



AUTONOMOUS REEF MONITORING STRUCTURES (ARMS)

WHAT ARE ARMS?

Autonomous Reef Monitoring Structures (ARMS) are a set of plates that mimic the structural complexity of a coral reef and thus are used to assess marine biodiversity. The ARMS units attract hundreds of species, ranging from sessile sponges, cnidarians, tunicates, bryozoans to mobile worms, molluscs, crustaceans, sea stars etc. The structures are usually left secured to the reef for 1-3 years. After retrieval, the units are transported to the lab where the fauna are visually identified or using advanced molecular genetic analyses.

Broadly, ARMS can be used to identify cryptic biodiversity i.e. species that look similar or cannot be easily identified using their morphology, evaluate the contribution of species to biodiversity and ecosystem function, inventory and quantify key ecosystem functions across spatial and seasonal gradients and assess the impact of water quality on marine biodiversity.

THE ANDAMANS PROJECT

A collaboration between ANET/Dakshin, Hong Kong University, and IISc Bangalore, this ARMS project aims to monitor marine biodiversity in the Andaman & Nicobar (A&N) Islands and assess its vulnerability to anthropogenic stressors. It is the first deployment of ARMS in the Andaman Islands, linking the region to a global dataset and establishing a baseline for understanding marine biodiversity in the context of climate change in the Indian subcontinent. The data generated by the project can also help identify the biogeographic connections between the Indian subcontinent and Southeast Asia.

PROGRESS

As of 2022, ten ARMS units have been deployed, retrieved, and are being processed at IISc Bangalore. Analysis of over 400 motile fractions revealed Arthropoda as the dominant phylum around Wandoor and Swaraj Dweep, with shrimps being the most common taxa, followed by molluscs, where gastropods (snails) were the most prevalent group.

By integrating monitoring techniques and comprehensive analysis, the project aims to improve understanding of cryptic marine biodiversity in the Andaman and Nicobar Islands. This knowledge is crucial for informing conservation strategies and ensuring the long-term sustainability of marine ecosystems.

Illustration & Design by Barkha Avinash



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