



Stakeholder report: Decision-making in the Palau Protected Areas Network

A report by

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2 Executive summary

Palauan conservation through the Palau Protected Areas Network (PAN) is an exemplar of different kinds of knowledge being brought together for conservation decision-making. In this study, we examined how customary and traditional decision-making operated alongside more Western styled, science-based institutions, and considered the role of the PAN Fund in brokering and facilitating the relationships between them.

We spoke with a wide range of people involved in conservation decision-making, including traditional leaders, local and international non-government organisations, research organisations, government employees, site managers and employees, and State government representatives. We conducted 20 recorded interviews with 80 participants, attended a range of site visits, and held informal discussions. In this report we summarise our findings and draw out some of the considerations for the PAN Fund and PAN program more broadly.

We found that the ways in which different forms of knowledge were used to support and justify decisions varied substantially depending on the audience being addressed, and that Palauans were typically adept at negotiating these different expectations and demands. We found that many decision-making rules in the Palauan context were different from those that we would expect (and have been shown) in Western settings. For internal, local audiences, objectivity was largely rejected in favour of the exercise of flexible judgement; transparency was not highly valued, and opaque decision-making processes were accepted and celebrated. We also identified an additional theme, ownership, which our participants highlighted and emphasised. In contrast, for external audiences such as donors, international NGOs and tourists, biodiversity was emphasised, transparency of decision-making was demonstrated, and outcomes were fixed in place. Both were framed by an overarching approach to decision-making founded on consensus rather than conflict.

The PAN Fund sits at the boundary between these different ways of making and justifying decisions, and it was notable that these two very different approaches to decision-making coexisted with little conflict between them. While there are a range of opportunities that the PAN fund could develop to facilitate stronger connections between science-based knowledge and customary knowledge in decision-making, each of these must be considered with care to ensure that they do not inadvertently introduce greater opportunities for conflict and contestation, or the erosion of customary and traditional knowledge in decision-making approaches.

Some points to consider include

- whether the PAN fund should actively support closer relationships between researchers and traditional leaders
- whether research based knowledge could usefully be granted a larger role in decision-making
- whether the PAN fund could benefit from developing skills in “boundary work” that enables deliberate construction of these decision-making spaces
- whether participatory research approaches should be actively encouraged

We conclude with a range of suggestions put forward by our participants including guiding international scientists; investigating more flexible approaches to managing protected areas; consider instituting a Small Grants program; and exploring opportunities to expand Australia’s relationship with Palau through conservation.

3 Introduction

The effective management of protected areas is a knowledge-intensive endeavour. The creation, sharing, use, and application of knowledge in decision-making is shaped by a range of formal and informal rules that we call “knowledge governance”. Yet the kinds of knowledge that need to be brought into discussions and negotiations over conservation are varied, including scientific and research based knowledge, local experiential knowledge, customary and traditional knowledge, and are subject to different rules. The aim of this study was to examine the interaction between science and culture to better understand conservation decision-making processes where both customary and Western-styled governance were applied. Palauan conservation is at the forefront of efforts to bring together traditional knowledge and science. The Palau Protected Areas Network (PAN) is an exemplar case, where both scientific processes such as monitoring and customary *Bul* are integrated into decision-making. Both bodies of knowledge have an important role to play in good environmental governance, but very little is known about how they can be brought together effectively in contemporary conservation. The focus of this report is on how our research might inform the PAN, and particularly PAN Fund, in facilitating productive relationships between science and custom for protected area management.

3.1 Objectives

This pilot study aimed to test a preliminary framework based on the concept of “knowledge governance” that incorporates aspects of governance that are often excluded in science-driven academic and aid-based analyses of environmental management and change, particularly culture and politics.

Its objectives were to identify and analyse the range of influences in the organisation, decision-making and implementation of the PAN. We focused particularly communities’ engagement with the PAN Fund as a vehicle for governing the interactions between science-based knowledge, traditional ecological knowledge and broader cultural values.

3.2 Limitations

This pilot study was based on two weeks of meetings, discussions and site visits. We are aware that any insights we may have gathered from our study is highly limited in terms of the depth of understanding we may have of Palauan custom, as well as Palauan law and

regulation, and informal decision-making processes. We make no claims that we have built any in-depth expertise in these complex matters. While we recognise these limitations, we hope that the framework we applied for trying to understand what was shared with us may be helpful for those with the in-depth knowledge and experience in Palauan conservation. The value of this study for our Palauan colleagues may simply be the opportunity it offers to step back from day-to-day decision-making and reflect, debate and consider the issues we raise.

