

From catch to conservation: Strengthening marine stewardship in Tomia, Wakatobi

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In the island communities of Tomia in Indonesia's Wakatobi archipelago, the rhythm of life has always been tied to the sea. Every morning, fishers return from nearby reefs and open waters carrying their catch to local landing sites, where fish collectors sort, weigh, and prepare seafood for distribution to local and regional markets. Beneath this daily activity lies a deeper story about the people working to sustain marine resources while protecting the ecosystems that support their livelihoods.

During a recent field mission under the ASEAN ENMAPS Project, project representatives visited fish landing sites and fish collector facilities in Tomia to better understand how local fisheries operate and how fisheries data can help guide sustainable management. The visit offered a closer look at the realities faced by coastal communities, fisheries workers, and marine protection authorities who are balancing economic needs with conservation responsibilities.

Understanding fisheries through data

At the landing sites, fish collectors described a fishing economy shaped by the seasons. While trading activities remain relatively stable throughout the year, fish availability fluctuates significantly depending on weather conditions and seasonal fishing patterns. Some months bring abundant catches, while other periods are marked by reduced fish supply and uncertainty for fishing households.

The field visit highlighted how fisheries activities in Tomia rely heavily on local knowledge and long-standing community relationships. Fish collectors carefully document transactions, monitor fish quality, and coordinate with fishers arriving from nearby islands. These interactions also revealed the importance of improving fisheries data collection systems to better capture information on catch volumes, fishing effort, fish sizes, and species composition.

Strengthening fisheries data collection is one of the key objectives supported under ASEAN ENMAPS. Reliable and evidence-based fisheries data can help marine managers better understand trends in fish populations and fishing pressure.



ASEAN ENMAPS team interviewing fish collectors in Tomia Islands

The role of fisheries enumerators

The mission also provided an opportunity to meet fisheries enumerators working in Tomia. These enumerators play an important role in collecting Catch Per Unit Effort (CPUE) data, which measures the relationship between fishing effort and catch levels. The information they gather includes fish catch data, fishing gear types, fishing duration, and fish length measurements.

During discussions with the project team and representatives from the National Park, the enumerators expressed confidence in the ongoing monitoring process and

demonstrated a strong understanding of why fisheries monitoring matters. Despite working in remote coastal areas, they reported no major concerns regarding data collection activities and emphasised the importance of maintaining technical coordination and support to ensure the consistency and reliability of the information being gathered.

For local fisheries managers, the data collected by enumerators represents more than numbers on a form. It provides a foundation for adaptive management strategies that can help protect marine ecosystems, promote ecosystem-based fisheries management, and support sustainable livelihoods for coastal communities.

Strengthening marine protection efforts

Conversations with national park representatives focused on the broader challenges of managing marine protected areas in Wakatobi. Discussions covered compliance with zoning regulations, efforts to prevent illegal and destructive fishing, and the promotion of

environmentally friendly fishing gear. Officials emphasised that effective marine conservation depends not only on rules and enforcement, but also on community awareness and cooperation.

One issue raised during the discussions was the limited capacity for marine surveillance and enforcement in Section III of the National Park area. According to park representatives, field operations are constrained by insufficient personnel and limited operational equipment for patrol and monitoring activities.

Remote islands and scattered coastal areas create additional logistical difficulties. National park staff explained that communication signals in some patrol areas remain weak or unreliable, making coordination difficult during field operations. Existing patrol boats also face engine limitations, reducing their ability to conduct long-distance monitoring activities efficiently.

Expanding SMART patrol and monitoring capacity

To address these concerns, the participants discussed opportunities to strengthen SMART Patrol implementation. SMART Patrol is an important monitoring system used to support marine surveillance and conservation management. However, park personnel noted that additional training, upgraded equipment, and improved operational infrastructure are needed to maximise its effectiveness.

