SDG 14

14.1 Research on Life Below Water

Parameter	Data
Scholarly Output	66
Field-Weighted Citation Impact	1.51
Citation Count	513

From 2022 to 2024, Amrita Vishwa Vidyapeetham made meaningful strides in advancing United Nations Sustainable Development Goal 14 — Life Below Water, through research dedicated to protecting marine ecosystems and promoting sustainable use of ocean and freshwater resources. With 66 scholarly outputs and a Field-Weighted Citation Impact of 1.51, Amrita's research demonstrates global relevance in addressing challenges related to marine pollution, blue economy, and freshwater conservation. The university's work encompasses critical areas such as oil spill management, waste collection, and marine environmental monitoring, reflecting a commitment to safeguarding aquatic biodiversity and ecosystem health. By integrating advanced technologies like Computer Vision, Aerogel materials, and Fog Computing, Amrita pioneers innovative approaches to detect, prevent, and mitigate marine pollution and climatic impacts on water bodies. Supported by 19 international collaborations, 2,547 views, and 513 citations, Amrita's SDG 14 research underscores its growing global influence and dedication to ensuring the long-term sustainability of marine and aquatic environments.

Building Blue Economies: 64 Women Skilled in Sustainable Seaweed Farming

As part of a marine conservation and livelihood enhancement initiative, AMMACHI Labs trained 64 women in sustainable seaweed farming. The program covered eco-friendly cultivation, safe harvesting, basic value addition, and market linkage, emphasizing habitat protection and

climate resilience. Participants formed producer groups, adopted low-impact farming methods (rope-line culture, water-quality monitoring), and completed entrepreneurship and digital-skills modules. This initiative advances SDG 14 (Life Below Water) by promoting regenerative coastal livelihoods, while strengthening SDG 5 (Gender Equality) and

SDG 8 (Decent Work & Economic Growth) through women-led microenterprises.

Community-Led Blue Carbon: Amrita Restores Seagrass

AMMACHI Labs led community-based seagrass restoration to stabilize coastal sediments, rejuvenate fish nursery habitats, and enhance nearshore biodiversity. At Thondi village, teams transplanted critical seagrass species to anchor sediments and improve water clarity. In Olaikuda, a large-scale effort restored ~0.9 hectares of seabed using sustainable planting methods, co-executed with students, local leaders and fishers, Indian Navy personnel, and marine experts to ensure safe logistics and long-term stewardship. Methods included donor-site clump/shoot transplants, low-disturbance planting frames, and planned spacing for rapid meadow closure, paired with community monitoring of turbidity, seagrass cover, and seedling survival. Early results indicate improved sediment stability and visible habitat recovery supporting juvenile fish and invertebrates; local stewardship groups have been formed for quarterly monitoring and shoreline clean-ups. SDG contributions: 14.2/14.5 (coastal

ecosystem restoration & protection), 13.1 (nature-based adaptation), and 11.3/17.17 (inclusive, multi-stakeholder coastal stewardship).

Integrated Multi-Trophic Aquaculture: A Community Skills Initiative

AMMACHI Labs is advancing ocean-based livelihoods through hands-on skills training and aquaculture education. In our Integrated Multi-Trophic Aquaculture (IMTA) sessions, students learn how co-cultivating seaweed, mussels, and finfish forms a self-sustaining, eco-friendly system where each species supports the others. Field discussions bridge technical know-how with physical readiness, emphasizing swimming and water safety as foundational for safe participation and long-term success in marine work. These

engagements underscore AMMACHI Labs' commitment to practical skill development, sustainable livelihoods, and women's leadership in coastal communities.

New Marine Ecosystems Lab: Stressor Responses in Marine Animals & Sustainable Ocean Livelihoods

Amrita's Sustainable Ecosystem and Environmental Resilience (SEER) Lab has launched a dedicated Marine Ecosystems Lab to study how ocean stressors , warming, hypoxia, ocean acidification, and microplastics, affect the physiology, behavior, and reproduction of key marine species. Combining field observations, mesocosm experiments, and sensor-based monitoring, the lab maps tolerance thresholds and recovery pathways. Findings are translated into nature-positive, community-ready solutions, including safer fishing practices. Early priorities include controlled stressor-response trials on commercially important invertebrates and fishes, linking habitat restoration (e.g., seagrass/seaweed) to local stress buffering, and developing decision-support tools for coastal managers and producer groups.

Harmonising Livelihoods for Dugong Conservation in the Gulf of Mannar and Palk Bay

Amrita University's Center for Women's Empowerment and Gender Equality and the Surabhi Foundation, in collaboration with UNESCO India, have been promoting dugong conservation in the Gulf of Mannar and Palk Bay through the exploration of sustainable livelihood pathways for coastal communities. A participatory study of 800+ households across 10 villages revealed strong interest, especially among women, in alternatives such as seaweed cultivation, food processing, crafts, tailoring, and eco-tourism amid declining fishing opportunities.