worldwide Maritime Organization (IMO)

Preserving marine life without jeopardising economic contributions is the primary responsibility of the International Maritime Organisation (IMO), which is responsible for regulating the worldwide shipping sector. Safety, environmental friendliness, energy efficiency, and security are paramount in the organization's eyes when it comes to international shipping, which includes design, building, equipment, crewing, operation, and disposal. In addition to reducing ship noise underwater and the possibility of accidents with marine animals, the International Maritime Organisation (IMO) supports initiatives to manage and conserve marine and coastal ecosystems, such as the development of Special Areas and Particularly Sensitive Sea Areas.

Goal 14 and the United Nations:

The Ocean Conference, officially known as the "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," is an international gathering that seeks to encourage ethical ocean care. More than 90% of all international commerce takes place in the ocean, and 40% of the world's population resides within 100 km of the shore, so it's clear how important the ocean is to the global economy. The oceans and seas are addressed in SDG 14's ten objectives, while Agenda 21's Chapter 17 emphasises their significance for sustainable development.

- Make it a priority to eliminate or drastically cut down on all forms of marine pollution—including nutrient and debris pollution—by the year 2025. This includes pollution that originates on land.

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- Sustainable management and preservation of coastal and marine ecosystems, including measures to restore and strengthen them, must be implemented by 2020 if we are to see healthy and productive seas. Major negative outcomes may be lessened using this measure.
- Lessen the impact of ocean acidification and discover ways to fix it, including fostering more interdisciplinary research partnerships.
- Put science-based management plans in place and effectively regulate harvesting to restore fish stocks as quickly as possible or to levels that can produce maximum sustainable yield based on their biological characteristics. End destructive fishing practices, illegal, unreported, and unregulated fishing; and put an end to overfishing by 2020.
- Reserve 10% of coastal and marine areas by 2020 in line with international and national regulations and the most recent scientific findings.
- If the World Trade Organisation is serious about negotiating fisheries subsidies, it must do so in a way that prevents overcapacity and overfishing by 2020, ends subsidies that promote illegal, unreported, and unregulated fishing, and forbids the creation of new subsidies of the same kind.
- Least developed countries and small island developing states may see an economic gain by 2030 if fisheries, aquaculture, and tourism are managed sustainably.
- There needs to be an increase in scientific understanding, a development in research capacity, and a transfer of marine technology if we are to improve ocean health and increase the contribution of marine biodiversity to the development of developing nations, particularly small island developing states and least developed countries. This procedure has to take into account the Standards and Criteria for the Transfer of Marine Technology established by the Intergovernmental Oceanographic Commission.
- Help artisanal fishermen who work on a smaller scale have access to marine resources and markets.

Related issues:

Maintaining healthy ecosystems is of paramount significance to people. Human prosperity is dependent on healthy seas, oceans, and marine resources. While it's true that improving human well-being often comes at the expense of ecosystem integrity, there are ways to mitigate the negative effects of human activity on the marine environment. This could be achieved through more responsible resource management, shifting consumption and production patterns, or better oversight and control of human operations. But this can't take place without strong leadership and a supportive atmosphere. The capacity of oceans, seas, and marine resources to provide essential ecosystem services is being diminished as a result of human activities that are progressively endangering, degrading, or destroying these areas. The physical modification and loss of coastal and marine ecosystems and landscapes, as well as climate change, pollution in the ocean, and the unsustainable exploitation of marine resources are all significant types of hazards. Human health is taking a hit as a result of the destruction of marine and coastal ecosystems and habitats. Reduce the negative anthropogenic impacts on the marine environment through good governance, an enabling environment, sustainable land- and marine-based human activities, and adequate measures. This can be achieved through more sustainable resource use, changes in production and consumption patterns, and improved management and control of human activities. Following the ecosystem approach and including all relevant parties, projects and actions should ideally be planned and

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executed in a way that is integrated, crosses sectors, and scales. The oceans have given us so much, and we must modify our perspective, management, and use of these resources if we want to keep the oceans habitable and keep their ecosystems healthy.

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