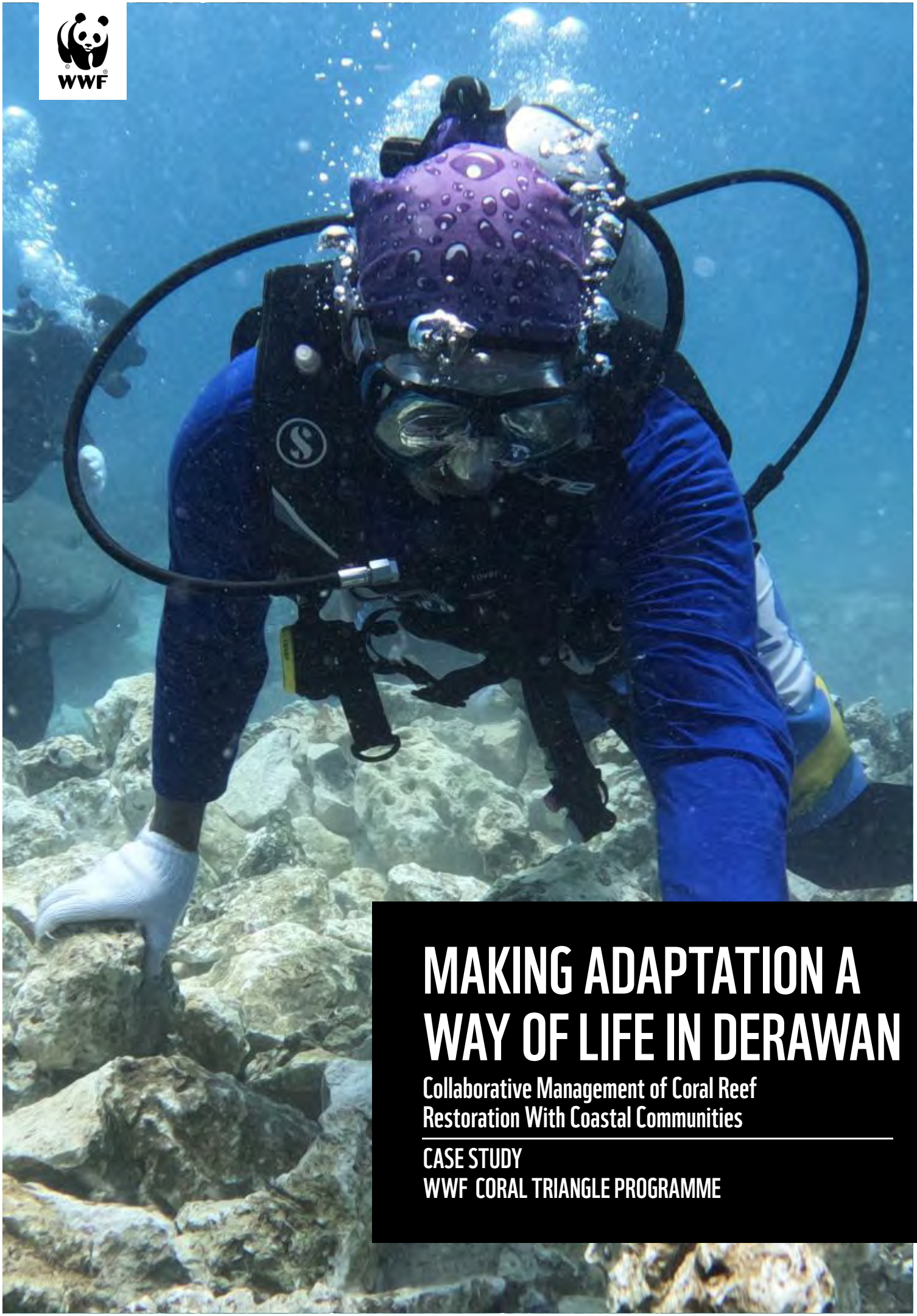


MAKING ADAPTATION A WAY OF LIFE IN DERAWAN

Collaborative Management of Coral Reef Restoration With Coastal Communities

CASE STUDY
WWF CORAL TRIANGLE PROGRAMME

Authors
Angela Lim
Jia Ling, Lim

Contributors
Irvan Ahmad Fikri
Novita Dyah Forentina
Christina Netta
I Wayan Veda Santiaji
Candhika Yusuf

Case study prepared by **WWF Coral Triangle Programme** & **WWF-Indonesia**

WWF is an independent conservation organization, with over 30 million followers and a global network active through local leadership in nearly 100 countries. Our mission is to stop the degradation of the planet's natural environment and to build a future in which people live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption. Find out more at wwf.panda.org.

Funding partners

Ocean Governance

GOPA WORLDWIDE CONSULTANTS B&S EUROPE

Funded by the European Union

Suggested citation style:
WWF Coral Triangle Programme. 2024. *Making Adaptation a Way of Life in Derawan: Collaborative Management of Coral Reef Restoration With Coastal Communities. 21 pp.*

Layout by Christina Netta

WWF Coral Triangle Programme, hosted by **WWF Indonesia**.
Graha Simatupang, Tower 2 Unit C 7th Floor,
Jl. TB Simatupang No.11, Jakarta
T: +62217829461
Visit: panda.org/coraltriangle
Follow: twitter.com/coral_triangle

Outside Cover photography:
© Yudhi Rizal / WWF-Indonesia

Inner Cover photography:
© Galang Wnie

TABLE OF CONTENTS

MAKING ADAPTATION A WAY OF LIFE, A NECESSITY FOR SCALING UP

The Sulu Sulawesi Seascape has been a beneficent provider for the communities of the Derawan Islands, mostly Bajau and some Bugis. Once a seafaring people, the Bajau used to call a large part of the East Kalimantan waters their home and only came ashore to trade, shelter from storms and to bury their dead. In time, they settled on and around islands where coral reefs thrive and fish are abundant, and began adapting to living on the coast.

