

# The “Pacific Way” of coastal fisheries management: Status and progress of community-based fisheries management<sup>1</sup>

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## Introduction

The ocean area that most Pacific Island citizens interact with and rely on for daily food are coastal waters, which comprise less than 1.25% of the total ocean area under national jurisdictions<sup>4</sup>. Yet, these coastal fisheries provide most of the seafood contribution to nutrition and nearly half of the fisheries-related contribution to the gross domestic product of most Pacific Island nations (SPC 2021a).

For several decades, Pacific Island countries and territories (PICTs) have warned that coastal fisheries are threatened (King et al. 2003; SPC 2008). The emerging threats of ocean warming and acidification are likely to exacerbate previously identified challenges of coastal urban development, population growth, coastal pollution, overfishing, erosion and siltation of coastal ecosystems from logging and mangrove clearing. All of these activities are causing a decline in catch potential (Bell et al. 2018) and are threatening food security and livelihoods.

Challenges facing the management of coastal fisheries include the diversity among PICTs in terms of geographical size, population, culture, development status and economy; dispersed and rural populations (77% live in rural areas) that rely heavily on fish among other natural resources<sup>5</sup>; and a lack of political will to make appropriate management decisions (Munro and Fakahau 1993; Naqali et al. 2008; CCIF 2013). These combined with low levels of capacity, transparency and accountability further exacerbate the problem (Gillett and Cartwright 2010; Coastal Fisheries Working Group 2019; Tuxson 2018).

The potential for effective coastal fisheries management to be based on traditional marine tenure and ecological knowledge has always been apparent to Pacific Islanders and was documented nearly half a century ago (Johannes 1978). Regional policy has increasingly highlighted community-based approaches as being core to coastal fisheries management (Box 1) in parallel with national experiences led by governments (e.g. Vanuatu, see Amos 1993; Samoa, King

### *Box 1. Regional declarations and policies concerned with the state of Pacific Island coastal fisheries.*

- Strategic plan for fisheries management and sustainable coastal fisheries in Pacific Islands (King et al. 2003)
- Vava'u Declaration on Pacific Fisheries Resources (2007)
- Pacific Islands regional coastal fisheries management policy and strategic actions 2008–2013 (Apia Policy, SPC 2008)
- Melanesian Spearhead Group roadmap for inshore fisheries management and sustainable development 2015–2024 (MSG 2015)
- A New song for coastal fisheries – pathways to change: The Noumea strategy (SPC 2015)
- Future of fisheries: A regional roadmap for sustainable Pacific fisheries 2015 (FFA and SPC 2015)
- Pacific Framework for Action of Scaling-up CBFM: 2021–2025 (SPC 2021b)

and Fa'asili 1999; Tonga, Malimali 2013) or non-governmental organisations (e.g. Fiji, Papua New Guinea, Solomon Islands, Govan et al. 2009).

Despite the impressive coverage and progress in some countries, *A new song for coastal fisheries – pathways to change: The Noumea strategy* (SPC 2015) acknowledged the clear local, subregional and regional differences in the circumstances of coastal fisheries, and highlighted that site-based, community-based fisheries management (CBFM) alone will not be sufficient to meet future national and regional food security challenges, and will need to be supplemented with other approaches and mechanisms. Scaling-up was identified as the main strategy for moving towards sustainable coastal fisheries (SPC 2015), and so SPC developed, with its members and partners, the Pacific Framework for Action on Scaling-up CBFM: 2021–2025 (hereafter referred to as the Framework for Action; SPC 2021b).

<sup>1</sup> This article draws from a report (Govan and Lalavanua 2022) available from: <https://purl.org/spc/digilib/doc/ocw6w>

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<sup>4</sup> Inshore Fishing Area defined as the area up to 50 km from shore or 200 m depth, whichever comes first (Chuenpagdee et al. 2006). Sea Around Us 2015. Data provided 15 January 2015. <http://searoundsus.org/>

<sup>5</sup> [https://stats.pacificdata.org/vis?lc=en&df\[ds\]=SPC2&df\[id\]=DF\\_KEYFACTS&df\[ag\]=SPC&df\[vs\]=1.0&pd=2021%2C2021&dq=A..&ly\[cl\]=INDICATOR&ly\[rw\]=GEO\\_PICT](https://stats.pacificdata.org/vis?lc=en&df[ds]=SPC2&df[id]=DF_KEYFACTS&df[ag]=SPC&df[vs]=1.0&pd=2021%2C2021&dq=A..&ly[cl]=INDICATOR&ly[rw]=GEO_PICT)

The Framework for Action identifies actions relating to information, awareness, communication, policy and legislation, organisational and individual capacity, and inclusive and ecosystem approaches as key strategic actions for scaling in order to supplement the support for site-based approaches.

## Status of community-based fisheries management

The Pacific Community (SPC) commissioned the authors of this paper to carry out a survey to assess the status of CBFM and coastal fisheries management in 22 PICTs as well as Timor Leste (Govan and Lalavanua 2022). The overall purpose of the survey was to assess to what extent communities in the PICTs are supported to achieve sustainably managed coastal fisheries, including support for site-based and community-driven CBFM as well as provision of an enabling environment in the areas of information, policy and legislation and capacity.

The survey contributed to the regional CBFM website, currently under development by SPC's Fisheries, Aquaculture and Marine Ecosystems Division, which will provide management information suitable for local communities and CBFM practitioners. The full results are provided in the [full report](#), and the main results are discussed below.

## Recording and tracking CBFM

The survey explored whether PICTs had public inventories of sites receiving CBFM support, as well as whether these were used to track progress. The Republic of Marshall Islands (RMI) and French Polynesia (Box 2) have public registries of CBFM sites but no other PICTs have such registries. Although most PICTs were able to produce site inventories (usually by the fisheries agency), the majority did not have these readily available, nor were they up to date. It is notable that the two largest countries do not appear to have government listings of CBFM interventions (Papua New Guinea and Fiji).