4 Methods

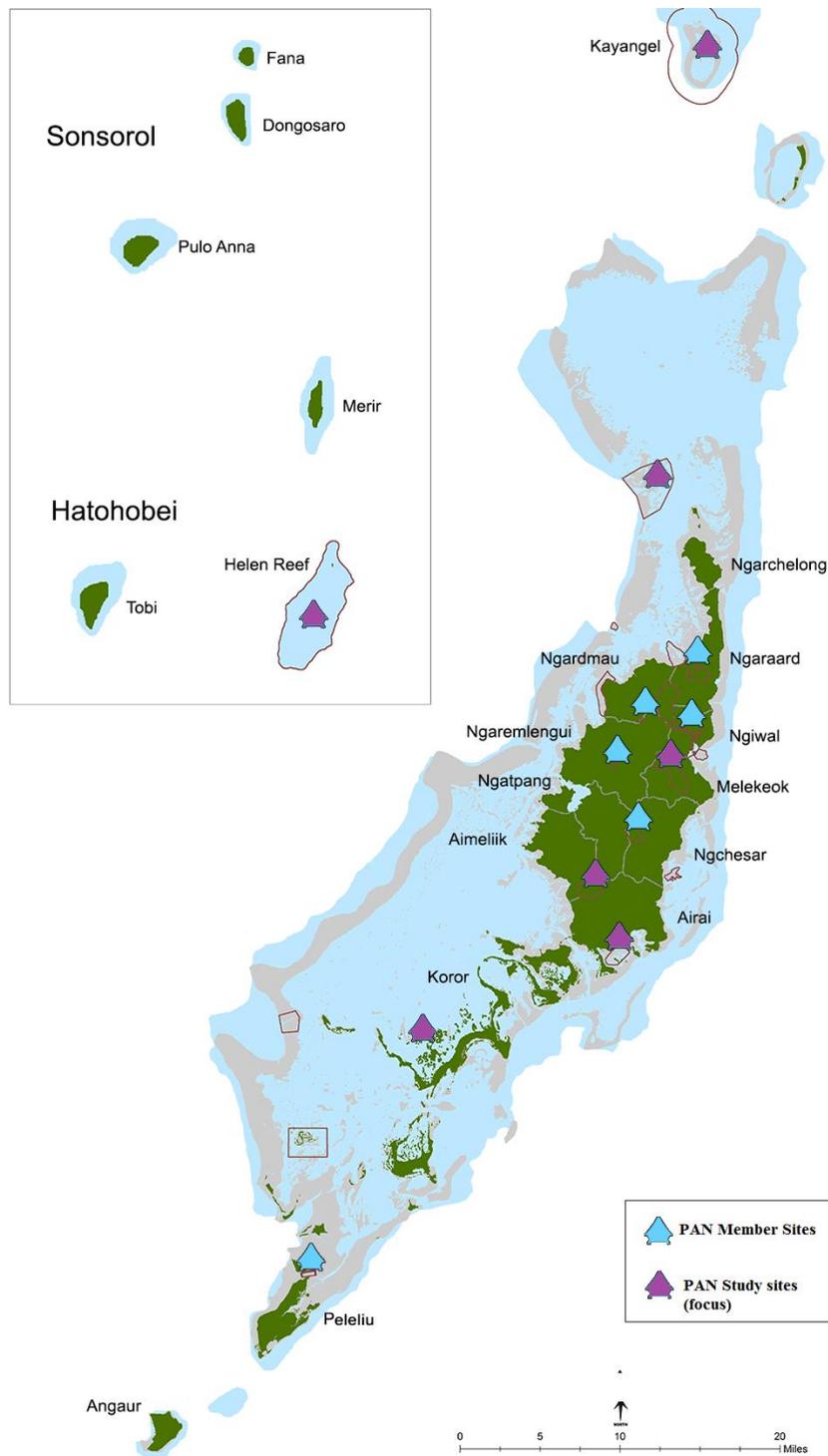
This study relied on a range of qualitative research methods. Qualitative methods, as Winchester and Rofe (2010) note, are well suited to an in depth assessment of the motivations and the reasoning of stakeholders and this, in turn, is key to cultivating an understanding of knowledge governance. In addition, qualitative methods also provide a degree of flexibility which gives researchers room to explore issues as they arise (Winchester and Rofe, 2010) which is crucial given the relatively uncharted waters that this study explores both conceptually and as a relatively new case study. The data used for this research was sourced through document review, participatory research/observation and key informant interviews.

4.1 Site selection

As a pilot study, we were unable to speak with all the States or other groups with relevant contributions to make due to limited time and funds. We selected groups in close consultation with PAN Fund to gain a diverse range of experiences and expertise, in order to capture a snapshot of how PAN operates across Palau. For the purposes of this study, we focused on the following seven sites:

- Ebiil Channel, Ngarchelong
- Ngardok Lake, Melekeok
- Rock Island Southern Lagoon, Koror
- Negeruangel Marine Reserve, Kayangel,
- Ngerderar Watershed, Aimeliik
- Medal Ngediull, Airai
- Helen Reef, Hatohobei (see Figure 1).

Figure 1. Map of Protected Areas Network Member Sites

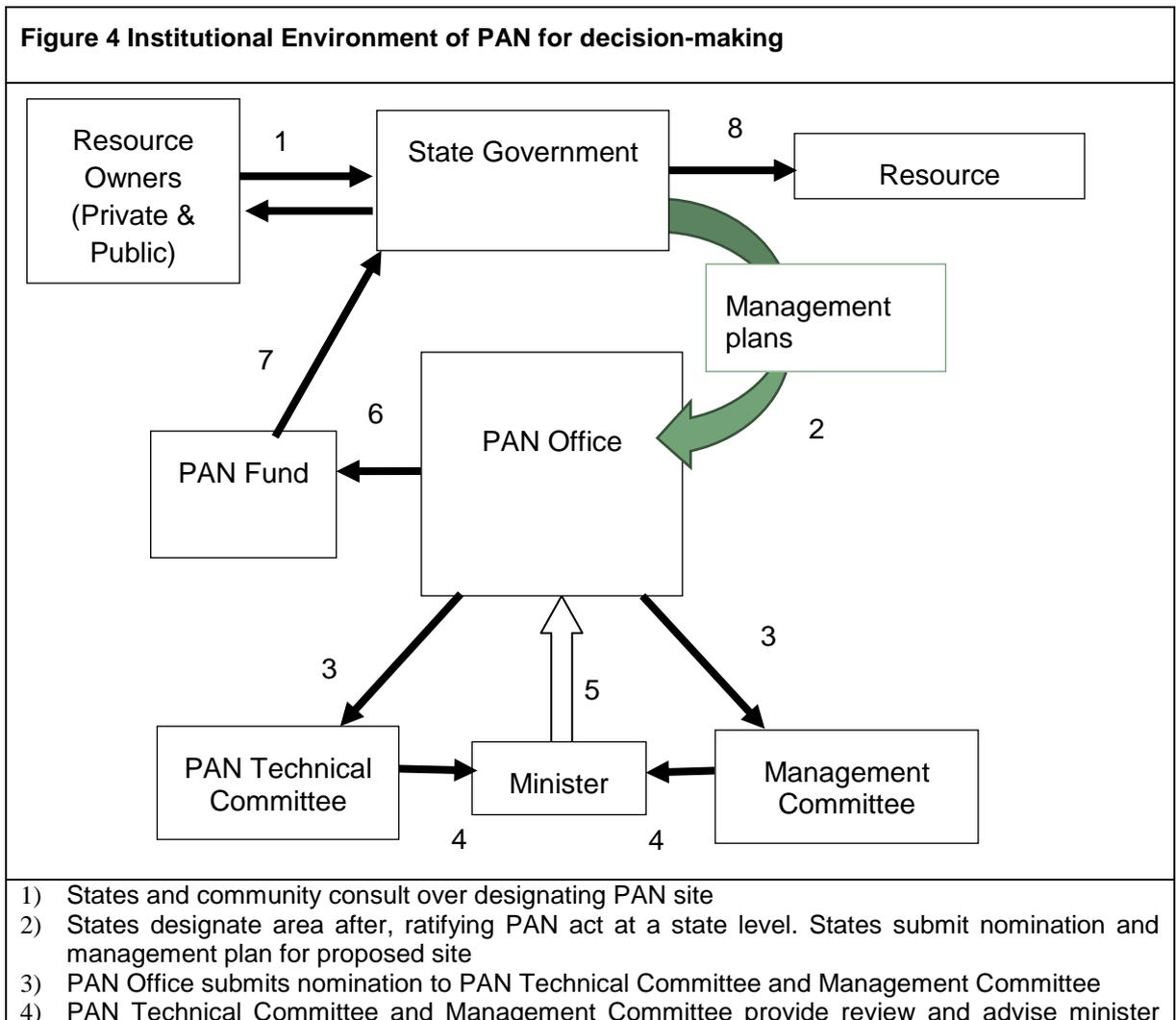


Map adapted from Palau PAN Fund (2015)