Ruslan Efendy seated on his porch, enjoying a nice day in Derawan Island, August 2023.

"Fishing is our way of life, as it was for my father and grandfather. And so I thought, it would be for my son and his son," says Ruslan Efendy, a Bajau whose family has lived in Derawan Island since he was born in 1978. But change has come to these islands, once abundant and idyllic, where fishermen only went to sea to fish, to put food on the table and for basic necessities.

Coastal and island communities are now facing dynamic and complex changes to their environment and livelihoods, not only caused by depleting fish resources, changing climate conditions but sometimes also by the introduction of new government policies—in which they often have little say. This constant state of flux requires these communities to be resilient in adapting to various forms of adversity that come with change.

A former fish bomber and shark hunter, Ruslan was given a second chance when his uncle, an army officer, warned him that fish bombing was very dangerous and had been banned in 2004. If caught by law enforcers, he would be jailed. He found work as a snorkel and dive guide. One day, while he was guiding a group of divers, a fish bomb exploded underwater. They felt the shockwaves and extreme pain in their ears, but thankfully everyone was unharmed. Ruslan was severely traumatised though by the incident, especially after seeing first-hand the damage that fish bombs did to turtles and other marine life.

Ruslan made a resolution to be a changemaker in his community and became active in social and marine issues in Derawan. He was elected leader of the *Asosiasi Guide Snorkelling Derawan* (AGSD) or Derawan Snorkelling Guide Association, established in 2017. AGSD educates tourists on conservation practices and is actively involved in the restoration of coral reefs. More importantly, Ruslan's son, Kelvin, has followed in his footsteps, becoming a youth leader and founding a community organisation working on restoring coral reefs called Coral Planteners.

The coral reef restoration work in Derawan is enabling coastal and island communities to make **adaptation a way of life**—learning to accept change, manage responses, learn new life skills, share perspectives, set shared goals and take deliberate actions that enable their successful participation and access to resources—**a necessity for scaling up** through replication, partnerships and community co-management of restoration and other conservation projects.

CORAL REEF RESTORATION IN DERAWAN — ADAPTATION AND CO-MANAGEMENT

The coral reef restoration work in Derawan is one of three sites within the Sulu Sulawesi Seascape, funded by the European Union under the Ocean Governance Project (January 2021 to December 2023). The Derawan Islands management plan seeks to improve coral reefs in moderate conditions (26%–50% coral reef cover) and restore coral ecosystems within the limited utilization and sustainable fisheries zones.

The Ministry of Marine Affairs and Fisheries of the Republic of Indonesia has mandated the Provincial Government of East Kalimantan to work together with local communities, the private sector and NGOs, including WWF-Indonesia, to improve collaborative management for the Coastal Conservation Area and Small Islands of Derawan and Surrounding Waters, also known as the Derawan Islands Marine Protected Area (MPA).

> The implementation of this restoration through WWF-Indonesia that involves the support and collaboration of many parties is expected to bring improvement to the management of coastal and marine resources, maintain sustainability, and provide benefits to the people and especially the coral reefs in the Derawan Islands and surrounding areas.

Muhammad Ali Aripe, Head of Spatial Planning,
East Kalimantan Provincial Marine and Fisheries Agency,
Project Kick-off in Tanjung Redeb, 13 July 2022.

Illegal, unreported and unregulated (IUU) fishing practices, including the use of potassium bombs, trawl nets and increasing tourist boat anchors striking corals, have led to widespread damage of Derawan's coral reefs. This is evidenced by a high percentage, 36.28% of coral fragments or rubble at the monitoring sites, and reduced fish resources (Reef Health Monitoring by WWF-Indonesia, 2021). While registered fishing vessels increased from 810–1,029, between 2015 to 2019, the production of fish severely declined from 1.65 million tons to 0.45 million tons per year, recovering slightly to 0.83 million tons per year during the Covid-19 pandemic when fishing was restricted (Fisheries Authority of Berau Regency, 2021).

Measuring 285,266 ha, the Derawan Islands MPA in the Berau Regency of East Kalimantan is the largest nesting site for endangered Green Turtles (*Chelonia mydas*) in Indonesia and Southeast Asia. The MPA includes extensive mangrove, seagrass and coral reef areas, and are important feeding grounds for marine turtles and manta rays. It also harbours the world's largest jellyfish lake on Kakaban Island, with four unique species of stingless jellyfish—the Moon Jellyfish (*Aurelia aurita*), Spotted Jellyfish (*Mastigias papua*), Box Jellyfish (*Tripedalia cystophora*) and Upside-down Jellyfish (*Cassiopea ornate*). Only four of 52 islands—Derawan, Kakaban, Kaniungan Besar and Balikukup—in the Derawan Islands MPA are inhabited.

LESSONS LEARNED

Lessons for successful upscaling highlight the importance of motivating partners in co-management and ensuring inclusivity and collaboration are part of the project design so that local communities are genuinely involved and consulted.

Evolving policy interventions have been critical in leading to the co-management in Derawan—the Indonesian government's willingness to change policy, involve communities in the preparation and definition of roles and responsibilities, and empower local communities and agencies in the management of their shared resources.