RMI provides an example of a simple approach that provides public information on the status and progress of CBFM sites (Fig. 1). Although not publicly available, Tonga, Samoa, Solomon Islands (see Box 3), and, more recently, Vanuatu, appear to be maintaining national inventories that also serve as tracking mechanisms. The last two countries are also tracking other community support contemplated under the Framework for Action, including information and awareness provision.

The lack of national registries or the ability to track CBFM interventions in the majority of PICTs, increasingly poses an obstacle for the efficient support of CBFM at national

### Box 2. Example of publicly available online databases and maps for CBFM sites (Zones de pêche réglementées) in French Polynesia

The screenshot shows the website of the Direction des Ressources Marines (DRM) of French Polynesia. The header includes the DRM logo and navigation links: Accueil, Pêcheurs, Perculteurs, Aquaculteurs, Cartes thématiques, Supports de communication, and Prévention et sécurité en mer. A search bar is visible on the left. The main content area displays a message in French: 'Les cartes des Zones de Pêche Réglementée (ZPR) des Tuamotu, sont disponibles ci-dessous. Vous pouvez consulter les textes réglementaires en cliquant sur les liens suivants :'. Below this, a list of fishing zones is provided with links to their respective PDF maps: Tatakoto, Rangiroa, Mataiva, Manihi, Reao, and Anaa. The date 'Mise à jour octobre 2020' is noted. At the bottom, three map thumbnails are shown with labels: 'ZPR de Anaa', 'ZPR de Rangiroa', and 'ZPR de Manihi', each with a 'Télécharger le PDF' link.

Source: [http://www.ressources-marines.gov.pf/cartes-sig/cartes-thematiques/zone\\_de\\_peche\\_reglementee/](http://www.ressources-marines.gov.pf/cartes-sig/cartes-thematiques/zone_de_peche_reglementee/)

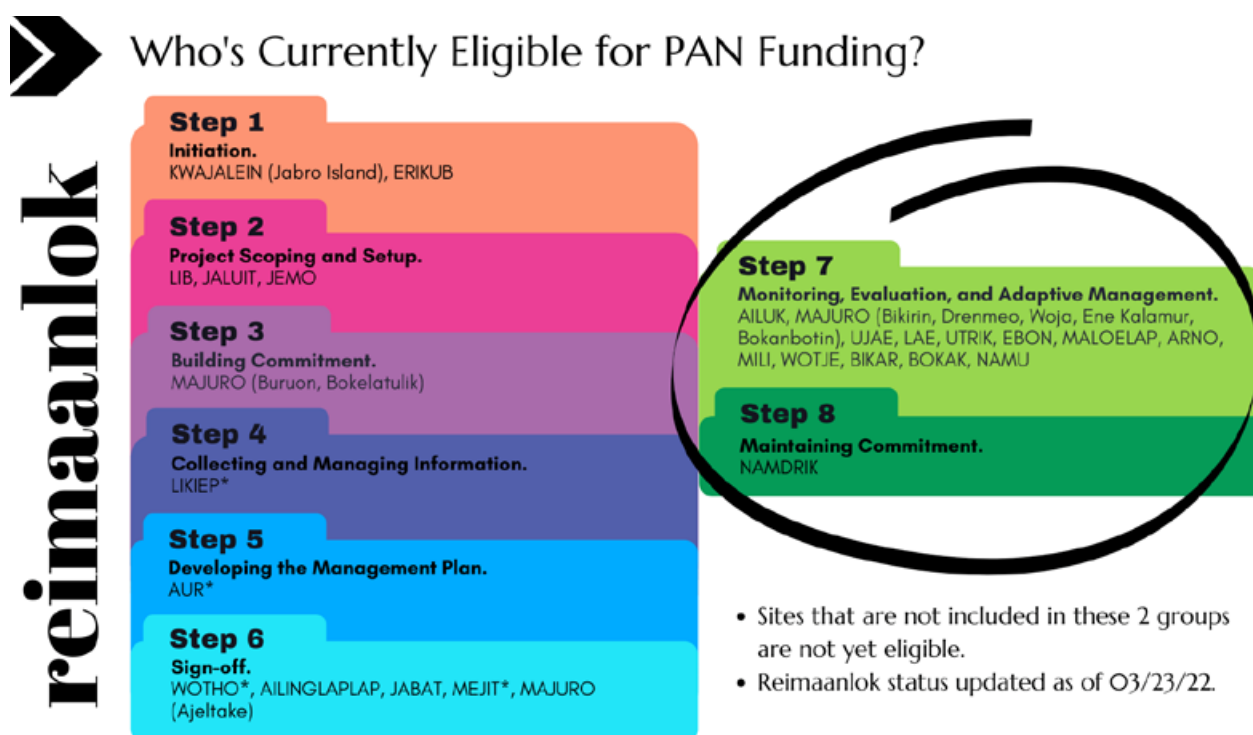


Figure 1. Graphic representation of the status of different CBFM sites in the Reimaanlok process under the Protected Areas Network (PAN) within the Republic of the Marshall Islands. Source: <http://www.rmimimra.com/index.php/about-us/rmipan>

### Box 3. Tracking tool for scaling-up community-based resource management (CBRM) outreach by Solomon Islands' Ministry of Fisheries and Marine Resources

Solomon Islands has long identified the challenge of providing support for CBRM to more than 3000 coastal communities (MECM/MFMR 2009) and has been working to ensure the best support coverage subject to the modest budgets and staffing available. In 2016, a CBRM section (with six dedicated staff) was established within the Inshore Fisheries Department. Partnership and collaboration with non-governmental organisations are important tools, and given the size of the country, it is vital to work in a decentralised manner through close support of provincial fisheries offices.

Awareness raising – using radio and mass media – forms a strong basis at the national level, while at provincial level, approaches try to ensure widespread coverage through any other means available. Driven by village requests or expressions of interest, visits may be arranged to provide more information; these awareness activities are termed Level 1. Communities that express further need and interest may qualify for Level 2 support and receive more training or capacity building, subject to available staff and finance. Further assistance for the most advanced or needy sites involves technical assistance in developing management plans – Level 3.

