14.5.1. Using Monitoring to Guide Coastal Restoration

Introduction

Coastal restoration is most useful when project partners can examine how planted or restored habitats develop, rather than report implementation numbers alone. The survival of mangrove seedlings, the condition of marine habitats, and the availability of baseline biodiversity information all affect how future conservation efforts can be designed and evaluated.

During Academic Year 2024–2025, Davao Oriental State University (DOrSU) and its partners documented follow-up from an earlier mangrove planting in Pujada Bay, established a local government partnership for baseline marine biodiversity assessment in Barangay Tagabebe, and shared community-based mangrove rehabilitation experience through publication. Earlier scholarly work on coastal environmental assessment provides methodological background.

The following accounts separate initial activities from later monitoring. Planting totals from April 2024 are not counted as new plantings in this academic year; the municipal agreement is described as a commitment to undertake assessment, not a completed survey; and publication of rehabilitation experience is distinguished from new field implementation.

Counting Surviving Mangroves Beyond Counting Plantings

In Pujada Bay, DOrSU's mangrove work included checking what survived after planting. Following an April 2024 planting of 3,000 seedlings near the reef site, university staff tracked species, height, and leaves. The first-year project report recorded 1,887 surviving seedlings—about 63 percent of that monitored planting.

The planting predates AY 2024–2025; the reported follow-up provides evidence for the monitoring period. By showing both survival and losses, the record helps partners refine site selection and focus care where seedlings have a better chance to establish.

The survival figure is more informative than a planting total alone because it records the condition of a defined cohort. It also directs attention to the physical conditions that seedlings must tolerate. Monitoring can help partners identify where to investigate losses and where continued care is appropriate. The 63 percent figure applies to the specified 3,000-seedling cohort and should not be generalised to all mangrove projects in the bay (rrreefs, 2025).

References

rrreefs. (2025, June). Reef impact report: February 2024–February 2025, Pujada Bay, Philippines. Retrieved from https://www.rrreefs.com/wp-content/uploads/2025/06/2025_PUJ_impact_report.pdf

Helping a Coastal Municipality Establish Its Starting Point

Before a conservation area can be managed well, its living resources must be understood. On September 11, 2024, DOrSU and the Municipality of Governor Generoso signed an agreement for a baseline marine biodiversity assessment in Barangay Tagabebe. Project Leader Amy G. Ponce leads the university contribution, with funding from the municipal government.

The planned assessment covers fish, corals, and seagrasses in a proposed Local Conservation Area. The agreement creates a concrete channel for local government to obtain scientific support for conservation and fisheries planning.

A baseline can help a municipality describe the resources it intends to protect and establish reference information for later comparisons. Covering fish, corals, and seagrasses recognises the different components of the proposed conservation area. The agreement assigns a role to university expertise within a locally funded initiative; completion of the survey, its findings, and adoption of management measures would require follow-up documentation (DOrSU PIO, 2024).



Figure 1. DOrSU and Municipality of Governor Generoso representatives sign the marine biodiversity assessment agreement, September 11, 2024. The image documents the agreement, not completed biodiversity sampling. Photo credit: DOrSU–Public Information Office.

References

Davao Oriental State University, Public Information Office. (2024, September 11). DOrSU, LGU Governor Generoso Partner for Marine Biodiversity Assessment in Barangay Tagabebe. Retrieved from https://dorsu.edu.ph/dorsu-lgu-governor-generoso-partner-for-marine-biodiversity-assessment-in-barangay-tagabebe/

Community Based Mangrove Rehabilitation and Enhancement

Mangrove restoration depends on the people who care for the coast. A May 2025 publication documents DOrSU's RIC-XI collaboration with Mama Earth Foundation, DENR, BFAR, the City of Mati, and local communities on mangrove rehabilitation and enhancement.

The account brings ecological work and community participation into a shared record that can inform future rehabilitation. Its earlier planting totals describe the project's history and are not counted as new AY 2024–2025 plantings. The publication's contribution during this reporting period is the documentation and sharing of that experience.