Conservation efforts began in Derawan around 1998. In 2005, the Berau District Government designated the Derawan Islands as a conservation area—approximately 1.2 million ha—named the Regional Marine Conservation Area of Berau. There was great resistance from the community as their customary practices, including fishing, hunting of marine mammals and collecting of marine turtle eggs, were restricted. Some felt that the management plan for the area was focused on the environment, species and habitats but not enough focus was given to socio-economic issues. To address the local concerns, the conservation area was reduced to 285,266 ha and zoning plans developed (Yumi, 2018). However, minimal monitoring and enforcement, and lack of community involvement in the management of the conservation areas continued to affect the rate of ecosystem damage from destructive activities.

Subsequently in 2012, the government designated Derawan as a 'tourism village' to support the local economy and the area's cultural values. The community was encouraged to open their homes to tourists and provide relevant services. Many fishermen in Derawan preferred to retain their identities as small-scale fishers, not as service providers. Being Bajau, they are known as people with strong ties to the

ocean. However, things slowly changed as some of the community moved away from fishing towards tourism. A balance of both fishing and tourism activities will bring synergies to Derawan supported by coral restoration that benefits both activities.

The central government made a decision to gazette the Coastal Conservation Area and Small Islands of Derawan and Surrounding Waters as an MPA through the Ministry of Marine Affairs and Fisheries (MMAF) Decree No. 87 in 2016, following an assessment by MMAF. This decision is aimed at protecting, preserving and sustainably utilizing fisheries resources and important habitats in the MPA to support community welfare through capture fisheries and sustainable marine tourism activities. It addresses the need for multiple stakeholders in the MPA, but more importantly it recognizes that **policy interventions cannot be a top-down approach** and must ensure that **the local people**—who live, work and depend on these natural resources—**are heard and contribute to the management of shared resources.**

> The coral reef rehabilitation carried out by the Marine and Fisheries Authority of East Kalimantan Province, together with WWF-Indonesia and other stakeholders, is in line with the objectives of the Indonesian Ministry of Marine Affairs and Fisheries. The strategy recommended mutual collaboration and shared responsibility in managing the conservation area and was encouraged by both the central and local governments."

Sukendi Darmansyah, Directorate General of Marine Biodiversity
Workshop of EU Ocean Governance Project Dissemination
in Tanjung Redeb, 5 December 2023

Successful scaling up and co-management requires coalitions of public, private, and civil society partners who align their motivations. This involves integrating successful initiatives into public policy and reinforcing government-led change with community efforts. Co-managers identify and agree to collaborate by leveraging on their complementary capabilities, **harnessing the strengths of each co-manager**—the government's ability to adapt policy and provide subsidies for sustainable fisheries and tourism, the district authority's technical knowledge and enforcement to support sustainable practices, augmented by the communities' culture, skills and traditional knowledge, and the private sector's ability to market and bring in investors and tourists (international and local) to sustain these activities.

GETTING TO ADAPTIVE CO-MANAGEMENT

Adaptive co-management must ensure shared decision-making and authority. Adaptation must be supported by good communication. The WWF team had to ensure that all parties had clear and realistic expectations, are sensitive to the local context, and put in place cultivating conditions for the success of the project. These are highlighted as key considerations for future efforts to implement adaptive co-management approaches. One of the outcomes of adaptive co-management is that in time, and to varying degrees, a system will be put in place that integrates the complex and adaptive actions, with interactions and feedback between resource users, resources, ecosystems, governance and public infrastructure (Plummer and Baird, 2013).

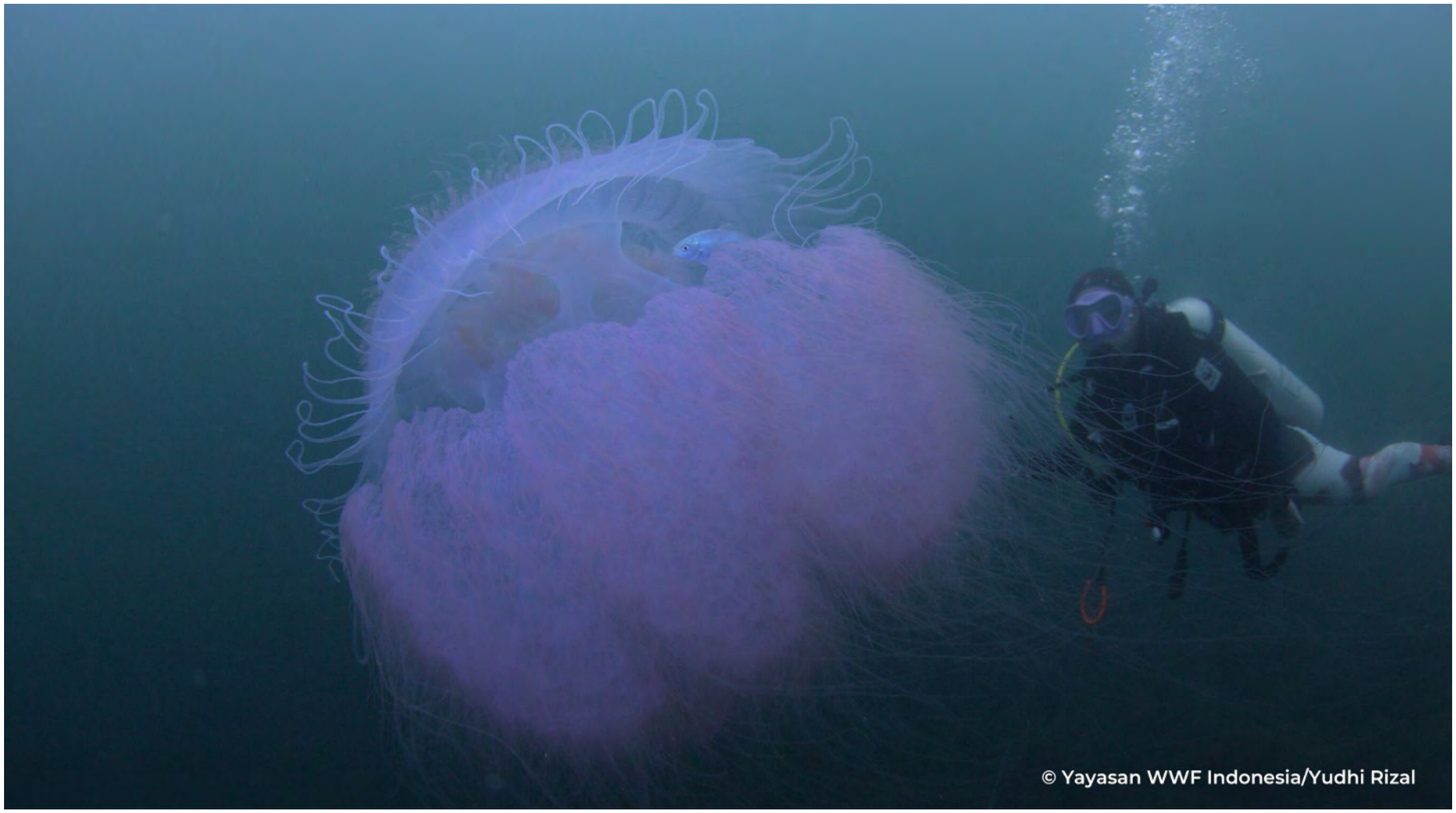
Why we need to adapt to change together. This is so that more ambitious projects can be undertaken together, countries can share knowledge, scale up community-led actions, increase women's roles and encourage the next generation of youths to take on leadership.