#### MFMR description of levels

Expressions of interest, names of communities and contacts, as well as the delivery of Level 1 and higher levels of support are recorded in a national and provincial tracking tool as an Excel spreadsheet and regularly updated.

Level of Awareness				
Level.1	General Awareness (importance of resources)			
	<ul style="list-style-type: none"> <li>■ Awareness</li> <li>■ Disseminate materials</li> </ul>			
Level.2	Follow up - provoked by Level 1			
	<ul style="list-style-type: none"> <li>■ Simple management rules</li> <li>■ M&amp;E</li> <li>■ Trainings/capacity building</li> </ul>			
Level.3	Technical Assistance			
	<ul style="list-style-type: none"> <li>■ Management Plans</li> </ul>			

Level 1:										Level 2:	Level 3:
Communities	EOI (Date)	Current status	Person in charge	Contact	1-1. Material dissemination	1-2. Face-to-face awareness	2-1. Monitoring, tracking and evaluation of materials	2-2. Community training and capacity building	3. Community Fisheries Management Plan		

Data fields recorded in provincial and MFMR tracking tool. (Source: MFMR Inshore Team, David Aram)



and subnational levels. Without timely and regular tracking of the reach of CBFM support, together with estimations of the number of communities or geographical areas covered, it will be hard to gauge the extent, let alone the impact, of CBFM support efforts.

The survey did provide an update of the number of coastal protected and managed areas (MPAs) (cf. Huber and McGregor 2002; Axford 2007; Govan et al. 2009; Govan 2015 a,b) because most PICTs consider CBFM sites as qualifying as MPAs, and at some stage have included these in conservation reporting. The survey should be of interest to the wider conservation community as it is almost certainly more complete and up to date than others for the Pacific Islands at the date of reporting.

The World Database of Protected Areas (WDPA), as used in the latest Status of Protected Areas of the Pacific (Nimwegen et al. 2022), could provide an alternative public source of information as most countries include CBFM sites in their lists of coastal MPAs. But the quality of data across countries and territories was found to be highly variable, and known to be problematic both in content (Smallhorn-West and Govan 2018) and consistency and timeliness in the updating process (Nimwegen et al. 2022). Although it was not possible to carry out a site-by-site comparison, we show the national totals for CBFM sites and MPAs with community involvement in Annex 1.

### *Coverage of CBFM*

In contrast to the coverage by information, awareness or other enabling types of support, data do exist for most PICTs on the number of CBFM sites. Site-based CBFM takes many forms across the region, with island, state and district clustered, and community level approaches recorded. For many of these sites, participatory community plans are developed to achieve area-based coastal fisheries management.

Site area is not consistently or comparably reported, nor are the number or areas of reserves or no-take zones. Of the 10 PICTs that reported CBFM areas, the sites totalled around 1.45 million ha; of the 7 PICTs that reported the area of no-take zones or reserves, the sites totalled 142,000 ha. More than half of these figures are derived from non-governmental organisation (NGO) data from Fiji.

In a number of cases, it is evident that no-take zones or closed areas are reported as CBFM sites, without reference to clear fisheries objectives or community management or rules in the fished areas. This issue is particularly acute where MPAs have been developed with more focus on biodiversity conservation or with support from foreign NGOs.

The CBFM approaches used in different PICTs are highly diverse. One variable is the number of communities covered by a single site; in some cases, a single site comprises a single community, but in others, multiple communities are covered. For the purposes of estimating coverage of CBFM approaches to coastal fisheries management, we assessed the number of communities that participate in CBFM (i.e. making coastal fisheries rules to meet their needs) as a more useful indicator than the number of sites.

Overall (see Table 1), 661 active CBFM sites serving 1032 communities<sup>6</sup> are reported in 15 PICTs, or 10% of the total possible communities reported or calculated for this survey. A further 193 sites are reported to be in progress, which could raise the coverage to 12%, if successfully concluded. The present study discounted 170 sites considered inactive, mainly in American Samoa, the Federated States of Micronesia, Samoa and Solomon Islands.

The community coverage by site-based CBFM has increased overall from the 8% reported nearly 10 years ago (Govan 2015a), to approximately 10% of the estimated total communities (Table 2), an increase of 96 communities since the endorsement of the Noumea Strategy. Given the differences in surveys, the changes that most likely reflect real increases



Image: ©Watisoni Lalavanua, SPC

<sup>6</sup> In many cases this equates to villages or settlements but the governance unit predominantly used by the specific or national CBFM approach was used for each country or territory. This means, in practice, that villages, settlements, districts, states, communes, island councils or municipalities, depending on each PICT.





Image: ©Jan Van der Ploeg

are those in Kiribati, Samoa, Tonga and Vanuatu. Coverage has decreased in Papua New Guinea (PNG) and American Samoa, and has stalled in Fiji and Palau.

These numbers mask the high variability between countries. For instance, coverage of 50% or more in Cook Islands, Fiji, RMI, Tonga, Tuvalu and Samoa, contrasted with less than 5% in the countries with the largest numbers of communities and/or highest populations (PNG, Solomon Islands and Vanuatu), and less than 17% of Kiribati, Palau and Timor Leste.

Examining the historical evolution of CBFM coverage suggests two broad categories of countries that should be considered by conservation and fisheries management planners.

- 1. Potential of site-based approaches is limited.** Site-based CBFM, management plans and MPAs are very unlikely to achieve significant coverage of coastal communities. Despite the impressive progress in some cases (e.g. Kiribati, Timor-Leste and Vanuatu), or the substantial number of sites achieved (Solomon Islands), it seems unlikely that a large enough proportion of coastal communities will be able to participate in site-based approaches of management planning for this to be the main fisheries management strategy, nowhere more so than PNG. For the five PICTs mentioned, the cost-effective and enabling environment aspects of the Framework for Action will likely be of most relevance in the development of their CBFM scaling-up strategies. Solomon Islands and Vanuatu are making notable progress in this regard.

- 2. Site-based approaches at the core of CBFM.** High coverage of site-based CBFMs have been achieved already or likely to be soon (Cook Islands, RMI, Samoa, Tonga and Tuvalu). In these cases, future strategies may be able to focus on improving aspects of effectiveness and sustainability.

