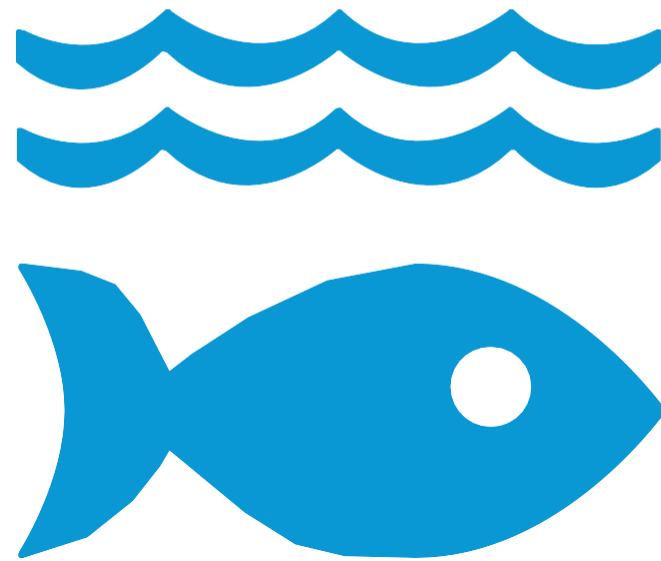


The Sustainability Report

14 LIFE BELOW WATER



2024/2025



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Overview

Goal 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

The world's oceans – their temperature, chemistry, currents and life – drive global systems that make the Earth habitable for humankind. Our rainwater, drinking water, weather, climate, coastlines, much of our food, and even the oxygen in the air we breathe, are all ultimately provided and regulated by the sea. Throughout history, oceans and seas have been vital conduits for trade and transportation. Careful management of this essential global resource is a key feature of a sustainable future. This goal consists of 10 targets and several indicators.

Partnerships for the goals:

- Avoid using plastic products that can pollute seas and oceans.
- Support organizations that work to protect marine life.
- Reduce the use of products that contain harmful chemicals that may leach into the water.
- Stop poaching.
- Avoid backfilling seas.

Background

Gulf University acknowledges the vital role that marine ecosystems play in sustaining life on Earth and the pressing challenges they face due to human activities. In alignment with the United Nations Sustainable Development Goal 14: *Life Below Water*, the university is deeply committed to the preservation and responsible management of oceans, seas, and marine biodiversity. This commitment is reflected in its strategic efforts to advance scientific research, integrate marine sustainability topics into academic curricula, and actively involve students, faculty, and the broader community in initiatives aimed at protecting marine environments.

The university supports multidisciplinary research focused on key issues such as marine pollution, plastic waste, overfishing, coral reef degradation, and the loss of marine habitats. Educational programs are designed to equip students with the knowledge and skills needed to understand and address complex marine environmental challenges. Moreover, Gulf University fosters partnerships with governmental bodies, environmental organizations, and local communities to implement conservation projects, beach cleanups, and public awareness campaigns.

Through these collective efforts, Gulf University not only promotes sustainable marine practices but also seeks to cultivate a culture of environmental responsibility. The institution aspires to empower future generations of leaders, scientists, and policymakers who will champion the protection of marine ecosystems and ensure the long-term health and productivity of our planet's aquatic resources.

Field visit to Suprema Marine 23 November 2024



As part of Gulf University's commitment to Sustainable Development Goal 14: *Life Below Water*, the Interior Design Engineering Department organized a field visit to **Suprema Marine Company**. This educational experience provided students with firsthand exposure to innovative technologies and sustainable practices in marine manufacturing. By observing environmentally conscious production methods and learning about advanced marine design, students gained insights into sustainable engineering solutions that help preserve marine ecosystems. This visit supports SDG 14 targets, particularly **Target 14.a**, which emphasizes the importance of increasing scientific knowledge and transferring marine technology to improve ocean health. The initiative also fosters awareness among future engineers about their role in protecting marine biodiversity and ensuring responsible use of ocean resources.