Several priority needs were identified, including the addition of patrol boats, the procurement of higher-specification



drones, improvements to communication equipment supporting SMART Patrol operations (such as handheld radios, smartphones, and power banks), the provision of internet access in remote small islands with limited connectivity, and stronger support for boat maintenance and repairs. Participants also highlighted the importance of advanced training in SMART Patrol data management to strengthen staff capacity, improve reporting accuracy, and enhance the effectiveness of field monitoring efforts. .

The mission also highlighted the growing importance of biodiversity monitoring across Wakatobi's marine ecosystems. National park representatives shared concerns about the need for stronger monitoring support for dugongs, sea turtle nesting areas on outer islands, and coral reef health assessments.

Dugongs, often called sea cows, are among the region's most vulnerable marine species. Their presence is closely tied to healthy seagrass ecosystems, making them important indicators of marine ecosystem health. Meanwhile, sea turtle nesting sites on remote islands face increasing pressures from environmental change and human disturbance.

Investing in people and conservation skills

Field personnel identified several operational gaps affecting biodiversity monitoring activities. These include shortages of underwater monitoring equipment such as diving gear, regulators, buoyancy control devices (BCD sets), underwater cameras, and coral reef monitoring tools.

Participants also highlighted the importance of ensuring regular maintenance for patrol boats and engines to sustain long-term monitoring efforts.

Beyond equipment needs, national park staff stressed the importance of investing in people. Discussions underscored the need for continuous capacity-building programmes for field personnel, particularly in areas such as reef health monitoring, marine conservation monitoring, rescue operations, conflict resolution, and boat operation skills. Diving certification upgrades were also identified as an important requirement for improving the safety and effectiveness of underwater monitoring teams.

Community action against waste pollution



While fisheries management and biodiversity monitoring formed a major part of the mission discussions, community-based environmental action also emerged as a central theme.

The field visit also brought the team together with a group of young environmental champions from Kollo Soha Village, who have established the **Monippatu Waste Bank**. Consisting of 12 members, the group was formed in response to the growing waste challenges faced by coastal communities, particularly in areas where waste management infrastructure remains limited.

Since its establishment in December 2024, the Monippatu Waste Bank has developed a simple yet effective system: residents can exchange sorted dry or recyclable waste for cash. This incentive-based approach not only helps reduce the amount of waste ending up in the coastal environment but also encourages greater community participation in responsible household waste management.

The initiative has already delivered promising results. Between December 2024 and 2025, the group collected approximately **6.8 tonnes of recyclable waste**, including plastic, metal, paper, and glass. This figure does not include the waste collected through regular beach clean-up activities carried out with local residents.

Once collected, the recyclable materials are transported by ferry to Baubau City, where they are sold to recycling agents for further processing. The initiative demonstrates how community-led waste management can contribute not only to cleaner coastal environments but also to local economic opportunities while fostering a shared sense of responsibility for protecting the ocean and coastline.

Community representatives noted that the current waste management system remains relatively basic and requires additional support to grow sustainably. Key needs identified include access to funding, technical training, the development of waste-based livelihood opportunities, stronger collaboration among stakeholders, and broader public education to encourage greater participation in waste management efforts.

Despite these challenges, the discussions revealed strong community interest in improving local environmental conditions. Participants emphasised that empowering communities with practical knowledge and livelihood opportunities could help reduce marine pollution while strengthening local economic resilience.

Community action supporting coastal ecosystem conservation

Community-based conservation initiatives continue to play an important role in protecting Wakatobi's coastal ecosystems, but they require stronger support to reach their full potential. Various community groups have developed action plans focused on ecosystem restoration and the development of a sustainable blue economy. Their activities include mangrove nurseries and planting, coral reef transplantation, and the protection of sea turtle nesting habitats and nests.

The strong commitment and active participation demonstrated by these communities should be further strengthened through capacity-building programmes, incentive schemes, and the development of conservation-friendly livelihood opportunities. Expanding the role of local people through initiatives such as Conservation Cadres can also help ensure that communities are not merely beneficiaries of conservation efforts but become key drivers of long-term environmental stewardship and sustainable resource management.