Sites surveyed were (listed North to South): 1. Negeruangel 2. Ebiil Channel 3. Ngardok Lake 4. Ngerderar Watershed 5. Medal Ngediull, 6. Rock Islands Southern Lagoon 7. Helen Reef

4.1.1 The Protected Areas Network

PAN functions through the interactions of Palauan state governments working in tandem with the national government (represented by the PAN Office), with technical oversight from the PAN technical committee and independent funding from a government established statutory body called the PAN Fund (Palau PAN Fund, 2015). This structure follows provisions laid out in the Palauan National Congress Protected Areas Act (Palau, PAN Fund, 2015). The basic formal interactions of PAN are summarised in the diagram below (see Figure 4). These processes are quite complex but the most significant features are that the decision-making process starts with resource owners and involves a variety of other actors. This means that although there is intervention by several different decision making bodies, to really understand the environmental implementation (the focus of this thesis) of specific sites, one must target planning at the level of resource owning communities.



accordingly

- 5) Minister reviews and approves nomination
- 6) PAN Office submits approved nomination to PAN Fund
- 7) PAN Fund funds management plan
- 8) States hire resource managers to enact the management plan

Adopted from (Palau PAN Fund, 2015)

4.2 Data collection methods

4.2.1 Key Informant Interviews

The major component of data collection consisted of a series of key informant interviews conducted in Palau. A series of 20 one to two hour long semi-structured interviews were conducted with a total of around 80 participants. Interviews were conducted primarily in small groups with some individual. Participants were chosen to represent a diverse range of stakeholders, including those directly involved in the management of the selected study sites. This sample of interviews includes environmental managers of the sites in question, traditional leaders, legislators, local environmental NGOs, research institutes, as well as PAN officials from a range of different agencies. It is noteworthy that we spoke with more women than men in total. Questions for the interviews focused on decision-points in the PAN, with specific questions derived using the theoretical framework (see section 4.3).

We also joined informal discussions with a number of key actors, and drew on notes made following those conversations.

4.2.2 Document review

In order to provide a rigorous assessment of Palauan environmental management, we examined management documents to complement the findings from the interviews. Primarily, we focused on the management plans and accompanying literature such as management evaluations of all the sites under study (for a full list of documents consulted see Appendix 3). The review process was largely conducted before the fieldwork component of this study. As such, it was used to inform sample selection and in drafting interview protocol.

4.2.3 Participant observation

The third method we used for data collection was participant-observational research. When combined with critical reflection, observational research provides a useful complementary source of evidence for developing an understanding of context (Kearns, 2010). Over two

weeks, we visited most of the different sites across the PAN used in this analysis, usually accompanied by a ranger or PAN coordinator which allowed for less formal discussions about management, as well as firsthand observation of conservation areas. Other components were comprised of informal conversation with Palauans and with visits to a number of places across Palau including taro fields, museums and archaeological sites.

4.3 Data Analysis

The data were analysed according to six themes that have been proposed in the academic literature as foundational for understanding the ways in which cultural, political and social values are embodied in formal and informal rules that shape the knowledge people use in making decisions. These are presented in Table 1 below.

Table 1. Key themes derived from Jasanoff (2005)	
Themes	Our description and application
Dominant style of knowledge making	Who has public endorsement to generate sound knowledge on certain issues? What the dominant methods are for information to become knowledge and generate action?
Credibility	How knowledge is tested, and in so doing, deemed credible and trustworthy.
Effectiveness	How the benefits or outcomes of knowledge are demonstrated to the wider public.
Objectivity	How knowledge claims seek to appear objective. Jasanoff construes this as a fairness issue in that it seeks to avoid subjective bias.
Expertise	There is a distinction to be made here between experts and knowledge holders. Experts help navigate society through conditions of uncertainty by providing knowledge and reassurance. Expertise is largely ascribed through unwritten cultural rules.
Transparency	Institutional mechanisms for permitting public observation and in turn, participation in decision-making processes.

These six dimensions pose relatively familiar themes in relation to decision-making, that offer useful starting points in targeting investigations of the relationships between the broad, nebulous concept of “culture” and the more specific concerns of knowledge-action connections.

The dataset was imported into the qualitative analysis software NVivo™. Data was coded on a thematic level drawing on the 6 theoretical themes presented in Section 4.3.

Additional themes were noted where they appeared in the data, and evaluated in relation to the objectives of the analysis and existing themes. Where they added new and relevant dimensions to the analysis, they became included as ‘emergent themes’.

5 Findings

Across the themes of the framework outlined above, a series of different knowledge governance rules emerged through our data collection. This section provides an analysis of how these different themes manifested in this case study. Note that although many participants gave us permission to use their names, some did not, and so for consistency we have left names out of the report.

5.1 Dominant styles of knowledge-making

Dominant style of knowledge-making refers to the process through which information becomes knowledge and how this is made actionable, hence is central to identifying the pathways through which knowledge becomes action. The two key descriptors that were identified in this case study, for this theme were **consensus** and **continuity**.