In addition, there are special cases affecting a few countries and most of the territories.

- 3. Potential for high coverage of site-based CBFM:** High coverage could be achieved but progress has slowed or stopped. Future strategies require a review of experiences and objectives in order to better define strategic approaches to achieving sustainable coastal fisheries management through CBFM (Fiji, FSM and Palau). Conservation agendas may be undermining clear thinking on fundamental resource management strategies.

- 4. Territories with specific needs or emerging opportunities.** Niue, Pitcairn and American Samoa are initiating promising site-based or community approaches. French Polynesia is making good progress implementing zone-based and traditional approaches. The Commonwealth of the Northern Mariana Islands, Guam, New Caledonia, and Wallis and Futuna may have varying roles (or none at all) for CBFM approaches.

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Table 1. Coverage by site-based, community-based fisheries management approaches in PICTs. Total number of coastal communities was determined by each jurisdiction. Colour coding ranges from low coverage (red) to high coverage (green).

	Name of model or programme	Number of sites active	Sites in progress	Sites inactive	Communities covered	Total coastal communities	Community unit	Coverage	+in progress
American Samoa	Community based Fisheries Management Program (CFMP)		6	7		74	Villages	0%	8%
Cook Islands	Ra’ui and marine managed areas	23		9	40	41	Districts	98%	98%
Federated States of Micronesia	Marine protected areas (MPAs) and community-based fisheries management (CBFM)	20	4	9	21	75	Municipalities	28%	33%
<i>Fiji Islands NR</i>	<i>Locally-managed marine areas (LMMA)</i>	89			437	850	Villages	51%	51%
French Polynesia	ZPR and rahui	36	5	4	20	116	Communes and commune associée	17%	22%
<i>Guam NR</i>	<i>No co-management</i>					13	Village	0%	0%
Kiribati	Nei Tengarengare CBFM, island and zone approaches	27	40	5	29	184	Villages*	16%	38%
<i>Marshall Islands</i>	<i>Reimaanlok</i>	14	13		14	27	Atolls	52%	100%
Nauru	Community fisheries management areas		3			14	Districts	0%	21%
<i>New Caledonia</i>	<i>Consultative and traditional management</i>					33	Communes	0%	0%
<i>Niue</i>	<i>Community management plans/RMACs</i>		13			14	Communities	0%	93%
<i>Northern Mariana Islands NR</i>	<i>No co-management</i>					12	Villages	0%	0%
<i>Pitcairn Islands</i>	<i>Coastal conservation areas</i>		1			1	Island	0%	100%
Palau	Protected Area Network (PAN) with a marine component (2)	1	3		2	16	States	13%	31%
<i>Papua New Guinea NR</i>	<i>Community, ward or customary plans</i>	32			37	4000	Village	1%	1%
Samoa	Village management/bylaws	111	97	14	123	253	Village	49%	87%
Solomon Islands	Community-based resource management (MFMR and NGOs)	158	unk	121	158	3000	Villages	5%	5%
Timor-Leste	Tara bandu	15		1	16	98	<i>Sucos</i> or districts**	16%	16%
<i>Tokelau NR</i>	<i>Traditional and village rules</i>	3			3	3	Villages	100%	100%
Tonga	Special management areas (SMAs)	59	5		54	111	Village	49%	53%
Tuvalu	Locally-managed marine areas (LMMA)	9			9	9	Councils	100%	100%
Vanuatu	Community-Based Fisheries Management programme	65			65	1400	Communities/settlements	5%	5%
Wallis and Futuna	Marine protected areas (MPAs)		2			36	Village	0%	6%
<b>TOTALS</b>		<b>662</b>	<b>192</b>	<b>170</b>	<b>1028</b>	<b>10,380</b>		<b>10%</b>	<b>12%</b>

\* Also includes island and zone initiatives

\*\* Total number of communities not known. 7 of 98 *sucos* (districts) have at least one community with a *tara bandu* (traditional prohibition).

Italics denote data without final validation from the relevant authority, and NR indicates no data provided or no response received.

Table 2. Comparison in community coverage of CBFM for 2015 (Govan 2015a) and this survey. Methodology and response rates varied between the two surveys, so results are only indicative. Orange denotes a significant decrease since 2015, green denotes a significant increase.

	Number of sites active 2022	Sites in progress	Sites inactive	Communities covered 2022	Communities covered 2015	Total coastal communities	Community unit
American Samoa	0	6	7	0	13	74	Villages
Cook Islands	23	0	9	40	6	41	Districts
Federated States of Micronesia	20	4	9	21	10	75	Municipalities
<i>Fiji Islands NR</i>	89	0	0	437	448	850	Villages
French Polynesia	36	5	4	20	27	116	Communes
<i>Guam NR</i>	0	0	0	0	0	13	Village
Kiribati	27	40	5	29	5	184	Villages*
<i>Marshall Islands</i>	14	13	0	14	13	27	Atolls
Nauru	0	3	0	0	0	14	Districts
<i>New Caledonia</i>	0	0	0	0	1	33	Communes
<i>Niue</i>	0	13	0	0	1	14	Communities
<i>Northern Mariana Islands NR</i>	0	0	0	0	0	12	Villages
Palau	1	3	0	2	5	16	States
<i>Papua New Guinea NR</i>	32	0	0	37	86	4000	Village
<i>Pitcairn Islands</i>	0	1	0	0	0	1	Island
Samoa	111	97	14	123	102	253	Village
Solomon Islands	158	NR	121	158	184	3000	Villages
Timor-Leste	15	0	1	16	NR	98	Sucos **
<i>Tokelau NR</i>	3	0	0	3	3	3	Villages
Tonga	59	5	0	54	10	111	Village
Tuvalu	9	0	0	9	9	9	Councils
Vanuatu	65	0	0	65	13	1400	Communities
Wallis and Futuna	0	2	0	0	0	36	Village
<b>TOTALS</b>	<b>661</b>	<b>193</b>	<b>170</b>	<b>1032</b>	<b>936</b>	<b>***10,380</b>	

\* Also have island and zone initiatives

\*\* Total number of communities not known. 7 of 98 *sucos* (districts) have at least one community with a *tara bandu* (traditional prohibition)

\*\*\*The 2015 report summed 11,422 communities and, since, some PICTs have refined their estimates.