In business enterprises, when partners agree to invest, build and co-manage a company, it is often a long-term or lifetime commitment to work together, to reap long-term rewards. When we agree to co-manage with communities, there is need for continuity, not just based on funding cycles of three to five years. In business, some companies take many years to break even, before they see the fruits of their joint management. Similarly, any investment in social and transformative change requires time. For example, the rock pile method can take up to seven years for coral restoration to show significant benefits.

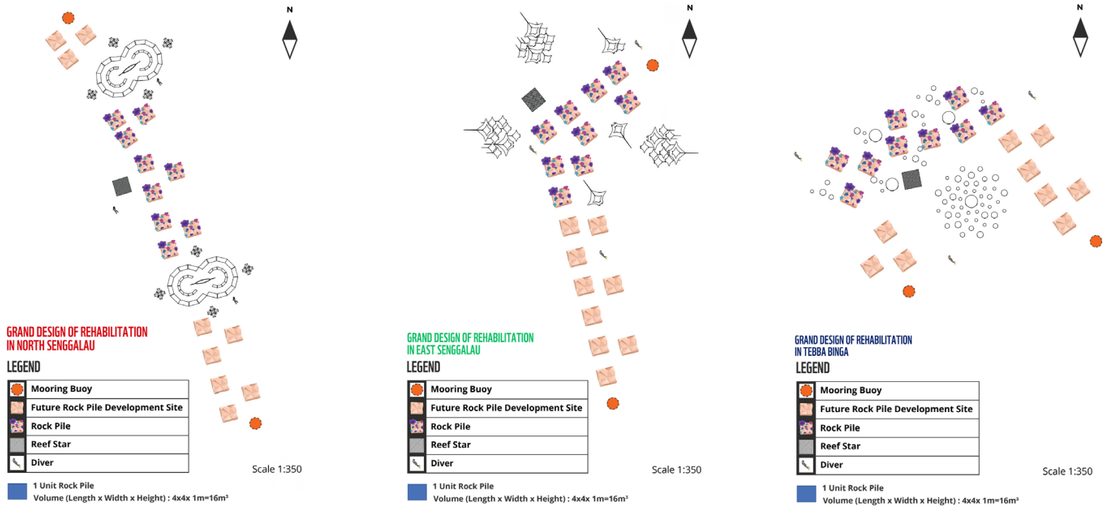
The rock pile method to rehabilitate corals in Derawan Islands MPA was first used in Komodo Islands by WWF-Indonesia, and later on a very remote island, Kangge, in Alor Regency in 2013. Kangge in Selat Pantar MPA, East Nusa Tenggara, is uninhabited so the method had to be one of minimum maintenance and only periodic monitoring was conducted to ensure no human threat or natural disaster affected the regenerating corals. Tangible benefits were recorded only after seven years when the corals recovered, fish rebounded and nearby villagers were able to bring tourists for recreational fishing in Kangge. Based on this success, the EU Ocean Governance Project implementation in Derawan decided to use the same method at three sites in the Derawan Islands MPA—North Senggalau, East Senggalau and Tebba Binga.

Coral reef rehabilitation can attract tourists in Berau Regency as a marine tourism destination. This rehabilitation process is a long-term programme; therefore, collaboration from various parties is key to ensure its success. Adaptation does not happen overnight. Those of us implementing the project need to commit to putting communities first, to have the agility to respond quickly to local needs, with a full-time presence on the ground and a long-term commitment to stay.