Community-based fisheries management strategy supporting sustainable fisheries

The mission also offered insights into how community-based fisheries management strategies are contributing to marine conservation efforts.

One example discussed during the meetings was the implementation of the octopus seasonal closure system known locally as *buka tutup gurita*. Introduced in 2024 through community agreements, the system regulates octopus harvesting during specific periods, particularly during the east season or peak fishing months between June and August.



Coral reef transplantation in Tomia Islands

The initiative reflects a growing recognition among coastal communities that temporary fishing closures can help maintain marine resources and support long-term fisheries sustainability. By allowing octopus populations time to recover and reproduce, the community hopes to maintain catch productivity while reducing overexploitation pressures.

Participants also discussed broader efforts to protect fish spawning grounds and regulate fishing activities in ecologically sensitive areas. These include tourism zones and protected marine areas covered under village regulations, known locally as *Perdes*.

Community representatives emphasised that local regulations alone are not enough without stronger public awareness and consistent enforcement. As a result, discussions focused on the importance of supporting community education initiatives that can strengthen understanding of sustainable fishing practices and marine protection measures.

Preserving Wakatobi's charm through responsible tourism

As one of Indonesia's premier diving destinations, Wakatobi has long attracted both international and domestic visitors. Strengthening integrated and sustainable tourism infrastructure can further enhance the visitor experience while supporting the principles of responsible nature-based tourism within a protected area.

However, several challenges still need to be addressed. These include limited visitor centre facilities, the need for wider awareness and implementation of the e-ticketing system, and stronger engagement with dive operators across the region. Equally important is increasing the participation of local communities in the tourism value chain. Initiatives such as the development of Kulati Tourism Village demonstrate how community-based tourism can create economic opportunities while encouraging local people to play an active role in supporting conservation efforts.

By investing in both sustainable tourism infrastructure and community involvement, Wakatobi can continue to offer world-class marine experiences while safeguarding the natural treasures that make the archipelago unique.

A shared responsibility for the future

Throughout the mission, one message remained consistent across meetings with fishers, enumerators, community groups, and national park personnel. Effective marine conservation cannot rely solely on enforcement or scientific monitoring. It also depends on building trust, strengthening local participation, and supporting communities whose lives are closely connected to the sea.

The field visit in Tomia islands demonstrated how sustainable fisheries management and marine conservation are deeply interconnected with community livelihoods, local governance, and institutional capacity. From fisheries monitoring and biodiversity protection to waste management and seasonal fishing agreements, each effort represents part of a broader movement toward strengthening resilience in coastal and marine ecosystems.

For ASEAN ENMAPS, the mission reaffirmed the importance of supporting collaborative approaches that combine scientific data, local knowledge, and community engagement. As marine ecosystems across Southeast Asia continue to face pressures from overfishing, pollution, and environmental change, partnerships between communities, conservation authorities, and regional initiatives will remain essential.

In Tomia, the work continues one landing site, one patrol, and one community effort at a time. Along the shores where fishers return each day with their catch, local communities are also helping shape a future where marine resources can continue to sustain both people and nature for generations to come.

An aerial photograph of a coastal village, likely in Southeast Asia, showing traditional houses with tiled roofs nestled among lush greenery and palm trees. The village is situated on a peninsula or island, with a clear view of a vibrant coral reef and turquoise water in the foreground. The overall scene is peaceful and scenic, highlighting the natural beauty of the area.

The project *Effectively Managing Networks of Marine Protected Areas in Large Marine Ecosystems in the ASEAN region (ASEAN ENMAPS)* aims to improve marine protected area network management in key Large Marine Ecosystems across Indonesia, the Philippines, and Thailand. It applies science-based strategies to conserve biodiversity and sustain fisheries. The project also aims to strengthen governance, build the capacity of stakeholders, promote knowledge sharing, and advance sustainable financing for long-term conservation. ASEAN ENMAPS is implemented by the United Nations Development Programme through the funding of the Global Environment Facility, and with the ASEAN Centre for Biodiversity as the executing agency.

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