Italics denotes data without final validation from the relevant authority, and NR indicates no data provided or no response received.

### *Who drives CBFM?*

Determining who initiated CBFM at particular sites is often not straightforward, let alone determining the motivation and who currently drives the sites identified in the survey. Subjective categorisations by respondents suggest the majority of active sites in the region are either “community driven” or “community initiated jointly driven with government or NGOs”.

In many PICTs, particularly those in the northern Pacific, there is lack of clarity relating to whether MPAs had been initiated or designated as part of CBFM or fishery strategies, and whether their primary motivation was biodiversity conservation with unclear considerations for fisheries outcomes or community enforceability.

The two US territories of CNMI and Guam, and the French territory of Wallis and Futuna rely on relatively long-established systems of top-down fisheries management, and do not practice CBFM or co-management at present, although Wallis and Futuna is exploring such options. All other PICTs had implemented, or were planning on implementing, CBFM approaches although notably the two largest countries, PNG and Fiji, did not report any information relating to CBFM or coastal fisheries management in general. New Caledonia reported that CBFM or traditional approaches were used in two provinces, and Province Sud reported elements of fisher involvement in a generally Western style fisheries management system.

### *Government finance and staffing*

One way of assessing the extent to which CBFM is currently supported and could feasibly be scaled up is by examining government financing of coastal fisheries management and CBFM. This could not, however, be reliably achieved (Marre et al. 2021). Responses regarding fisheries agency staffing were easier to obtain (Table 3) and give some indication of the support and priorities allocated to coastal fisheries. Twenty PICTs reported a total of 488 coastal fisheries staff, representing about a third of total fisheries agency staff numbers reported (n=18) but ranging from 12% to 67%. Ten PICTs reported 136 staff dedicated to CBFM, with a further three reporting part-time staff. Five PICTs reported the existence of mechanisms equivalent to community authorised officers (i.e. community members empowered to enforce fisheries rules). It is important to note that complete data were not available for New Caledonia, PNG and Vanuatu.

Despite mixed or unclear trends in coastal fisheries management budgets at the national level (Marre et al. 2021), there are good indications that staffing has increased in 10 PICTs, even possibly indicating in 6 or 7 cases an increase in support for coastal fisheries management and, explicitly, CBFM (Table 4). The reduction in staff observed in four PICTs may be cause for concern and should be further explored. While staffing could be a good indicator of national support for coastal fisheries (Marre et al. 2021), it is hard to assess what numbers would be adequate to the tasks at hand or whether staff are sufficiently supported by operational budgets to perform the tasks.

Fisheries agencies are often initially, and almost always ultimately, responsible for coastal MPAs in nearly all PICTs, including those with conservation objectives. Yet, low government fisheries management budgets stand in stark contrast to the large budgets of many fisheries and conservation projects implemented by third parties (e.g. NGOs, consulting firms, academia), the majority of which do not integrate their funding mechanisms into national agency financing structures.

Commitments to substantially increase philanthropic funding for marine protection, such as 30% coverage of MPAs by 2030 (Bezos Earth Fund 2022), present an opportunity, but also a considerable risk. Given the specificities of PICTs and the lessons learned (Nimwegen et al. 2022), achieving substantial increases in MPA coverage will rely on CBFM approaches. Fisheries agencies are already over-stretched and have identified the lack of recurrent budgets as a primary challenge (SPC 2021b). Additional support aligned with CBFM strategies and addressing recurrent government budget shortfalls could be a gamechanger, achieving both coastal fisheries management and conservation. But the influx of substantial funding promoting unproven approaches and increasing the burden of fisheries agencies without careful consideration could be extremely detrimental to both the environment and people’s livelihoods.



Table 3. Staffing at coastal fisheries management agencies in PICTs. (Sources: this survey and Marre et al. 2021)

	Agencies in charge	Staff TOTAL	Staff in coastal	Staff full time on CBFM	Staff part time on CBFM	MCS officers in support	CAOs*
American Samoa	American Samoa Department of Marine and Wildlife Resources (DMWR)	18	4	4	0	6	0
Cook Islands	Ministry of Marine Resources (MMR). Island Councils, Vaka Councils, National Environment Service (NES).	60	29	0	10	21	0
Federated States of Micronesia	Division of Marine Resources (DMR), Division of Fisheries and Marine Resources (DFMR), KIRMA, Kosrae Conservation & Safety Organization (KCSO), Office of Fisheries and Aquaculture (OFA), FSM Department of Resources and Development (MRMD)	26	NR	23	12	10	7
Fiji Islands NR	Ministry of Fisheries	365	50	0	5	NR	60
French Polynesia	Direction des Ressources Marines (DRM) pour les ZPR uniquement	94	11	1	3	7	0
Guam NR	Department of Agriculture (DA) - Division of Aquatic and Wildlife Resources (DAWR)	NR	7	0	0	0	0
Kiribati	Ministry of Fisheries & Marine Resource Development (MFMRD)	169	88	0	18	NR	NR
Marshall Islands	Marshall Islands Marine Resource Authority (MIMRA)	90	60	NR	NR	NR	NR
Nauru	Nauru Fisheries and Marine Resources Authority (NFMRA)	58	22	22	10	NR	0
New Caledonia		NR	NR	NR	NR	NR	NR
Niue	Department of Agriculture, Forestry and Fisheries (DAFF) - Fisheries Team	4	2	NR	NR	NR	NR
Northern Mariana Islands NR	Department of Lands and Natural Resources (DLNR)	17	11	NR	NR	NR	NR
Palau	Ministry of Agriculture, Fisheries and the Environment, Bureau of Fisheries, Bureau of Environment – Protected Areas Network (PAN)	29	10	0	0	0	0
Pitcairn Islands	Government of Pitcairn Islands, Environmental, Conservation & Natural Resources Division (ECNRD)	2	1	0	1	NR	NR
Papua New Guinea NR	National Fisheries Agency (NFA) Provincial fisheries departments	NR	NR	NR	NR	NR	NR
Samoa	Ministry of Agriculture and Fisheries (MAF) – Fisheries Division	62	26	26	0	Yes	Yes
Solomon Islands	Ministry of Fisheries and Marine Resources (MFMR) and Provincial Fisheries Departments	151	52	5	32 + 18 Provincial Fisheries Officers	NR	0
Timor-Leste	Ministério da Agricultura e Pescas, Departamento do pescas <a href="https://www.maf.gov.tl/">https://www.maf.gov.tl/</a>	103	NR	NR	NR	NR	NR
Tokelau NR	Fisheries Management Agency (FMA), Taupulega	NR	4	NR	NR	NR	NR
Tonga	Ministry of Fisheries, Community Development and Advisory Section (CDAS)	92	22	12	5	10	12
Tuvalu	Tuvalu Fisheries Department, Falekaupules	60	20	20	NR	NR	NR
Vanuatu	Vanuatu Fisheries Department (VFD)	NR	38	18	20	10	22
Wallis and Futuna	Direction des Services de l'Agriculture, de la forêt et de la Pêche (DSA)	5	5	5	0	NR	NR
<b>TOTALS</b>		<b>1396</b>	<b>488</b>	<b>136</b>	<b>84</b>	<b>64</b>	<b>101</b>
Countries reporting		18	20	16	14	8	10
Countries reporting > 0		18	20	10	9	6	4