Candhika Yusuf, Programme Manager for Marine Biodiversity Conservation, WWF-Indonesia,
EU Ocean Governance Project Kick-off Meeting in Tanjung Redeb, 13 July 2022



Map of restoration sites in Derawan (above) along with the grand design in each site (below). (Source: WWF-Indonesia)



Grand design in each site (North Senggalau, East Senggalau, and Tebba Bingga (Source: WWF-Indonesia)

Recycling unwanted resources. The source of the rock piles are unwanted limestone offcuts from Maratua Island, outside of the Derawan MPA. The local government had previously mined limestone for a road development project, and when it was completed, there were leftovers. After the mining was done, farmers had to cut the limestones to flatten and level the land for agriculture and the offcuts were then abandoned.

The restoration work in Derawan needed 450 m^3 of limestone material and before proceeding, the Muhammadiyah University of Berau conducted an environmental impact assessment on extracting limestones, as every village in Maratua is a limestone producer with abundant stock. It was determined that there would be no need to excavate or open new land to extract limestones as extraction is harmful to forest ecosystem and biodiversity. By using offcuts and leftovers, the rock pile method for coral restoration shows that **unwanted resources can be put to good use with a bit of effort supported by research and sound science.**

Second chances. Ruslan has stopped fish bombing since becoming involved with tourism in 2006, and is learning to protect and restore coral reefs that will be beneficial for snorkelling, diving and tourism. He now immediately reports threats or any marine stranding in Derawan to the East Kalimantan Provincial Marine and Fisheries Agency.

The current threats to coral reefs, according to Ruslan, are mostly from local communities fishing unsustainably using potassium bombs. They would only stop if they get injured by bombs or arrested. Ruslan, as leader of the snorkelling guides in AGSD and with his outgoing nature, likes sharing his passion for the sea and the snorkelling protocol with tourists. He is a figurehead in the community, with a good relationship with the local government in Derawan.

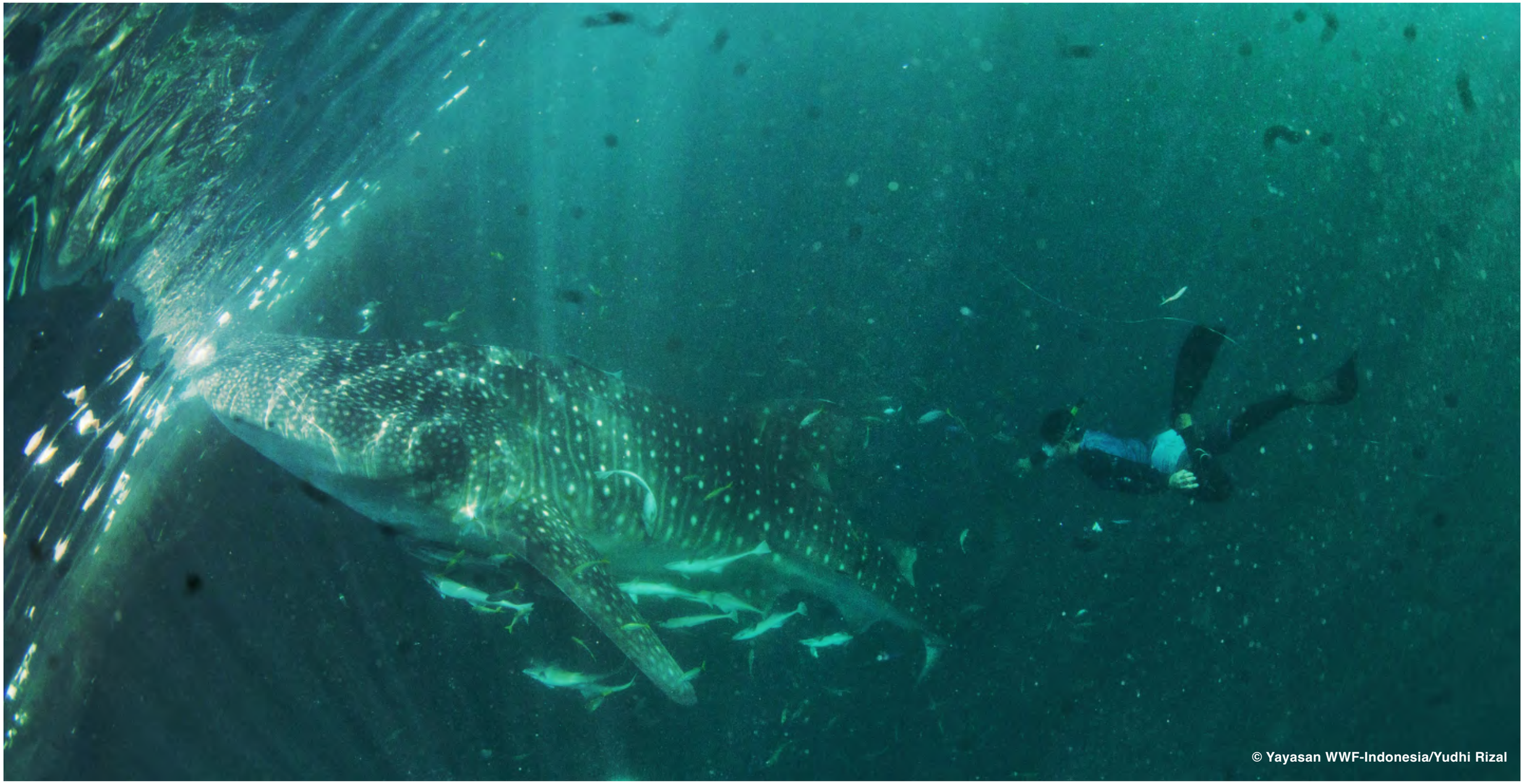
When he stopped being a fisher and became a guide, he managed to convince seven other fish bombers to stop destructive fishing and join him. He was then asked to lead the AGSD in 2017.

