

Forum: Third Youth Assembly (YA3)

Issue: Finding New Adjustments with AI to Enhance Marine Life (SDG 14)

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Introduction

Artificial intelligence (AI) can be life-changing in reaching the goals of Sustainable Development Goal 14 (SDG 14) to preserve and sustainably use oceans, seas and marine resources. Artificial intelligence operates on wide-ranging data of the marine environment, helping marine biologists in monitoring ocean ecosystems, tracking endangered species of marine life and predicting possible changes to entire environments. Such insights enable wiser conservation choices that help safeguard ecosystems against stressors such as overfishing, pollution and climate change. Thankfully, as technology progresses, AI-based tools offer us new ways of fine-tuning these adjustments that will hopefully allow the return and maintenance of marine life so that future generations can enjoy living oceans.

Definition of Key Terms

Artificial Intelligence (AI): Technology that imitates human intelligence through an algorithm that processes data and applies it to make decisions and perform certain tasks.

Sustainability: In the environmental context, sustainability is the ability to conservatively use natural resources while taking into account the long-term consequences of the ways in which resources are used.

Background Information

Sustainable development goal 14 (SDG 14) stresses the importance of conserving and sustainably using the oceans, seas and marine resources. As threats to marine ecosystems

increase by the day, caused by overfishing, pollution and climate change, these solutions are critical if we want to conserve marine biodiversity. AI is one of the most promising tools emerging in this area to monitor, understand and secure our ocean. With machine learning — the ability to learn without programming from every new data point process — AI processes all environmental data, such as satellite and underwater sensors or drone images collected over years, tracks species or map habitats and even predicts harmful algal blooms or pollution events. For instance, AI can help create fishing regulations to avoid overfishing. By integrating AI into marine conservation efforts, we are finding new ways to adjust human activities, aiming to restore ocean health and ensure its strength for generations to come.

Major Parties Involved

The United States of America: US institutions such as National Oceanic and Atmospheric Administration (NOAA) and Stanford's Center for Ocean Solutions are some which utilize AI to perform actions such as tracking marine species, predicting ocean conditions, and monitoring coral reefs.

European Union: Several EU countries, particularly Germany, France, and the Netherlands, are advancing AI solutions and satellite technology to monitor and protect marine ecosystems through EU-funded projects like Horizon 2020 (H2020).

Canada: As a pioneer in using AI and machine learning for ocean monitoring and marine life research, especially in its Arctic regions and coastal waters, Canada also has institutions, such as the Ocean Networks Canada, which are currently using AI to analyze large datasets from sensors tracking ocean temperatures, salinity, and marine species movements, allowing for careful administration of marine life's conditions.

Timeline of Key Events

Date	Description of Event
2025	The UN Ocean Conference, co-hosted by France and Costa Rica, is to take place this year in June in Nice, France. The aim is to evaluate current progress, further call for action towards conserving the state of marine life, and form partnerships and plans for future processes.
2017	The United Nations Decade of Ocean Science for Sustainable Development was officially established in 2017 by the United Nations General Assembly; however UNESCO's Intergovernmental Oceanographic Commission (IOC) was in charge of governing and overseeing the Ocean Decade from 2021 to 2030. The purpose of the Ocean Decade vision is to restore the state and condition of the ocean while switching to more sustainable use of its resources.
2015	The United Nations Sustainable Development Goal 14 (SDG14) is one of the 17 goals in SDGs. Goal 14: Conserve and sustainably use the oceans, seas and marine resources pushes for conserving the ocean and its sources. Sub-goals such as goal 14.1 and 14.7 set goals for 2015 and 2030 respectively, allowing for a reference to current progress and future achievements to be made.
2000	The Millennium Development Goals (MDGs) was set by the United Nations to put down the principle goals for the development of countries. Goal 7: Ensure Environmental Sustainability included discussion of marine ecosystems; still, AI was not in conversation.
1982	The UN Convention on Laws of the Sea (UNCLOS) was adopted in 1982. It

	established laws and regulations for countries to abide by, governing the usage of the ocean's resources. UNCLOS also continues to stand as a framework for development in marine related research or practices.
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Previous Attempts to Resolve this Issue

Many programs and organizations have been set in place to battle the issue regarding deterioration of ocean life; however, two initiatives have emerged as immensely effective: 1- Global Fishing Watch: The Global Fishing Watch, a non-profit organization, was founded in 2014 and launched in 2016 in collaboration with Google, SkyTruth, and Oceana. The purpose of this platform was to promote transparency in fishing practices and to combat illegal, unreported, and unregulated (IUU) fishing using AI to analyze satellite data and Automatic Identification System (AIS) signals to track global fishing activities in real-time.

2- AI for Earth: Created by Microsoft in 2017, AI for Earth is a private project with a budget of \$50 million. The programs apply AI to satellite data imagery and other machinery to monitor ocean health, conserve marine biodiversity. In addition, Microsoft has partnered with organizations focused on ocean sustainability such as The Nature Conservancy and Ocean Data Alliance to maximize AI for Earth's capabilities.

Possible Solutions to Resolve this Issue

1- Climate Change Impact Predictions:

AI tools can be used to predict certain effects of climate change on marine life such as ocean acidification and species migration. Moreover, the data received can be allocated to the Intergovernmental Panel on Climate Change (IPCC) as its job is to advance studies regarding

climate change.

2- Blue Carbon Solutions:

Mangroves, seagrasses, and salt marshes are labeled “blue carbon ecosystems” as they store carbon and help mitigate climate change. AI tools can be leveraged to help restore and conserve the state of blue carbon ecosystems as they provide great benefit to marine life and external conditions.

3- Fish Stock Monitoring:

In collaboration with the Food and Agriculture Organization (FAO), AI blockchain technology and other tools can be used to track fisheries data to ensure sustainable harvesting and prevent overfishing.

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