\* CAO: Community authorised officers

Italics denotes data without final validation from the relevant authority, and NR indicates no data provided or no response received.

Table 4. Indicative total and coastal fisheries staff levels comparison over approximately 10 years – recent data from this survey and Marre et al. 2021, and pre-2015 data from Govan (2015). Green shading indicates notable increases; red numbering indicates substantial decreases.

	Staff total	Staff in coastal	Staff full time on CBFM	Total staff (pre- 2015)	Coastal staff (pre- 2015)
American Samoa	18	4	4	31	31
Cook Islands	60	29	0	65	17
Federated States of Micronesia	26	NR	23	66	37
Fiji Islands NR	365	50	0	147	73
French Polynesia	94	11	1	51	7
Guam NR	NR	NR	NR	NR	NR
Kiribati	169	88	0	103	72
Marshall Islands	NR	NR	NR	NR	NR
Nauru	58	22	22	46	18
New Caledonia	NR	NR	NR	35	24
Niue	NR	NR	NR	NR	NR
Northern Mariana Islands NR	NR	NR	NR	NR	NR
Palau	29	10	0	32	11
Papua New Guinea NR	NR	NR	NR	290	129
Pitcairn Islands	NR	NR	NR	NR	NR
Samoa	62	26	26	57	19
Solomon Islands	151	52	5	79	47
Timor-Leste	NR	NR	NR		
Tokelau NR	NR	4	NR	7	3
Tonga	92	22	12	50	12
Tuvalu	60	20	20	43	10
Vanuatu	NR	38	18	54	21
Wallis and Futuna	5	5	5	3	3

Italics denotes data without final validation from the relevant authority, and NR indicates no data provided or no response received.

## Legislation, policy and rights

There has been substantial progress in legislation and policy development supportive of CBFM in PICTs over the last 5–10 years (Table 5). Five PICTs have developed new primary legislation and five others have developed relevant legislation on protected areas (or similar) since 2014 (cf. Govan 2015a). Thirteen PICTs have fisheries policies that provide at least some mention of community or traditional fisheries management approaches, 10 of these since 2014. Elements contributing to support for scaling-up of CBFM as envisaged in the Framework for Action (SPC 2021b) are present in existing strategies or under development in five PICTs.

User rights and tenure arrangements were explored during this survey but the variety of situations, and the challenge of discussing complex, contextual matters without site visits

meant that only preliminary impressions could be gathered (Govan and Lalavanua 2022). Several countries appear to have tenure arrangements strongly favouring traditional communities (e.g. Solomon Islands and Vanuatu) and other PICTs seem to have been able to achieve practical solutions that enable community rights to manage and have exclusive access to nearby fishing grounds (e.g. Samoa and Tonga). However, in most PICTs, it is impossible to assert that there are “clear user rights” as called for by leaders in the *Future of Fisheries Roadmap* (FFA 2015), and almost all presented some grounds for concern or need for clarification in terms of user rights (access, exclusion, management) or empowerment (cf. coastal fisheries report card<sup>7</sup>). User rights and tenure arrangements need deeper analysis and most likely the development of a conceptual approach and methodology suited to the context of PICTs.

<sup>7</sup> <https://fameresults.org/cfreportcard/>

Table 5. Legislation and supporting policy for coastal fisheries in PICTs. Sources: this survey is based on O'Connor et al. in press