Documenting the collaboration makes the roles of the university, agencies, conservation partners, and community participants more visible. It also allows experience from an established rehabilitation programme to inform discussion of future activities. For impact reporting, the distinction between historical implementation and knowledge shared during the academic year is important: publication supports learning, while new restoration outputs require dated field records (Manooy-Vicente et al., 2025; Jimenez, 2025).

References

Manooy-Vicente, N. J., Jimenez, L. A., Seniel, J. G. P., Centro, J. A., & Kronberg, U. (2025). A community-based mangrove rehabilitation and enhancement in the City of Mati, Davao Oriental, Philippines – regenerating the coast of Pujada Bay. EPRA International Journal of Socio-Economic and Environmental Outlook, 12(5), 16–24. https://doi.org/10.36713/epra21487

Jimenez, L. A., Seniel, J. P., Centro, J. A., Kronberg, U. Regenerating Coast of Pujada Bay: A Community-Based Mangrove Rehabilitation and Enhancement in the City of Mati, Davao Oriental, Philippines. World Aquaculture Society, Aquaculture 2025 Conference, March 2025. Retrieved from https://www.was.org/Meeting/Program/PaperDetail/165612

Research Context for Defining Restoration Priorities

The coastal-zone health-index framework developed by DOrSU collaborators offers earlier methodological context for assessing environmental condition. For restoration planning, a structured assessment can help articulate what information is needed and how different pressures may be considered together.

This supports the reasoning behind following seedling survival and establishing a marine baseline. The earlier framework is not presented as an adopted restoration plan, and the sources do not establish that it was formally applied in Tagabebe or at the Pujada Bay planting site (Cabrera & Lee, 2022).



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Coastal Zone Environment Integrity Assessment for Sustainable Management: Part 1. Development of Adaptive Expert-Driven Coastal Zone Health Index Framework

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Abstract: The coastal zone is the environment that connects terrestrial and marine environments. It is the most productive ecosystem on the planet. It has been estimated that 23 percent of the population lives in the coastal regions. The attractive landscape and seascape of the coastal zone environments attract human settlement and increase the economic activities in the area. Unfortunately, massive human urbanization is also attributed to coastal zone ecosystem degradation. In addition, water-related phenomena due to the changing climate also affect the said environment. The negative impacts of human activities and the water-related phenomena typically deplete the environment's health. Thus, this study developed an adaptive index framework to assess the coastal zone environment condition. The principle of this framework is the sustainable co-existence of human development with the coastal zone environment. The identified coastal cities in the Philippines were utilized as the case study for developing the framework. The results show that the decision-makers are conservationists while extractive. In contrast, environmental educators are conservationists in nature. Moreover, each city has its own unique framework and signifies that the framework is adaptive to the perspective of the decision makers in their city.

Keywords: coastal zone sustainable management; CoZHI; multicriteria decision analysis; analytic hierarchy process; the Philippines

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Figure 2. Actual journal first-page image: Cabrera & Lee (2022), Journal of Marine Science and Engineering. Source: earlier supplied SDG 14 reference document; DOI: https://doi.org/10.3390/jmse10091183.

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Cabrera, J. S., & Lee, H. S. (2022). Coastal zone environment integrity assessment for sustainable management: Part 1. Development of adaptive expert-driven coastal zone health index framework. Journal of Marine Science and Engineering, 10(9), Article 1183. https://doi.org/10.3390/jmse10091183

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Conclusion

The evidence under Indicator 14.5.1 shows the value of following restoration beyond initial implementation. Monitoring of the specified 3,000-seedling mangrove cohort in Pujada Bay produced a survival count that can support evaluation of site conditions and subsequent care, while DOrSU's

partnership with the Municipality of Governor Generoso provides a formal route toward baseline assessment of proposed marine conservation resources.

The 2025 mangrove rehabilitation publication adds a record of institutional and community collaboration, and earlier coastal assessment research supplies useful methodological context. These sources document a developing evidence base, not proof that all interventions have achieved long-term ecological success or that the planned Tagabebe assessment was already completed.

Sustained monitoring, clear baselines, community engagement, and transparent reporting will be needed to determine whether these foundations translate into durable habitat recovery. The university’s immediate contribution is stronger information and partnerships for more informed restoration planning.