Scientific Research and Sustainable Development Goals Workshop Dr. Muhammad Al-Sheikhly and Dr. Tanweer January 16, 2025



On January 16, 2025, Gulf University organized a comprehensive workshop on **Scientific Research and the Sustainable Development Goals**, delivered by **Dr. Muhammad Al-Sheikhly** and **Dr. Tanweer**. The workshop explored the vital role of academic research in advancing multiple SDGs, including SDG 14: *Life Below Water*. It emphasized how scientific inquiry and innovation can contribute to sustainable solutions across areas such as clean water, climate action, and marine conservation. Participants engaged in discussions on integrating sustainability into research agendas and enhancing interdisciplinary collaboration. By highlighting the connection between research and global sustainability targets, the event supported SDG 14 indirectly by encouraging the development of environmental awareness and marine-focused research within broader sustainable development efforts.

Workshop on "The Role of Youth in Water Sustainability" at the Bahrain Scientific Center for Sustainable Development Goals on January 30, 2025.



Gulf University, in collaboration with the Bahrain Scientific Center for Sustainable Development Goals, actively participated in a youth-focused workshop titled “*The Role of Youth in Water Sustainability*” on January 30, 2025. This event formed part of the national “Sustainable Water” campaign launched by the Supreme Council for Environment under the theme “*Every Drop Has a Story*”, in partnership with the United Nations Environment Program. The workshop addressed critical issues including water resource management, the reuse of treated wastewater, and the exchange of innovative ideas to achieve water sustainability in Bahrain. By engaging youth in these discussions, the initiative emphasized the importance of individual and collective responsibility in water conservation and environmental stewardship. This aligns with **SDG 14: Life Below Water**, particularly through its indirect support of **Target 14.1**—which calls for the reduction of marine pollution from land-based activities—by raising awareness about the protection of freshwater and marine ecosystems. It also fosters youth engagement, equipping future leaders with the knowledge and motivation to contribute to long-term environmental sustainability.

ASRY MOU 30 January 2025





As part of Gulf University's ongoing efforts to support the Sustainable Development Goals, particularly **Goal 14: Life Below Water**, the university signed a partnership agreement with the **Arab Shipbuilding and Repair Yard Company (ASRY)**. This collaboration aims to provide students with valuable training and research opportunities that bridge academic learning with practical, real-world experience.

The agreement focuses on enhancing students' skills and preparing them for the job market, while also exposing them to the challenges and innovations within the marine industry. Through this partnership, ASRY seeks to invest in young national talent and reinforce its role in the sustainable development of the marine and shipbuilding sector.

This initiative contributes to **Target 14.a**, which calls for increasing scientific knowledge, developing research capacity, and transferring marine technology empowering future professionals to support sustainable practices in marine industries.

Submerged Objects Experience – Dr. Ola and Engineer Omar February 20, 2025



As part of its mission to enhance practical understanding in the field of engineering, the **Mechanical Engineering Department at Gulf University** conducted a hands-on experiment to determine the center of pressure for partially and fully submerged objects, comparing experimental results with theoretical values.

The session, supervised by **Dr. Ola Fatla** and **Engineer Omar Mousa**, aimed to provide students with direct experience in measuring the center of pressure on submerged surfaces. This initiative reflects the department's

commitment to integrating theoretical knowledge with practical application, particularly in areas relevant to marine and fluid mechanics.

Such activities indirectly support **SDG 14: Life Below Water** by equipping future engineers with the foundational knowledge needed to contribute to sustainable marine infrastructure and responsible interaction with aquatic environments.

Together Workshop Towards Comprehensive Awareness and Sustainable Safety Coast Guard 4 March 2025



In a step aimed at enhancing security awareness and community engagement, **Gulf University**, in collaboration with the **Ministry of Interior**, organized the "Together Towards Comprehensive Awareness and Sustainable Safety" exhibition. The event featured the participation of a distinguished group of experts and specialists and included interactive workshops and awareness sessions focused on promoting both personal and collective safety.

Participants were introduced to the latest technologies and best practices in the field of safety, along with practical guidance on how to handle risks and emergencies. This initiative is part of the university's ongoing efforts to foster a culture of safety and sustainability within the community.

While the primary focus was on safety, the event also supports the broader goals of **sustainable development**, including **SDG 14: Life Below Water**, by highlighting responsible practices in coastal and marine environments, especially in partnership with the Coast Guard.