	Legal framework	CBFM supporting policy
American Samoa	A.S.A.C §24.1001 Title 24: Ecosystem Protection and Development; American Samoa Administrative Code 24 CAP.10 (Community-based Fisheries Management Program) 2008	American Samoa Administrative Code 24 CAP.10 (Community-based Fisheries Management Program) 2008
Cook Islands	Marine Resources Act 2005. Environment (Atiu and Takutea) Regulations 2008. Island Government Act 2012–2013	Ministry of Marine Resources (MMR). Policy for Coastal Fisheries Resources 2014. Acknowledges “knowledge of our ancestors, develop laws to protect and conserve our coastal fisheries”
Federated States of Micronesia	State level	No
Fiji Islands NR	Fisheries Act 1942	No
French Polynesia	Délégation n° 88-183 on fisheries (ZPR) 1988 Délégation n° 88-184 on fisheries 1988 Deliberation n° 2004-34 on public domain 2004 Code de l’environnement, art.LP.2122-1 (Rahui) 2017 Arrêté n° 2009 CM du 10 septembre 2021 approuvant le plan de gestion de l’espace maritime (PGEM) révisé de l’île de Moorea, commune de Moorea Maiao	No
Guam NR	U.S. Code of Federal Regulations 50 CAP.6 Part.665 (Fisheries in the Western Pacific) Guam Code Annotated 5 CAP.63 (Fish, Game, Forestry and Conservation) Guam Administrative Rules and Regulations 9 CAP.12 (Fishing Regulations) Marine Conservation Plan 2017	unk
Kiribati	Local Government Act 1984 Incorporated Society Act 2002* Fisheries Act 2010 Fisheries (Conservation and Management of Coastal of Marine Resources) Regulations 2019	National Coastal Fisheries Roadmap 2019–2036 (S, I) <a href="https://purl.org/spc/fame/cfp/legaltext/ba2ot">https://purl.org/spc/fame/cfp/legaltext/ba2ot</a> Kiribati National Fisheries Policy 2013–2025
Marshall Islands	Protected Areas Network (PAN) Act 2015 Protected Areas Network (PAN) Act 2018 Protected Areas Network Regulations 2020 Management and Development of Local Fisheries Act 1997	RMI Fisheries Policy <a href="https://purl.org/spc/fame/cfp/legaltext/cadb7">https://purl.org/spc/fame/cfp/legaltext/cadb7</a> PAN Strategic Action Plan Reimaankok: Looking to the Future. National Conservation Area Plan (S)
Nauru	Coastal Fisheries and Aquaculture Act 2020	Nauru Fisheries and Marine Resources Authority Corporate Plan 2015–2020
New Caledonia	Organic Law n° 99-209 1999 (New Caledonia) North Province Deliberation n° 2014-316/APN (Kan-Gunu) 2014 Loyalty Islands Province Environment Code 2016	unk
Niue	Domestic Fishing Act 1995 Village Council Act 2016	National Coastal Fisheries Management and Development Plan 2017–2022
Northern Mariana Islands NR	Commonwealth Code. Title 2: Natural Resources <a href="http://www.dfwcnmi.com/laws-regulations.php">http://www.dfwcnmi.com/laws-regulations.php</a> The Fair Fishing Act of 2000 <a href="http://www.dfwcnmi.com/fishing-rules.php">http://www.dfwcnmi.com/fishing-rules.php</a>	No
Palau	Palau National Code 24 (Environmental Protection) 1997 Palau National Code 27 (Fishing) 190	MAFE Strategic Plan Palau 2021–2024
Papua New Guinea NR	Fisheries Management Act 1998 Fisheries Management (Amendment) Act 2015. Organic Laws: on Provincial Boundaries 1998 / on Provincial Governments and Local-level Governments 1995 Customary laws and tenure	A Roadmap for coastal fisheries and marine aquaculture for Papua New Guinea 2017–2026 (S,I) A roadmap for the management and development of coastal fisheries for New Ireland Province 2021–2029
Pitcairn Islands	Pitcairn Islands Marine Protected Area Ordinance 2016 and Marine Conservation Regulations Pt V s14 (MCR) <a href="http://www.pitcairn.pn/Laws/index.php">http://www.pitcairn.pn/Laws/index.php</a>	The Pitcairn Islands Marine Protected Area Management Plan 2021 to 2026 (PIMPAMP). <a href="http://www.pitcairn.pn/environment.php">http://www.pitcairn.pn/environment.php</a>
Samoa	Fisheries Management Act 2016 Village Fono Act 1990	Coastal Fisheries and Development Plan 2013-2016. Village Fisheries Bylaws and Village Fisheries Management Committee (Fisheries Management Act 2016, ss. 19, 41 & 86-89; Village Fono Act)
Solomon Islands	Fisheries Management Act 2015 Provincial Government Act 1997 Local Government Act 1964	Solomon Islands National Fisheries Policy 2019–2029 Solomon Islands Community Based Coastal and Marine Resource Management Strategy 2021–2025 (S) Standard Operating Procedures (CBRM SOP)
Timor-Leste	Decree Law No 26/2012 of 4 July 2012 Environment Basic Law – Art. 8 [Tara bandu] Diploma Ministerial No. 01/ 167/Gm/Vi/2007 Altera O Diploma Ministerial No. 01/03/Gm/I/2005 Definição Das Zonas De Pescas [6nm] Decree-Law No. 6/2004 of 21 April 2004 Government Decree No 5/2004 of July 2004	No, but CBNRM mentioned in Plano Anual de 2019 – Ministério da Agricultura e Pescas <a href="https://www.maf.gov.tl/tl/dokumentu/send/6-plano-no-programa-map-pedn/155-plano-asaun-anual-map-2020">https://www.maf.gov.tl/tl/dokumentu/send/6-plano-no-programa-map-pedn/155-plano-asaun-anual-map-2020</a>
Tokelau NR	Tokelau Village Incorporation Regulations 1986	No
Tonga	Fisheries Management Act 2002; Fisheries (Coastal Community) Regulations 2009	Tonga Fisheries Sector Plan 2016–2024 Tonga National Fisheries Policy 2018 [covers Coastal Fisheries and reformed SMA approach] (S)
Tuvalu	Falekaupule Act 1997 Conservation Area Act 1999 Marine Resources Act (2006), revised 2008, amendments 2012, 2017	No
Vanuatu	Decentralization Act 1994 Environmental Management and Conservation Act 2002 Fisheries Act 2014	Vanuatu National Fisheries Sector Policy (2016–2030) Vanuatu National Roadmap for Coastal Fisheries: 2019–2030 (S)
Wallis and Futuna	Law n° 61-814 of 29 July 1961 Deliberation n°73/AT/05 on marine fisheries	No

Italics denotes PICT yet to provide final validation from authority, and NR indicates no data provided or no response received.

(S) CBFM Scaling up strategy partially addressed in this policy

(I) CBFM Information Strategy partially addressed in this policy



The progress in legislation and policy development is impressive and suggests that the focus of donors and regional agencies can usefully shift more towards implementation, especially with regards to national strategies and workplans, while also improving simple monitoring and evaluation so that progress can be monitored over time.