Currently with 35 members, AGSD continues to expand with plans to recruit more female members. The AGSD has adopted a "Tourism Code of Conduct" for Whaleshark Observation (available here) jointly developed with WWF in 2017, and championed by Ruslan, to **promote nature-based tourism in Derawan.**

The Bajau community have exceptional strengths and cultural characteristics that need to be harnessed in co-managing—their tenacity, occupational pride as fishers, prowess in diving and cultural identity linked to the sea. **Integrating cultural values inculcates greater respect for co-management plans.**

For example, Lok Petti within the MPA is an underwater graveyard for the Bajaus in Tanjung Batu Village. As respect for their ancestors, the Bajau community forbids fishing there because it is protected by *adat* (custom). This area has been zoned a core zone (IUCN Category Ia – strict nature reserve) in the MPA. It is a place for the Bajau cultural ceremony when they pray for protection, blessings and good fortune for their lives as a community that depends on marine resources.

Derawan's predominantly Muslim community also practises a gratitude ceremony every *Safar* (second month in the Islamic calendar). They ask for blessing and fortune and practise *mandi-mandi tolak bala* (bathing to avoid misfortune) by bathing in the sea, praying and eating together on the beach.



Inclusive co-management. In the beginning, WWF worked with the community group, POKDARWIS Sumping Nusa (Derawan Tourism Group), to manage coral rehabilitation sites. POKDARWIS members were encouraged to learn to snorkel and dive and participate in coral restoration as a means to create new dive sites closer to Derawan Island—rather than have tourists venture to other islands like Kakaban and Maratua to dive. The plan is to create new opportunities for them to become dive operators in 5–7 years once the coral reefs regenerate. POKDARWIS members are invested in the restoration process and help monitor the coral restoration sites, reducing the cost of patrolling and monitoring for the Derawan Islands MPA Authority.

A second opportunity to work with the local community arose as the WWF-Indonesia team recognised that overfishing was a key issue to be addressed. An opportunity for the team to build synergies between fishing and coral restoration, and mutual respect between fishers and marine tourist guides who can sometimes be at conflict over areas for fishing and snorkelling or diving.

Derawan's existing Panulayan Fisheries Group was established in March 2017, before the EU Ocean Governance Project for coral restoration. While organised as a group of small-scale fishers who did not practice destructive fishing, they were not registered with the Berau Fisheries Agency, and therefore, considered illegal and unregulated.

As a first step, WWF explained the importance of being registered and supported 21 fishers to register with the Agency. Registered small-scale fishers will have access to government resources including subsidies for fuel based on government regulations to be enforced in 2024. Over time, the team plans to implement a rights-based fisheries management approach, to socialise fishing regulations, monitor the group's fishing efforts and involvement in addressing threats to coral reefs and fisheries. Looking forward, there is a concern that as coral restoration works in Derawan show positive results—increasing fish population and biomass—this will attract fishers from outside the MPA's boundaries, who are not registered, to fish within the MPA. Paving the way for the fisheries group to be included in co-managing the fish resources will lead to stronger MPA and fisheries management in Derawan.

Wira Hadi Kusuma, (*pictured above*) Treasurer of the Panulayan Fisheries Group, says there are 21 legally registered members and 19 are active. In the beginning they only recruited fishers who used ecofriendly gear but now they want the sea to be free of non-ecofriendly gear and are encouraging other fishers to follow the movement. For Wira, his motivation is:

© Yayasan WWF-Indonesia/Kevin Handika

> **"to raise the dignity, standards and values of fishers so that we prosper and live sustainably, and our children can attend school. Even though we are not rich, we too have dreams and want to have equal standards like others though we are born as fishers."**

The community groups, POKDARWIS Sumping Nusa and Panulayan Fisheries Group, have started to rely on each other. They understand that diversifying opportunities for the community, building on and co-managing their shared natural resources is an investment in their future.

Taking pride in their knowledge and endeavours. The Bajau community's ability to take meaningful, deliberate and collective actions to remedy the impact of a problem, including the ability to interpret the environment, is from a long association with the sea, and this knowledge is passed down from generation to generation. Indigenous and local ecological knowledge—including the complex and ever changing geographic and hydrographic dynamics, and an understanding of daily, monthly, annual tidal cycles that affects productivity—intervene and make a difference, and is something that makes the Bajaus take pride in their participation in coral reef restoration and fisheries management.

IMPLEMENTATION AND RESULTS

Implementation of Co-management for Coral Reef Restoration in Derawan

Indicators of success:
An enabling policy and legal framework;
Empowerment and participation of communities;
Effective linkages and institutions; and
Resources (human and funds) to support co-management.

1. Memorandum of Understanding (MoU) signed for co-management

- Coral restoration acts as a pilot project to build concrete co-management between provincial and district governments, local community and private sector.
  - The four parties in Derawan are:
  1. East Kalimantan Provincial Marine and Fisheries Agency as the MPA management authority in Derawan: *Dinas* (agency) *Kelautan dan Perikanan Provinsi Kalimantan Timur*
  2. Berau District government: *Dinas Pariwisata* (role: tourism) and *Dinas Perikanan* (role: fisheries)
  3. Local community
  4. Private sector: tour operators, village community association, etc.

- Achievement: Getting all four stakeholder groups to collaborate on managing Derawan Islands MPA.
- An MoU has been signed between POKDARWIS Sumping Nusa and the East Kalimantan Provincial Marine and Fisheries Agency to work on management of coral restoration sites in Derawan Islands, Berau District, East Kalimantan Province.