Many participants raised the idea of consensus in decision making around environmental issues. One Palauan elder asserted that this was because “*our culture is all about relationships*” and she went on to note that it was important to avoid alienating people given the relative size of Palauan society. As such consensus and the inclusion of different perspectives was crucial to decision-making, and there was notable resistance to any exclusive exercise of authority. One participant working for a local environmental NGO highlighted this by saying:

We value the process of getting a consensus on a decision. We cannot just have a bottom-up decision-making process and frankly in Palau distance between bottom and top is like this (indicates with fingers very small distance). ... at the end of the day, it's not whether it was a top-down, bottom-up, lateral decision making it was whether there were enough people that believe in the decision, in the process, to get traction on something and to get by. (Local environmental NGO worker)

In contrast, participants took a dim view of conflict as a means of asserting knowledge in decision-making. For example, open conflict through court contestation, was not seen as an appropriate way of evaluating knowledge and determining courses of action. In particular, many Palauan elders raised concerns over the rigidity and cultural inappropriateness of judicial processes such as these. This differentiates Palau from governance models such as the United States, where environmental sciences often enter decision-making through court testimony. It could also be a particular barrier to those working in the sciences where there is a tradition of building theory through contestation. One participant involved in a number

of MPA studies at the Ebiil Channel, was frustrated by the misfit between rapidly evolving research-based knowledge and relationships with the communities:

You cannot come into the same community one day and say ‘MPA is the way to go’ and then comes in another time and say ‘they don’t work, we need to go in this direction’. That’s fine, that science continues to do that because everyone needs to push their own theory, right? But that’s where we don’t come from [...]. That’s why we need to be very careful about how we adopt those new studies and implement them with communities [...] It is critical that they maintain that level of trust with us for the next study. When we do come in, [we need to ensure] that this new science is actually building from where we are today and not competing with it because then we are actually pulling the rug out from under our own feet, so to speak. We need to build that level of trust and confidence in the communities that we work in, so that we can continue. (Local NGO worker)

Emphasising continuity with Palauan culture was a key way that knowledge was created and reaffirmed. One manifestation of the desire for continuity was often-heard expression that “science validates” what Palauans already know and do, rather than breaking new ground. One participant working for a local environmental NGO encapsulated this by telling the following story (see: Box 1).

Box 1 We have always practiced informed decision-making

“When I first started working here [...]. I was implementing this ecosystem based management and because it was based in Babeldoab, I went to go see Reklai [high chief of Babeldoab] and so we drove all the way to his house in Melekeok and I went in and I was telling him all about this fabulous initiative. I must have [talked] like 10-15 minutes just running on and on about this work and finally, he is listening to me and then he says “Oh so you’re going to do my job now”. And then he tells me, it was looking out of his house which is right next to the beach and he says look out there. Then he says ‘in the old days, when you go to the dock there, there’s a resting platform and there are four corners and the four highest chiefs of the village sit at these corners. So what they do is they talk informally and they get updated about what is happening in the clansman in the village proper and then towards the end of the day, the fishermen come in and others, customarily they show their catch to the chiefs who are assembled there and the chiefs will know the size of the fish, the type of the fish and because to become a chief in the olden days, you would have to live a long life and gained a lot of experience, one of them is sort of an understanding of the marine ecosystem and so the chiefs would know to put a moratorium on certain species because it was dwindling or because of certain things.’

And essentially what he is telling me is that “in Palau, we practice informed decision-making in our traditional practices. That concept is built into what we do” and so, there is no difference in being informed by science now. The only reason why we need it, is because we are a multicultural society with many different people who are not raised in our conservation ethic and because of this multicultural society that we live in, we have a government that is by nature large and extends beyond the individual village boundaries and so really this process that we are in now is only an expansion of that cultural process that we will operate in. We sometimes forget that, but that is the truth. There is no dichotomy and there is no sort of big gap. It’s just using tools today in the

context of the society today but managing the way that we've always managed.” (Local NGO worker)

In terms of the dominant styles of decision-making, these illustrations show that public endorsement for new knowledge to be regarded as legitimate tends to be derived from personal involvement or connections (consensus). It further suggests that new research-based knowledge is typically understood and interpreted in the ways it connects with customary decision-making practices.

5.2 Credibility

Participants indicated that the credibility of knowledge was closely linked to the people who are promoting it. Even during the course of our research, it was important that we be accompanied by a trusted Palauan member of the PAN Fund to confer credibility upon the research process. One participant summarised the importance of who is involved in a conservation by saying:

People won't normally ask 'what is the meeting about', they will ask who will be there. It is about credibility, based on relationships and trust. When I come with someone from the community who is trusted, people will believe you, otherwise they will not, even if you have good science. (International NGO worker)

The credibility of knowledge was not conceived of independently from its champions and any distinction made between the two was seen as relatively artificial.

Within the context of PAN, this translated into an emphasis on who the particular PAN Manager of a site was and this was often touted as a crucial factor in the success of any given protected area. The case of the Ngardok Lake PAN site manager was raised several times as an example of how important the individual leadership of a site manager can be and how this in turn, strengthens the work of the whole network. One participant stated:

So if there is a lesson here, it's critical that you make that investment in the first or even the second manager and as soon as they've built some sort of institutional culture for [the protected area], it becomes a little bit easier. So I look across the network now and in those areas where you see that kind of leadership, you see much better performance. (Local NGO worker)

At Ngardok Lake, those involved with management were equally emphatic that individual managers were crucial. One member of the Ngardok board noted, “for all the PAN sites in Palau, what I would like to see in future, is for all the PAN sites to have a manager like [ours]”.

In this case, institutions were seen as largely secondary in fostering credibility. Within this context, the components of credibility identified above meant that individuals reinforced the legitimacy of institutions, rather than institutions conferring legitimacy on individuals. Indeed, in several instances, participants would refer to the people synonymous with organisations rather than actually naming the organisations they were talking about. This form of credibility was largely established through the relationships, kinship, knowledge of cultural protocols, and fulfilling specific criteria for expertise. These are qualities which international scientists often find hard to establish with the same proficiency as locals knowledgeable in custom.

5.3 Expertise

We found that the notion of expertise manifested in a variety of different ways across this case study: critical reflection on the position of this research, cultural norms surrounding explicit labels, and the valuation of knowledge-holders opinions.

Participants expressed a degree of distaste with the idea of “experts”. Although we met with many Palauans with an incredible depth of knowledge, none self-identified as experts. Self-promotion was considered in poor taste. This is perhaps an illustration that an “expert” as recognised in the Western sense did not resonate in this context. One participant echoed these sentiments by asserting:

Palauans will be very quick to say that “we’re not the experts”. Part of it is the humility part. We don’t showcase ourselves, it’s mekull. The other thing is that when we think about “experts” it’s a very western concept. You’re educated, it’s your profession, and you have this experience behind you. So Palauans will never say that they’re conservation experts, environmental experts, and yet they’re extremely knowledgeable. (Local business woman)

Within this context, the notion of “expertise” associated with conventional views of research and researchers may actually erect barriers to effectively bringing research-based knowledge to action around conservation. As another participant involved in a local environmental NGO noted:

We really had to work hard with communities to help them believe in their knowledge and to share it. Because a lot of times, they didn’t share knowledge not because they were hiding anything, they just didn’t think it was valuable. (Local NGO worker)

This illustrates the need for approaches which value the contributions made by local knowledge, and work to connect new contributions from non-locals with existing

knowledge. In addition, this assessment raises important questions about the exclusionary tendencies of science as a relatively technical formal institution.