Some donors base their support on regional and national policies in development aid planning but, in general, the large international conservation programmes have not tended to support the implementation of regional and sub-regional CBFM policies. The envisaged increase of initiatives supporting MPAs may aim to support fisheries and livelihoods priorities, but it is unclear that this would be achieved if not carefully aligned with regional and national policies, strategies and ongoing efforts to support coastal fisheries management frameworks and achieve scaled-up CBFM.

## Conclusions and recommendations

Over the last few decades, CBFM has come to be recognised as normal, not exceptional nor a historical relic (Adams 2022). This shift has seen a recent increase in CBFM enabling conditions in most PICTs while, at least for some of the larger countries, increases in site-based management areas are slowing or stagnating. The increasingly satisfactory status of enabling conditions suggests the need to shift towards implementation and ongoing operational support for CBFM in the forms of budget, adequate staffing, and workplans and strategies. Public awareness and information strategies require consistent attention in most PICTs.

### *CBFM site coverage*

Careful consideration is needed – depending on the particular PICT context – as to the optimum way to work with communities to achieve sustainable coastal fisheries. Two principal scenarios are evident: one where high coverage of site-based CBFM has been achieved already, or likely to be soon (Cook Islands, RMI, Samoa, Tonga and Tuvalu). In these cases, future strategies may be able to focus on improving aspects of effectiveness and sustainability.

For the larger countries, however, the site-based approaches, at least as currently framed, will be unlikely to reach a large enough proportion of coastal communities for site-based approaches to be the main fisheries management strategy. In these cases, the cost-effective and enabling environment aspects of the Framework for Action will likely be of most relevance in the development of their CBFM scaling-up strategies. The two largest countries present particular challenges relating to the implementation of CBFM that potentially affects half the coastal population of PICTs.

### *The interplay of conservation and sustainable fisheries management in CBFM*

Most PICTs need discussions and clarification of the synergies and different needs of area-based management for coastal fisheries and biodiversity conservation in order to achieve overall coastal fisheries management and livelihood aims. Useful starting points for discussion in several PICTs would include integrating traditional management in the development of scaling-up strategies for coastal fisheries resource management, and resituating biodiversity conservation as an integrated outcome rather than a confusing and, sometimes, counterproductive driver. It is important to note that whether the sites are coastal MPAs or CBFM, most are under the remit of fisheries agencies.

### *Recording, tracking and evaluating CBFM*

Ascertaining the number of sites and community coverage of CBFM is still a challenge in many PICTs. National and sub-national agencies should consider improved documentation and tracking of CBFM interventions, such as information, awareness, livelihoods projects, as well as CBFM and MPA sites (Solomon Islands may be a useful example). Publicly available registration or databases would ensure improved co-ordination, support and transparency. This would be a crucial step towards more comprehensive evaluations of the effectiveness and impact of CBFM on fisheries, ecosystems and livelihoods. More attention should also be paid to the quality of “user rights” that are necessary for scaling-up CBFM in each PICT and the means to assess and monitor these rights.

### *Challenges of adequate long-term operational funding*

Although the strategic approaches proposed by the Framework for Action to maximise the strengths of community rights and empowerment should increase cost effectiveness; the fact remains that coastal fisheries management does not receive the budgetary support it requires. In addition, fisheries agencies are usually responsible for coastal MPAs, including those with conservation objectives.

Future support for CBFM that achieves substantial livelihood and conservation objectives will need to develop approaches that are appropriate and commensurate to the capability and recurrent budgets of the implementing government institutions. The envisaged increase in philanthropic funding for marine protection must avoid distracting fisheries agencies and governments from consolidating and building on the progress in coastal fisheries management systems and local management areas.

There is an urgent need to open the debate on the possibility that aid funding could supplement in the long term the annual government operational budgets to ensure that the livelihood and conservation objectives of scaling-up CBFM. Trust funds or direct sector support could be starting points for discussion, and the regional and subregional policies would be the logical framework for design.

While bilateral donors do use regional coastal fisheries policies in programming aid, large international conservation programmes tend not to. This is of concern given the emerging momentum to leverage relatively large amounts of funding to global visions of MPAs. Support of fisheries and livelihoods priorities, in tandem with coastal conservation, will be hard to sustain if it is not carefully aligned with regional and national policies, strategies, and efforts to support coastal fisheries management frameworks and achieve scaled-up CBFM.

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## *Annex 1 – Comparison with the World Database of Protected Areas*

The WDPA accessed 26 January 2022 (<https://www.protectedplanet.net/en/thematic-areas/marine-protected-areas>) provided a registry of national data on protected areas. Data were tabulated for marine or partly marine sites as well as sites that had evidence of being co-managed i.e. Categories V or VI, governance types local, indigenous, collaborative or joint. For most categorizations a predominant number of sites were not classified at all. Thus, for a total of 557 sites; 80 sites were Category V or VI out of 189 reporting, 269 had some form of indigenous or collaborative governance out of 420 reporting and 248 out of 554 designations indicated co-management or local management. The most common designations were LMMA (115), marine managed area (32), Community based fishery (29), Tabu/MPA (21), and community conservation area (17).

	Number of sites active 2022 – this study	WDPA Total Protected Areas with marine component	WDPA Marine component and Category V, VI, or collaborative governance
American Samoa	0	15	8
Cook Islands	23	11	8
Federated States of Micronesia	20	4	0
<i>Fiji Islands NR</i>	89	118	101
<i>French Polynesia</i>	36	7	0
<i>Guam NR</i>	0	10	0
Kiribati	27	11	0
<i>Marshall Islands</i>	14	16	12
Nauru	0	0	0
<i>New Caledonia</i>	0	53	8
<i>Northern Mariana Islands NR</i>	0	25	4
<i>Niue</i>	0	2	0
Palau	1	49	10
<i>Papua New Guinea NR</i>	32	18	14
<i>Pitcairn Islands</i>	0	2	0
Samoa	111	47	29
Solomon Islands	158	79	74
Timor-Leste	15	10	8
<i>Tokelau NR</i>	3	3	2
Tonga	59	43	27
Tuvalu	9	18	8
Vanuatu	65	15	3
Wallis and Futuna	0	0	0
<b>TOTALS</b>	<b>661</b>	<b>556</b>	<b>316</b>