2. Environmental impacts

- Based on the results of regular monitoring conducted by a team consisting of area managers and the Derawan Island community, coral recruitment trends show an increase. In the last monitoring conducted in September 2023, the average recruitment of hard corals in the rock pile unit was 14.1 colonies/square meter compared to only 1 colony/square meter in the control unit. The dominant coral growth forms discovered were Acropora Encrusting, Acropora Branching, and Coral Encrusting with a size of 0.5–5 cm.
- After four months (January to May 2023), the abundance and biomass of fish in the rehabilitation sites were also higher than in the control sites. The average fish abundance increased from 19.51 to 25 individuals, while the average fish biomass increased from 2.7 kg/ha to 8.6 kg/ha (Figure 1).
- The participatory conservation programme has shown positive results in sustainability, supporting resilience and restoration of coral reef ecosystems in Derawan Islands MPA.

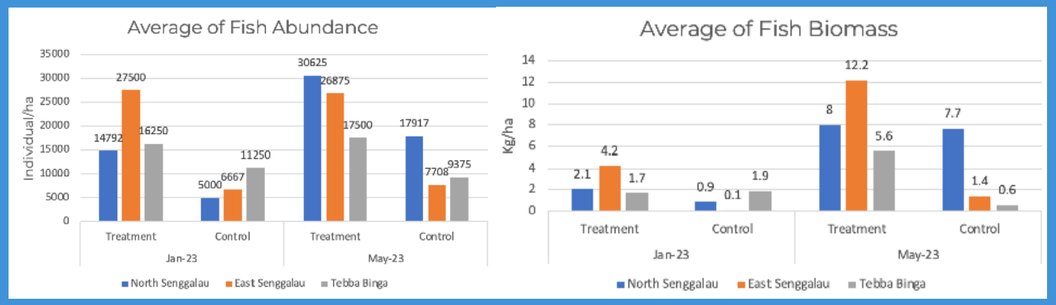


Figure 1: Monitoring results from 3 rock pile restoration sites in Senggalau and Karang Tebba Binga in Derawan, 2023 (Source: WWF-Indonesia, 2023)

3. Socio-economic impacts

- The results of perception monitoring conducted by the Mulawarman University team, from the social aspect, showed that 51.87% of the community had a perception that the conservation programme had a positive impact on community households. The level of public satisfaction with the quality of life described through the perception of income, savings, asset ownership, personal health conditions, use of leisure time, working conditions and living conditions, was 54.51% satisfied with the quality of life and the current changes.

4. Grand design of coral reef rehabilitation site development plan in the MPA

- In addition to restoring the condition of coral reef ecosystems using the rock pile method, the rehabilitation site was designed to be an underwater tourist attraction by combining rock piles with other constructions. This rehabilitation site design aims to centralize efforts to rehabilitate corals and encourage the involvement of many parties to improve the coral reef ecosystem in the Derawan Islands MPA.
- **POKDARWIS Sumping Nusa**, as the manager of the rehabilitation site at the site level, has actively begun to promote the design to relevant parties, such as Bank Indonesia, Public Works and Housing Authority of Berau Rgency, and higher education institutions, for funding.

5. Best Management Practices

- A coral reef rehabilitation handbook on the rock pile method was prepared involving academics and practitioners of coral reef rehabilitation in Indonesia. This handbook provides technical guidance for others to replicate the rock pile method in their own sites.
- Public-Private Partnership (PPP) scheme enables the involvement of area managers, tourism operators and local communities in rehabilitation sites management. The commitment of the three stakeholders, including monitoring, maintenance and utilization of rehabilitation sites, is key to the sustainability of the project. The mandate or authority given by the area manager (East Kalimantan Provincial Marine and Fisheries Agency) to the community group (POKDARWIS Sumping Nusa) in managing and utilizing the rehabilitation site stated in the MoU empowers POKDARWIS to conduct monitoring and supervision activity.

CHALLENGES

Getting women to nurture nature, to adapt to the changes in their environment and to play a role in conservation and restoration has been tough for Kartika Sumolang, Marine Biodiversity Officer, WWF-Indonesia. She is the only female who participates in the rock pile and reef star installations, which require a dive certification and is really hard work. There is no female guide in Derawan for snorkelling or diving as women in the Derawan community do not have licenses.

While there is an existing women's group, the *Ibu-Ibu Pemberdayaan Kesejahteraan Keluarga* (PKK)—the family welfare empowerment group—who have participated in WWF's workshop and activities, their participation is limited to assembling a small number of MARRS Reef Stars and providing meals for activities.

"My challenge is to involve the women in Derawan in the conservation world, ... without denying the human need to live, ... to find balance, ... a habit that we apply everyday ...".

Kartika Sumolang, Marine Biodiversity Officer, WWF-Indonesia
Interview for "Kartika dan Kelompok Perempuan di Derawan" video.
Derawan, August 2023

Adapting the fishing way of life. The Bajau community's fishing heritage and way of life includes a social organization and gender roles that greatly influence their activities. There is division of labour between genders; men are producers and women play multiple roles in the village, not just as wives and mothers. Some like Erni Susanti, leads the POKDARWIS Derawan Tourism Group, and Neni Triani is a Derawan Neighbourhood Leader. Most women have to fish and glean, sometimes at night, to support their families, and some have to clean and sell fish at the market in the morning. With growing tourism, some women have also opened *warungs* (food stalls) and provide cultural performances for local tourists. This helps diversify their income and reduce dependence on money from fishing done by the men. To the women, conservation and restoration may sometimes feel like additional work, which must be taken into account when planning and implementing the project.