ASRY- journey April 30, 2025

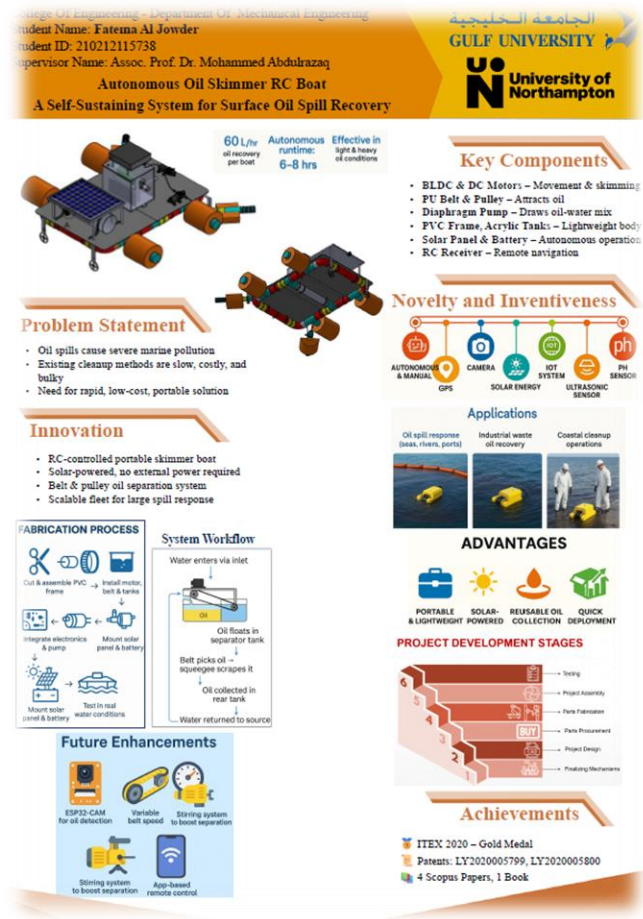


Gulf university organized an academic field trip to the **Arab Shipbuilding and Repair Yard Company (ASRY)** for students enrolled in the “Introduction to Public Relations” course. The visit aimed to provide students with real-world insights that complement the theoretical knowledge they receive in the classroom.

The field trip introduced students to professional practices in media, public relations, and corporate communication within an industrial setting. It included an interactive session with ASRY’s corporate communications team, offering students a closer look at workplace strategies, communication challenges, and the dynamic environment of a major maritime organization.

This initiative reflects Gulf University’s commitment to bridging academic learning with hands-on experience, enhancing students’ career readiness. While the visit focused primarily on communication, it also indirectly supports **SDG 14: Life Below Water** by engaging students with a leading marine industry organization and fostering awareness of the role effective communication plays in supporting sustainability and responsible operations in the maritime sector.

Seas Cleaning Project Faculty of Engineering 26 May 2025



In May 2025, a notable student innovation project titled "Autonomous Oil Skimmer RC Boat" was developed by Fatema Al Jowder, under the supervision of Assoc. Prof. Dr. Mohammed Abdulrazaq at the Faculty of Engineering, Gulf University. This project makes a direct contribution to Sustainable Development Goal 14: Life Below Water, which focuses on conserving and sustainably using marine resources. The RC boat is a solar-powered, self-sustaining system designed to recover surface oil spills—addressing one of the most serious environmental threats to marine ecosystems. By offering an efficient, low-cost, and portable solution for marine clean-up, the project supports the development of environmentally friendly technologies in marine protection. It highlights the role of academic research and student-led innovation in advancing sustainability. The project has also achieved international recognition, winning a gold medal at ITEX 2020 and receiving multiple patents and publications, underscoring Gulf University’s commitment to fostering impactful, real-world solutions aligned with the targets of SDG 14, especially in reducing marine pollution and enhancing marine technology capacity.

MARINE LIFE RESORT



As part of Gulf University’s commitment to Sustainable Development Goal 14 (SDG 14): *Life Below Water*, a student project titled "Oceanic Tones – Marine Life Resort", developed by Nada Yaser Abdulla under the supervision of Dr. Ashraf, exemplifies innovative thinking in sustainable coastal design. This visionary resort project is inspired by the Arabian Gulf’s marine environment and integrates eco-friendly architecture, biophilic interior design, and smart technologies to promote ocean-conscious tourism. The Marine Life Resort blends luxury with sustainability by utilizing environmentally responsible materials such as recycled glass, sustainable wood, and high-efficiency systems for HVAC, lighting, and water use. The design draws heavily on Bahrain’s maritime heritage—honoring the region’s pearl diving legacy and reinforcing the aesthetic and ecological importance of the sea. Its immersive, ocean-inspired atmosphere encourages visitors to connect deeply with marine environments and appreciate the need to preserve

them.