There were several factors in determining who was considered an expert. Traditionally, in Palauan society there were strong norms about who could and could not know certain things and who could share information (McKnight, 1968: 19). This tradition seems to continue today in who is qualified to speak about certain issues. From the data, we have identified two major criteria for how expertise is determined in Palau:

- **Practical experience and knowledge of custom**– this was closely linked to age and one participant noted that despite the changing nature of Palauan society, one participant noted “*there, is still that respect that wisdom comes with age*”. This also linked to experience in certain areas. For example, managers involved in terrestrial conservation were often reluctant to speak to the issues faced by MPAs and vice versa. Another manifestation of this respect was the way that those with a deep knowledge of custom were the subject of a great admiration and their advice was often trusted over that of scientists.
- **Foreign exposure** – Often this came in the form of a foreign education among the younger generation. Almost all the young environmental professionals that we met with held foreign university degrees. Among the elder generations, many of the high ranking chiefs, even if they had not been educated overseas, had served with the US military or had worked in other parts of Micronesia. There was a sense that Palauans must prove themselves elsewhere, if they wanted recognition at home.

We had expected to find a certain degree of tension between these two criteria but we saw very few instances of this. For the most part, they were seen as largely complementary. Those with foreign qualifications expressed a great deal of reverence towards elders and respect for customary knowledge, and elders expressed a desire for Palauan youth to cultivate both knowledge of local customs and environments, and to receive western university qualifications.

However, when scientific and customary knowledge conflicted on a particular issue, most opted to follow the advice of elders. One example of this was the practice of cutting back of mangroves in Airai, presented in Box 2.

Box 2. The mangroves of Medal Ngediull

At the Medal Ngediull PAN site, there is an ongoing concern about mangroves encroaching on the reef and the closing off of navigation channels. There is a strong custom of communities keeping channels clear by cutting back the mangroves. In recent years, due in part to run-off from the nearby airport, the sediment load reaching the site has increased greatly leading to a significant increase in mangroves around the reef. Site managers, drawing on traditional practices and knowledge, wanted to cut back the mangroves. However, scientists expressed concerns at this practice because of the role that mangroves play in maintaining the integrity of the coastline. Despite the disagreement voiced by scientists, PAN managers and rangers decided to remove mangroves from the site and the community was even brought on board as volunteers to help clear the channels.



Noe Yalap from the PAN Fund, at the contested mangroves of Airai (Photo: Lorrae van Kerkhoff)

Expertise was not a straightforward concept in Palau. Customary knowledge was not only a source of expertise directly, but also played a role in determining who were most trusted to navigate the sometimes conflicting information relevant to conservation decision-making.

5.4 Effectiveness

In this case study, the effectiveness of management regimes was closely linked to the tangible benefits that they provided local communities, and relates to how knowledge demonstrates its value to the wider public.

During most interviews, we asked participants which PAN site they thought was the most successfully managed. One consistent response to this question was Koror state's Rock Islands Southern Lagoon. A number of reasons were given for this:

- **Financing** – this took two forms. Firstly, the site's ability to fund itself outside the support of PAN and secondly, the site's ability to provide financial benefits to the local community. For example, the Jellyfish Lagoon in Koror's PAN site is Palau's most

visited tourist destination and Ngardok Lake runs a community orchid nursery. These economic resources, many observed, were the result of active pursuit of financial sustainability by Koror state. One participant from Ngarchelong encapsulated both this desire to independently finance management and to deliver more benefits to the community by saying:

Our ultimate goal should be sustainable and that is to be more like Koror state. And that money, in Koror state comes from tourists. It doesn't come from anywhere else, just from tourists. To participate in this money, you just sit home and wait. No! This tourist money, doesn't work like that.
(Ngarchelong legislator)

Building on this idea, the Palau International Coral Reef Centre has begun commissioning socio-economic studies on the value of MPAs to demonstrate some of the benefits of protected areas to local communities (Kleiber and Koshiba, 2014). Finance was also an important enabling factor for the other demonstrations of effective management.

- **Public outreach** – was an important part of demonstrating the value of conservation areas. Many sites, including Koror brought in local school students to visit and learn about conservation initiatives. One particular strategy that Koror used to promote their work was giving one of their protected areas a mascot, “Captain Malii” the Napoleon Wrasse (see Figure 1).



Figure 1. Captain Malii Banner. Photo credit: RARE , 2015

- **Enforcement** – of environmental regulation emerged in discussion with all the PAN managers, especially those working in MPAs, as a major challenge. Due to its considerable resources, Koror state was able to hire more rangers and implement a more rigorous regime to deter illegal fishers and irresponsible tourist behaviour. This criterion was largely about protecting local communities.

One clear message that emerges from these different measures of effectiveness, is that for management to be deemed effective it has to have tangible outcomes for the local community. Amassing scientific data was not seen as a social good on its own terms.

However, one notable absence which was listed as the primary goal across all management

plans was the conservation of biodiversity. This indicates that the conservation outcomes of management were perhaps more for external consumption.

5.5 Objectivity

Contrary to the often presumed association between objectivity and fairness, almost universally, among participants, no clear link of this kind emerged. Instead, many participants linked fairness to more flexible context specific knowledge and decision-making practices. Indeed, some participants noted that one of the great strengths of management based on *Bul* was that it could be used in a more discretionary way to create more equitable results. One PAN site manager saw *Bul* as an alternative to an increasingly codified form of management which would allow for both conservation and economic growth in the area. He posited that:

Instead of adding more sites, it would be great if it was like the traditional system of Bul. [Where] you can move the boundaries of one protected area to another area. So like, if the fish move, the gleaning will change from molluscs to invertebrates, so you can be more flexible. Like before, the traditional leaders would just say 'okay that part is good' and then just move the boundaries. I think that would be really good, to be flexible and start following the old system more closely. (PAN manager)

However, many noted the use of more science-based knowledge in regulating the behaviour of outsiders unaware of Palauan context:

I think so because traditional closures, that's only known to locals in Palau, and to the international people that come in and fish the waters, they won't know it. So if we apply the science, on top of the traditional, then science can be applied to international people coming in and we can enforce it more clearly with them. So I think that's where the traditional isn't working as well now. (Local researcher)

In this quote, the participant makes the distinction between local and international audiences for conservation and asserts that the role of science is to address the former. Given increasing numbers of tourists, and that many Palauans are venturing further afield to fish, this dimension may become more prominent in years to come. In a similar vein, the concept of transparency in knowledge-making found little traction in this dataset but there was some indication that it may so in the future.