Increasing the role of women in co-management in Derawan is an important challenge to overcome. Demographically, females make up almost half of the population in Indonesia. While not always directly involved in coral restoration, the fact that the women are aware of the need to protect and restore corals is important as they communicate this in their daily activities, in educating and raising their children. The participation of women and their children—especially the young girls who spend most of their days with their mothers—will inculcate a deep respect for the environment and understanding of the need to conserve and restore. **This transfer of knowledge and know-how** from their mothers will strengthen their bond with nature and in turn they will become future co-managers of their resources. A worthy investment in the long run.

KEY MESSAGE FROM DERAWAN, BERAU

Co-management is a key element in achieving the targets of conservation agendas at the site, regional and national levels. Increasing multi-party participation and encouraging them to be actively involved in the implementation of the project is important. Conservation agendas must be prepared in a participative manner involving related stakeholders from villages, district, provincial, to national levels as stated in the Joint Work Plan of the EU Ocean Governance Project in the Derawan Islands MPA.

The tides of change will accelerate as the Indonesian government has big plans for East Kalimantan. Nusantara, the new Indonesian capital to be located in the adjacent regencies—Penajam Paser Utara and Kutai Kartanegara—will bring economic growth, better infrastructure, connectivity and an influx of domestic tourists and people living in the area. With this will come greater demand and consumption of fish resources, and the associated ills of human settlement—increasing waste, pollution, rising greenhouse gases and temperatures.

How will communities in Derawan be affected? We have seen in Semporna—not so far north in Sabah, Malaysia—where the increase of tourists, resorts on the islands and mainland has resulted in unmanageable plastic waste, untreated sewage and destructive boat traffic, and has impacted the sea and marine life. But even worse, the demand for seafood—Humphead Wrasse, Barramundi Cod and Leopard Coral Grouper, lobsters, sea cucumbers, turtle eggs and protein illegally gleaned from the sea—to feed the insatiable appetites of irresponsible tourists has devastated the biodiversity of Semporna.

Lasting change is a process. It requires mental, emotional, physical, environmental, and interpersonal changes. And change is accelerating and requires long-term commitment.

In Derawan, Ruslan feels energized by the sea and social interactions. His enthusiasm comes naturally when he introduces his beautiful, diverse and abundant underwater world to people. Being a snorkel

guide, an educator and a changemaker for his community, "... is not just a way of living, it connects me to the sea, but is not harmful". Essentially, he is still Bajau, like his grandfather, his father and his son, he is connected to the sea.

WWF-Indonesia's work focuses on what assets exist within the Derawan community, their strengths, their energy, their traditional knowledge and their profound connections to the sea. The challenge is how these can be amplified, augmented and used to adapt to changing needs, as well as to anticipate and respond to emerging issues. Building resilience, and in time, this Bajau community will eventually thrive, demonstrating that **making adaptation a way of life is a necessity for scaling up coral restoration—an asset to co-management.**


© WWF-Coral Triangle Programme/Christina Netta

REFERENCES

Headline KALTIM. 2022. *Rehabilitasi Terumbu Karang di Kawasan Konservasi Kepulauan Derawan Butuh Kolaborasi Banyak Pihak*. Jaringan Media Siber Indonesia. https://headlinekaltim.co/rehabilitasi-terumbu-karang-di-kawasan-konservasi-kepulauan-derawan-butuh-kolaborasi-banyak-pihak/

Plummer, R. & Baird, J. *Adaptive Co-Management for Climate Change Adaptation: Considerations for the Barents Region*. Sustainability 2013, 5, 629-642. https://doi.org/10.3390/su5020629

WWF-Indonesia. 2023. A Journey to Discover a Tropical Paradise, Derawan Islands MPA, East Kalimantan. WWF-Indonesia, Derawan, Berau.

WWF-Indonesia. 2023. Rock Pile as Participative Coral Rehabilitation in Derawan Islands MPA, Indonesia [APCRS 2023 Poster]. WWF-Indonesia, Derawan, Berau.

WWF-Indonesia. 2022. ID-DER: EU Project Kick Off Meeting Report, 13 July 2022. WWF--Indonesia, Derawan, Berau.

WWF-Indonesia. 2022. ID-DER: Limestone Impact Study, January, 2022. WWF-Indonesia, Derawan, Berau.

WWF-Indonesia. 2022. ID-DER: Manta Tow and Coral Recruitment Survey, January 2022. WWF-Indonesia, Derawan, Berau.

WWF-Indonesia. 2020. ID: Restoration Plan, 28 July 2020. WWF-Indonesia, Derawan, Berau.

Yumi, Heva Hayuqo. 2018. "The Relationship of Marine Tourism, Fishing Activities, and Conservation Efforts on Derawan Island, Indonesia" (2018). Open Access Master's Theses. Paper 1241. https://digitalcommons.uri.edu/theses/1241

LINKS

Video: Kartika & the Women's Group of Derawan

Restoration Heroes Video: the communities of Derawan restoring an ecosystem

WWF-Indonesia's Collaborative Management for the Future of the Derawan Sea

OUR MISSION IS TO CONSERVE NATURE AND REDUCE THE MOST PRESSING THREATS TO THE DIVERSITY OF LIFE ON EARTH.

WWF

Working to sustain the natural world for the benefit of people and wildlife.

together possible™

panda.org

WWF Coral Triangle Programme, hosted by **WWF Indonesia**.
Graha Simatupang, Tower 2 Unit C 7th Floor,
Jl. TB Simatupang No.11, Jakarta
T: +62217829461
Visit: panda.org/coraltriangle
Follow: twitter.com/coral_triangle

For contact details and further information, please visit our international website at wwf.panda.org