By promoting sustainable tourism, raising environmental awareness, and implementing design strategies that minimize ecological impact, this project supports several SDG 14 targets, notably:

Target 14.1: By reducing the use of harmful materials and adopting eco-conscious construction, the resort helps minimize land-based marine pollution.

Target 14.2: Through ecosystem-sensitive design, it contributes to protecting coastal ecosystems from the adverse impacts of urban development.

Target 14.7: By creating a sustainable and culturally rooted tourism destination, the project enhances the economic benefits derived from the responsible use of marine resources.

This initiative not only reflects the student’s innovative capacity but also illustrates Gulf University's role in educating future professionals who integrate sustainability principles into real-world applications, aligning academic learning with global sustainability objectives.

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	14.1.1 (a) Index of coastal eutrophication; and (b) plastic debris density
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	14.2.1 Number of countries using ecosystem-based approaches to managing marine areas
14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	14.4.1 Proportion of fish stocks within biologically sustainable levels
14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	14.5.1 Coverage of protected areas in relation to marine areas
14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation ⁴	14.6.1 Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing
14.7 By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries
14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	14.a.1 Proportion of total research budget allocated to research in the field of marine technology

14.b Provide access for small-scale artisanal fishers to marine resources and markets	14.b.1 Degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries
14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of “The future we want”	14.c.1 Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources

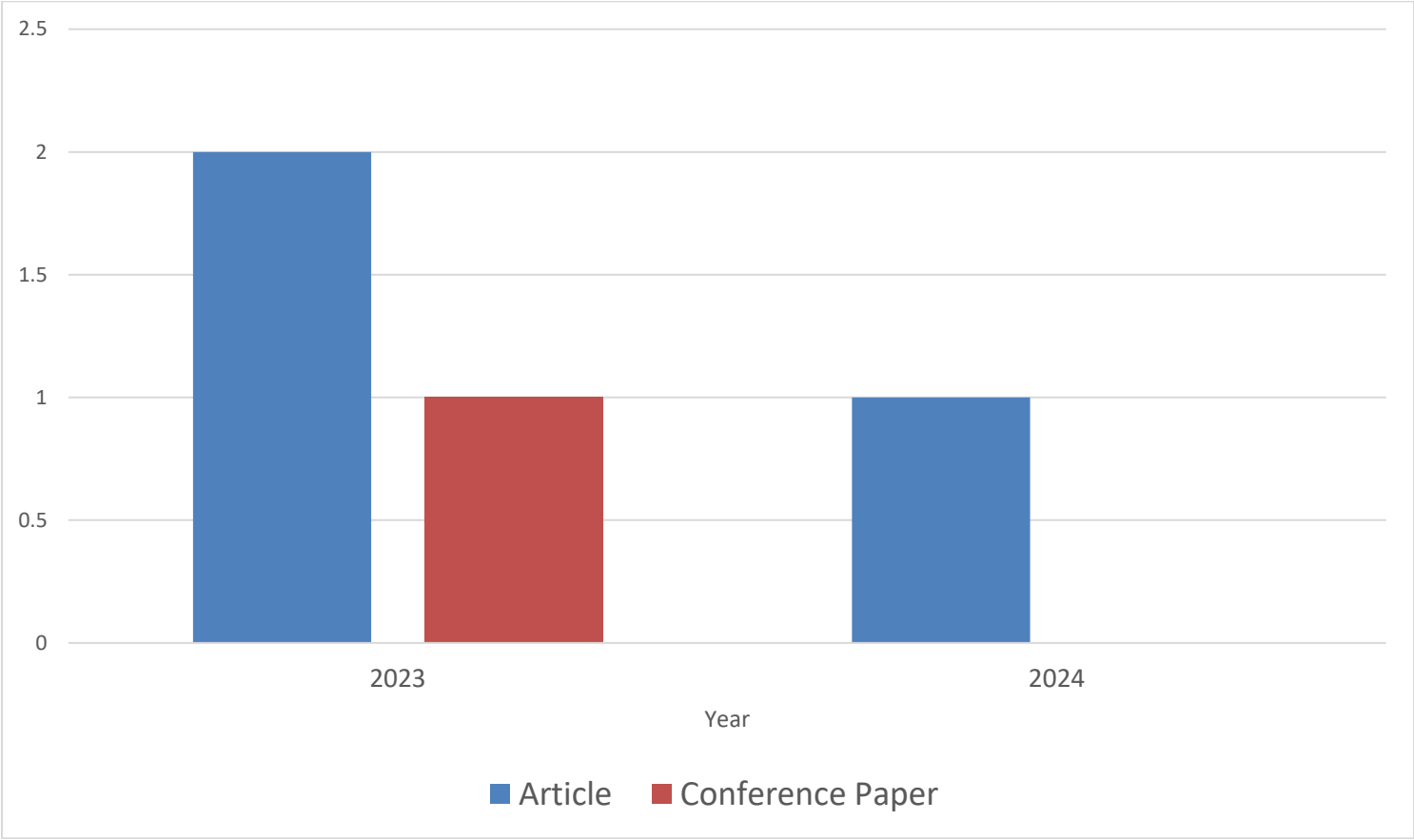
Impact Highlights and Key Performance Indicators (KPIs)