5.6 Transparency

Transparency (as understood in a formal sense) did not seem to be a particularly highly valued characteristic of decision-making in Palau by interview participants. One

participant detailed the proceedings of a public hearing on a previous management plan in a way which illustrates a level of disinterest in formal transparency processes.

Participant: When the first management plan was put out, the state was going to conduct a public hearing, where the community could make any questions or comments to the state officials and then the legislature passed it into law. They are provided with copies of the management plan and then we went through the same process with the plan. [...]

Author: With the hearing, did many people come?

Participant: Unfortunately, I was not able to attend the hearing but I think there were a lot of people who got involved with the public hearing. The people of Melekeok were satisfied with whatever the board put into the plan. So it was able to go out quickly and smoothly because if there was someone in the community who had a negative impression of the management plan, that would have slowed the process. But because nothing came out, it went fine.

Interviewees suggested that official or formal processes for transparency are not highly valued because there are plenty of informal channels for people to know and participate in the inner workings of decision making. These channels are particularly robust across all different levels due to the highly interconnected nature of Palauan society. It is also considered highly impolite to criticise others in public, especially those in positions of authority as in this example.

However, some representatives from government stressed the importance of reporting in ensuring that the wider public knows how funding is used. When asked what the major capacity development need across the network is, one public servant responded:

I think that reporting might be one of the biggest capacity needs. It's been something that we've emphasised from the very beginning, we want to see more use of management reports that we are receiving from the states. So there are those types of needs. (PAN public servant)

The participant went on to say in regards to the importance of sites reporting on their progress in that:

Basically, it's the report to our key stakeholders in leadership to say what are the green fee is contributing to. This is our way of showing them progress. This is the work that is taking place. [...] Especially, to leadership because when it comes to the green fee there is always that interest in 'can we do something else, in addition to what we're doing now, with the existing green fee collection' and we want to make sure that ... It's called the green fee and it's important that it continues to be the GREEN fee. (PAN public servant)

These statements indicate that while formal transparency may be relatively unimportant to local audiences around decision making, this was not the case when it came to showing

officials and international funders where the money was going. The idea of different knowledge governance strategies for different audiences is expanded on below.

5.7 Ownership

Ownership was a key part of knowledge-making in Palau, and is a theme we have added to the original six dimensions proposed by Jasanoff (2005). When we asked the Palau Conservation Society (PCS) about what made its work different to international environmental NGOs involved in Palau, after having remained silent for the length of the entire group interview, one of the participants answered simply that “PCS is Palauan and [this other NGO] is not Palauan”. This a relatively self-evident statement but it indicates a wider undercurrent to Palauan conservation, that it must be defined on Palauan terms to work. Taking into consideration Palau’s history, having had political control wrested by a series of colonial powers this need for ownership seems a logical response. In this case study, this manifests in the desire for continuity, the reliance on those knowledgeable in tradition and the desire to see conservation knowledge yielding tangible benefits for local communities. The women’s traditional leaders group, the Mechesil Belau, exemplifies relatively new processes that have been developed along customary principles to collectively consider important social issues and make decisions to support particular courses of action, as reported in Box 3.

Box 3. Collaborative decision making in the *Mechesil Belau*

Each year for the past 25 years, the Mechesil Belau have convened a conference of up to 200 women from around Palau, to discuss social issues that are important from a customary standpoint. This includes a range of thematic areas, such as education, health and the environment. The outcomes of these conferences are a small number of recommendations for policy changes that are taken directly to Parliament. The women are highly respected, and the outcomes of their deliberations are implemented almost without fail. Conservation issues have included recommendations to post a moratorium on the harvest of the endangered Hawkesbill Turtle, a species that is highly valued in Palauan custom; and changes to sewerage outfall that was damaging the lagoon. In each case, however, the issues have been raised and noted on the basis of the women's own experience and knowledge, with science then being brought in to support their case: "Science validates what we do".



Researchers with the *Mechesil Belau*, Palau's traditional women leaders group (Photo credit: Noe Yalap)

The value of the local communities owning the knowledge was closely entwined with deploying appropriate customary processes to validate decisions for action. This poses real challenges for international research. The Pacific International Coral Reef Center (PICRC) is based in Palau, and employs both Palauan citizens as well as international scholars. While widely respected amongst the Palauan community, and used heavily in international promotions, PICRC's research was most typically referred to as assisting protected area managers meet their monitoring requirements, rather than influencing decisions. This was in marked contrast to the Palau Conservation Society, established by Palauan advocates and researchers who had studied internationally, and returned to promote, advocate and support local conservation. PCS has been highly influential, including in the establishment of the formal PAN. The ownership here is not only concerned with local communities setting their own priorities, but equally about research and actions being conducted and promoted by people with high awareness of the customary processes and decision-making structures, and how to work effectively with them.

5.8 Conclusion

Through the thematic framework identified above, elements of knowledge governance for conservation decision-making emerge. Palau appears as a high-trust environment where relationships are central to the functioning of society. The current dominant styles of knowledge-making are embodied by the notions of consensus and continuity. Credibility was seen largely as a personal quality rather than as the function of institutions. As such individual experts had an important role to play in directing conservation. Although the word “expert” was largely seen as distasteful, there were common ideas around what qualifies knowledge-holders to speak on certain issues, namely, experience, international exposure and knowledge of custom. The latter was seen as an important tool for navigating environmental uncertainty. Transparency and objectivity were not highly valued functions of decision-making for internal purposes, but were recognised as important in allocating resources amongst different States or for communicating with external actors, such as donors. The perceived effectiveness of conservation regimes was a reflection of the tangible benefits which they brought to the local community. All of these different aspects were important in fostering a sense of ownership over conservation institutions.

