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Restoration of productive aquatic ecosystems by small-scale fisheries and aquaculture communities in Asia

Good practices, innovations, and success stories



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Preparation of this document

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planning process identifying the most beneficial zoning plan for both social and ecological success, (3) attained government recognition of the community's management plans and (4) identified community centric progress metrics (i.e. indicators of success in the community's own eyes). Scientists worked in the community to measure baseline socioeconomic, fisheries productivity and coral reef conditions. Their results showed disagreement between the community's preferred no take zones areas and the most ecologically viable area for sustaining long term reef productivity. With the participatory mapping and conflict resolution tools, the CCRES partners helped the village identify sites that were both ecologically and socially viable (Krueck *et al.*, 2019).

Core elements to the successful implementation of resource rehabilitation and sustainability in Bungaiya, Selayar have been the participatory framework employed by researchers, identifying and empowering community champions, the visualizations of scientific results that facilitated community dialogue at each step, the engagement with stakeholders across the village–district–national government spectrum, and capacity building programs. Institutional relationships between the multiple government agencies, local and international universities and NGO partners have been strengthened by working together. The project was

also successful because it built on the legacy of several previous development, education, and conservation projects in Selayar (Krueck *et al.*, 2019). These had helped raise community awareness, capacity and built relationships that the CCRES project was able to pick up on. There are still some challenges with neighbouring villages regarding who can fish where and with what gear (PJ Mumby, personal communication, 2021). However, while the funded project has finished, the village representatives will be able to use their learnings and increased communication and leadership skills to negotiate mutually beneficial outcomes.

Longer term socio-ecological indicators of success and impact in Selayar remain to be measured. In the meantime, the fisher community has improved their governance, understanding of their marine system (and its functions), identified and strengthened their socio-cultural values (e.g. pride), set up sustainable fisheries yield for the long-term, increased the ecological resilience to climate impacts by investing in an (evidence based) MPA zoning management plan, and improved their relations with neighbours and governance systems. Each of these activities breaks the cycle of declining ecological and social systems and increases the community's capacity to adapt to future climate (and other) shocks.

For more information on this case please visit:

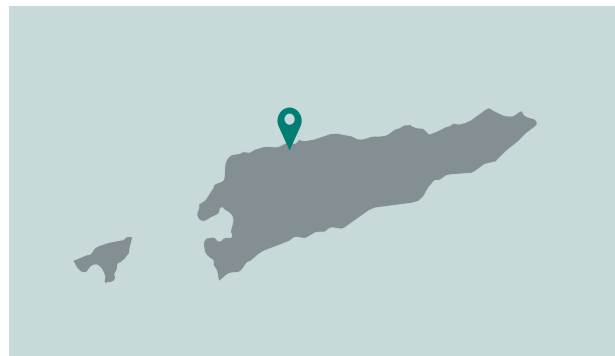
- ccres.net
- Krueck *et al.*, 2019 ecologyandsociety.org/vol24/iss4/art6/

Timor-Leste: Customary management and female leadership



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In 2018, the Behau community of Timor-Leste established a marine protected area under their customary law practice called 'Tara Bandu', with the goal of sustaining their livelihoods. NGO partner Blue Ventures helped the community develop their own marine management



Source: freevectormaps.com

program. Importantly, the community have been the initiators of the management design. In Behau, customary marine tenure laws have been investigated, discussed, and synthesized with more recent scientific understandings of coral reef fisheries and successful nearshore resource



management actions. The communities have participated in learning exchange visits to other established locally managed marine area (LMMA) sites in Indonesia and actively participated in local dialogues. The Behau community cooperative has now implemented their own LMMA design, that includes fishing gear regulations, no-take protected areas, access and anchorage restrictions, and multipurpose zones (Blue Ventures 2019). There is a locally-led fisheries monitoring group, and the community has installed buoys to demarcate protected zones.

The monitoring group, with support from Blue Ventures, is developing a female-led monitoring program. This program trains and facilitates women's empowerment and engagement in the community's resource management process. Using the same program, women in Atauro Island, Timor-Leste, have been collecting socioeconomic data on local fisheries catches, which informs their community LMMA development and will enable the community to self-monitor and report future outcomes (Blue Ventures, 2018). Behau and Atauro are popular marine tourism destinations in Timor-Leste, and development of local tourism businesses has the potential to support women's livelihoods and a sustainable local economy.

On Atauro island, 13 villages have now designated customary marine management or 'Tara Bandu' areas. One of these locations is Adara village. Adara community has been the leaders in community-based protected area management in Timor-Leste. They first approached WorldFish for assistance in facilitating customary management practice, in 2013 (Tilley *et al.*, 2019a). The community's objectives centred on their concern about locally declining reef fish resources and wanting to increase income from tourism (Mills *et al.*, 2017). After many meetings in the village, including women only focus groups, the community implemented a protected area (restricted fishing and anchoring), and banned destructive fishing practices generally. They also implemented a reef-tax for tourists (Tilley *et al.*, 2019a). The economic incentive of the MPA plan

has been a key driver in sustaining the regulations and community cohesion for the MPA (Tilley *et al.*, 2019a).

Villagers also developed homestay accommodation and sell local crafts to tourists as a means of supporting their livelihood (e.g. Adara eco-resort). The reef area in Adara has remained healthy to date and supports a high diversity and cover of coral reef organisms (Lara-Lopez *et al.*, 2019). Fishing pressure on local reef resources is mitigated by the MPA but perhaps more so by the installation of nearshore fishery aggregation devices (FADs) that improve the accessibility and catch of small pelagic fish and reduce pressure on the reef fish resources (Tilley *et al.*, 2019b). Women fisherfolk in Adara are very active fishers and glean the reef flat areas (Tilley *et al.*, 2021). The community's no-take area stopped them from gleaning in the most accessible part of the reef, right in front of the village. However, this decision was made with the women, who felt that they would be compensated through the tourism opportunities they would gain (Mills *et al.*, 2017).

The actions of the Adara fisher community to implement customary management has enabled them to protect reef resources, gain supplementary income, build a community fund and infrastructure from this, access knowledge training and partnerships, and actively share their experience with other communities (Mills *et al.*, 2017; Tilley *et al.*, 2019a). Timor-Leste government legislation recognizes the customary law and practices of Adara and other communities and has supported communities in developing their own regulations, albeit with very limited provincial and national governance resources. Challenges in Timor-Leste's ongoing marine resource management include limited fisheries monitoring resources and capacity, user conflicts and unequal access to natural environmental resources, limited capacity to navigate intentions and relationships with multiple development partners, limited enforcement (particularly of external parties rather than local village members), and where tourism is not viable there are limited alternative livelihood options (USAID, 2021).

For more information on this case please visit:

- worldfishcenter.org/pages/adara
- Blue Ventures:
 - blog.blueventures.org/en/taking-control-with-tara-bandu
 - blog.blueventures.org/en/using-fisheries-monitoring-as-a-tool-for-empowering-women-in-timor-leste
- Tilley *et al.*, 2019: doi.org/10.3389/fmars.2019.00392
- Mills *et al.*, 2017: doi.org/10.1016/j.marpol.2017.04.021