Indicator	Impact Summary	Quantitative Result (2024–2025)
Marine Waste Removal	Clean-up campaigns conducted along Bahrain’s coastal areas to protect marine ecosystems.	400 kg of marine waste removed
Community Participation	Students, staff, and community members engaged in marine conservation activities and awareness events.	500+ participants involved
Research Publications	Academic studies addressing ocean sustainability, marine biodiversity, and pollution control.	5 research publications
Student Innovation	Development of sustainable technology prototypes to minimize marine pollution.	2 student prototypes created

Key Performance Indicators for SDG14

KPI	Indicator Description	2024–2025 Result	Status
KPI 1	Quantity of marine waste collected during clean-ups	400 kg	Achieved
KPI 2	Number of marine awareness and training events	4	Achieved
KPI 3	Number of participants in ocean conservation activities	500+	Exceeded
KPI 4	Research outputs related to SDG 14	5	Achieved
KPI 5	Student innovation projects on marine sustainability	2	On Track

SDG14 Publications by Type & Year



SDG 14 Articles in 2023-2024

Authors Name	Title	Journal Name	Type	Year
Mohammed, M.N., Aljibori, H.S., Jweeg, M.J., ...Aldulaimi, M., Al-Azawi, K.F.	A Comprehensive Review on Graphene Oxide Based Nanocomposites for Wastewater Treatment	Polish Journal of Chemical Technology	Article	2024
Abed, A.A., Suwaed, M.S., Al-Rubaye, A.H., ...Kadrigama, K.A., Karah Bash, A.A.	Optimizing Energy and Reserve Minimization in a Sustainable Microgrid with Electric Vehicle Integration: Dynamic and Adjustable Manta Ray Foraging Algorithm	Processes	Article	2023
Mohammed, M.N., Aljibori, H.S., al-Tamimi, A.N.J., ...Sharif, A., Alfiras, M.I.I.	Toward Sustainable Smart Cities in Bahrain: A Groundbreaking Approach to Marine Renewable Energy Harnessing Sea Tides and Waves for a Greener Energy Future	International Conference on Engineering Technologies and Applied Sciences Shaping the Future of Technology Through Smart Computing and Engineering ICETAS 2023	Conference Paper	2023

Summary and Future Outlook

Gulf University's efforts in 2024-2025 demonstrate a strong commitment to protecting marine resources and fostering sustainable aquatic ecosystems. Through education, Research and Community Partnership. GU has made tangible progress in raising awareness and reducing marine pollution.

Future Outlook (2025–2026):

- Expand “Plastic Free Campus” initiative to 100 % implementation.
- Launch annual “Blue Awareness Week” with local schools and NGOs.
- Develop marine research hub within the Sustainable Engineering Hub.
- Strengthen collaborations with regional marine institutions and policy networks.

Through these actions, Gulf University reinforces its leadership in marine sustainability education and action, contributing to a cleaner, healthier marine environment for Bahrain and the GCC region.

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