6 PAN decision-making from a knowledge governance perspective

The previous section offered an overview of the dynamics between knowledge and action in Palau conservation through the lens of the proposed theoretical framework, adding the final category of ‘ownership’ as a theme that emerged from our data. This section focuses on how such understandings can inform a discussion about decision-making in the context of the PAN.

6.1 Multiple knowledge governance regimes

Our discussions, conversations and analysis suggest that Palauans are adept at navigating (at least) two different styles of decision-making, which largely reflected the audiences our participants were addressing. There was one narrative around the primacy of protecting biodiversity largely for external audiences (donors, tourists, international organisations) and another which focused on supporting local livelihoods, for internal (local resident) audiences. Each of these audiences invoked different rules for validating decisions, as discussed in the previous section. These are summarised in Figure 2.

Dominant style of knowledge-making: consensus, continuity				
Internal audience			External audience	
Avoided	←	Transparency	→	Emphasised
Downplayed	←	Expertise	→	Advertised
Personal	←	Credibility	→	Institutional
Livelihoods	←	Effectiveness	→	Biodiversity
Flexible	←	Objectivity	→	Fixed
Palauan	←	Ownership	→	Palauan+international

Figure 2. Comparing knowledge governance regimes for different audiences

On the left, the customary style of decision-making reflects the customary and cultural values intrinsic to the Palauan community. On the right, the evidence-based style of decision making reflects the norms and expectations of the international communities who interact with Palauan conservation. While scientific research ‘fits’ readily into the latter, and was frequently noted in terms of advocacy, monitoring and reporting, in the customary style of decision-making it was regarded at best as post-decision validation (“the science validates what we do”, and at worst as potentially supplanting traditional practices (“you are going to do my job for me now are you?”). This suggests that in a non-Western context, science can be regarded both as an opportunity and as a threat.

In our case study, the opportunity was clearly driven by the overarching shared values across the local and international audiences regarding the importance of conservation. These deep-seated values are broadly compatible with biodiversity values promoted by the various international communities, including NGOs, United Nations and, of course, paying tourists. Palauans’ willingness to shift between different styles of decision-making recognises the international opportunities that can be used to further their own conservation goals and values.

Beneath this compatibility, however, there is potential for substantial conflict. That there was little evidence of conflict between the two knowledge governance regimes was surprising to us. This sits in contrast to what one might expect based on the disconnect between these scientific and indigenous bodies of knowledge which academic scholars like Tuhiwai Smith (2012) and Thaman (2003) point to. However, this absence of conflict does not necessarily denote cooperation but rather that there is a parallel relationship between these bodies of knowledge. Decisions to take action are reached within the consensus-based style of knowledge-making, where customary relationships are prioritised and maintained; the styles of decision-making that validate these decisions may then be selected as those most suited to the task.

6.1.1 Points for PAN to consider

In this short section we present a few key points that it may be relevant for the PAN Fund to consider as they progress. They are presented as questions, as we do not regard it as our role to propose what would inevitably be “half-baked” answers. But they may be useful topics to discuss and debate as the PAN Fund grows and evolves.

1. *To integrate, or not to integrate?*

This first question concerns whether and to what extent it may be useful to more formally integrate customary decision-making processes into the PAN management arrangements. As we have presented above, customary and science based decision-making currently coexist, with little conflict and high complementarity. There may be opportunities for the PAN fund to build on these complementarities, for example by instituting a formal traditional leaders advisory group. Through our investigations we found a number of traditional leaders were involved and making significant contributions to the management of PAN sites across PAN. However, at this stage this involvement appears to be quite variable between states and not all traditional leaders were aware of the work that PAN and PAN Fund do which is understandable given that the network is still a relatively new initiative. By formalising a mechanism for traditional leaders to engage with the PAN, PAN Fund could reinforce the efforts already being made in a more systematic way and identify opportunities for greater participation from traditional leaders. This could help to explore some of the suggestions made by participants, such as flexible conservation areas (see next section), that would again maintain the PAN's reputation as innovative and world leading. However, the risk for going down this pathway is that decisions that can currently be made outside the formal process (drawing on the trust of customary relationships) may need to be brought into a more formal setting where transparency may lead to increased conflict.

2. *Can science-based knowledge challenge customary decision-making?*

One of the conventional roles of science-based knowledge is to challenge existing decision-making processes, and bring forward new insights, ideas or data that can help conservation managers rethink their strategies and actions. The overall complementarity of current science-based knowledge and customary knowledge to date indicates that the PAN fund has not yet encountered a situation where science-based knowledge directly contradicts customary knowledge (one exception was noted in Box 2). Thinking through strategies to deal with this situation should it arise may help the PAN Fund prepare for difficult decisions around the legitimacy of knowledge. This is not as straightforward as deciding which one should "win". It is equally important to ensure that customary foundations for decision-making do not gradually become eroded through many small decisions that favour science, and

vice versa. Fostering conversations between researchers and traditional leaders may be one way to support cohesive outcomes, rather than divisive ones.

6.2 The PAN Fund as a boundary organisation

The PAN Fund is situated to connect a wide range of actors with an interest in Palauan conservation. From the site managers and the communities who support and rely on those sites, to government officials who require particular forms of accountability, national funding programs (the “Green Fund”), and international NGOs and donors. As noted in the previous section, questions around what constitutes reliable or useful knowledge to each of these audiences are constantly navigated and negotiated. Academic scholars have labelled these kinds of programs as “boundary organisations”, and the navigation and negotiation as “boundary work”.

Boundary Organisation

Summary based on Meyer and Knight 2014: [What is a 'boundary organisation' and why should you care?](#)

What do boundary organisations do?

1. **Translation:** people in boundary organisations need to be able to adjust the way they speak about conservation to different audiences. PAN Fund and the Palau conservation community are clearly adept at doing this. Being aware that this is an important part of the PAN Fund’s role may help to build skills more explicitly.
2. **Co-producing knowledge:** boundary organisations provide spaces and institutional contexts where scientists and practitioners can interact. These spaces are currently largely “hands off”, in the sense that the PAN fund does not play a strong role in how these interactions should occur. They could become more “hands on” if the fund chose to structure these negotiations.
3. **Dual accountability:** Boundary organisations are typically accountable to more than one community or constituency. This is clearly the case for PAN fund—there are formal obligations to a range of actors both within and outside Palau. Within this context the PAN Fund is continuously engaged in reframing and moderating conservation knowledge so that it conforms to expectations associated with both audiences and is more likely to succeed. This is a source of power – the fund has the power to enforce its interpretation – but can also be precarious as it must maintain its own credibility to these multiple audiences.

This notion of boundary work suggests that the PAN program (PANO and PANF) has choices to make (and is implicitly making these choices already) about who’s knowledge is most legitimate under what circumstances, and whether or how different actors should

come together. To date, the institutional arrangements for the PAN have ensured both customary knowledge and research based knowledge are considered in decision-making. However, they have also allowed for these two forms of knowledge to remain largely separate. This significantly limits the potential for conflict but also may limit deeper forms of cooperation.

6.2.1 Points for PAN to consider

1. Is boundary work central to PAN Fund's operations?

Viewed through the lens of this study, we can readily see that the PAN Fund plays an important role in brokering different forms of knowledge and their application to current conservation management. Yet we can equally see that this is not their primary, explicit role as fund managers. This raises the question of whether it is worthwhile for the Fund to build awareness and skills in the boundary work mentioned above, or to allow it to remain an implicit part of their operations. For now, it may be sufficient to simply recognise that the fund does play this role, and that there are resources available and lessons learned from other boundary organisations, should they need them in the future.

2. Should the Fund facilitate participatory research in PA sites?

The nature of the PAN, with multiple communities of expertise (scientific, community-based, and customary/traditional) coming together to make decisions for conservation suggests that participatory research approaches are likely to be most appropriate and effective. In effect, much of the work conducted by the Palau Conservation Society and PICRC is already highly collaborative and participatory. However, examining the extent to which this is the case, unpacking what “participatory” actually means under different circumstances, and how it translates into decision-making can be useful. While our research seemed to indicate that scientific engagement with the PAN program typically followed management needs such as establishing baselines and monitoring plans, truly collaborative (co-produced) research could be more innovative. Participatory approaches could build deeper understanding between researchers and community-based managers, on both the community's needs as well as the kinds of insights that research may offer. Such efforts would need careful oversight to ensure that scientific agendas do not take over the practical needs of conservation management.

7 Recommendations from the field

Through this research, we asked participants if they had any suggestions for the operations of the PAN fund, or requests for more information. Many issues were raised that were more general requests for support (greater needs in enforcement were raised often, with the broader idea of sharing resources across sites; capacity development in reporting across the board; greater attention to the needs of terrestrial sites for monitoring compared with MPAs, etc). In this section we have drawn out a small number of ideas that were either presented more than once, or offer interesting opportunities for the fund and other organisations involved in the PAN to build on the strengths of the network.

1. Steering international scientists.

While many interview participants praised the work that PICRC and some foreign scientists engaged in around Palauan conservation, there were also several criticisms made of the inappropriate behaviour of some international scientists. PAN Fund and other Palauan Conservation organisations are well placed to act as gatekeepers for international scientists, ensuring that scientists are respectful in their communications with stakeholders and in particular with elders. Connecting with the new research approvals process administered by the Bureau of Cultural Affairs may be one way to approach this.

2. Investigating more flexible approaches to protected areas.

One of the advantages of Bul and other customary institutions over the current conservation regime which participants identified was its flexibility in decision-making. As climate change impacts PAN sites and the network continues to expand, the conservation needs of different sites may change over time. This in turn, may influence the efficacy of existing boundaries and management practices. Within this context, finding ways to enhance the flexibility of PAN by learning from traditional approaches may offer ways to satisfy both conservation objectives and community needs.

3. Consider instituting a small grants program.

One of the findings of this investigation was that communities looked primarily at the improvement of local livelihoods as a measure of the success of protected areas. Many of the PAN sites deemed the most successful were actively engaged in this work and using PAN Fund funding to do so. For example, Melekeok state's Ngardok Lake had started an

orchid nursery for the local community; Koror state's Rock Islands Southern Lagoon brought in significant revenues from tourists; and when we visited, Aimeliik state was in the process of developing the Ngerderar Watershed site into a cultural and environmental tourist destination (see image below). One way of encouraging this would be to establish a small grants program specifically for community livelihoods projects which local NGOs and state governments could apply to. Supporting these initiatives may help sites to establish sustainable financing in the long term and relieve some of the financial pressure on the PAN Fund.



4. Expanding Australia's relationship with Palau through conservation.

Although, this was not the central focus of our research, in many of our interviews, participant raised questions about how Australia and Palau could expand their relationship in a broader sense through conservation and environmental management. Here, we have identified some opportunities for Palau and Australia to develop a greater partnership in these areas. There is considerable scope for such initiatives but they will require active advocacy from Palauan conservationists.

1. Make enquiries at the Australian embassy in Phonpei into Australian funding of PAN

We noted that while the embassies of the United States, Japan, Germany and Taiwan are all listed as PAN Fund partners, an Australia was largely absent. Australia has three

strategic objectives for its aid program in the North Pacific (Department of Foreign Affairs and Trade, 2015)¹:

1. Sustainable management of fisheries;
2. Economic and human development; and
3. Disaster resilience and climate change adaptation.

The work that PAN and the PAN Fund do sits comfortably within all of these areas. Of particular note, Prime Minister Malcom Turnbull has recently pledged to expand Australia's contributions to Pacific countries combatting climate change (Clarke, 2015)². Furthermore, in this financial year, Australia has doubled its aid program in the North Pacific (Department of Foreign Affairs and Trade, 2015). Given that Australia already assists in the enforcement of Palau's marine laws through the Pacific Patrol Boat program (Nautilus Institute, 2009) and that Australia has in the past, emphasised partnerships with other island nations around marine conservation, providing funding to organisations like PAN would be a consistent move with Australian foreign policy. The time is ripe for Palau to put these propositions to the Australian government through the embassy in Phonpei.

2. Advocate for the creation of a reciprocal ranger exchange between Australia and Palau

One participant from Melkeok state noted that in the past there had been an exchange between marine rangers from Palau and the Great Barrier Reef Marine Park. He emphasised the mutual learning and capacity development benefits of the scheme, as well as the significance of connecting conservation initiative across the Pacific. Australia has run similar programs with the Solomon Islands (World Indigenous Network, 2013) and it is the process of developing similar exchanges with several Caribbean countries. These past projects indicate that it is certainly feasible for PAN and PAN Fund to advocate for reinstating this joint project.

¹ <http://dfat.gov.au/about-us/publications/Documents/aid-fact-sheet-north-pacific.pdf>

² [http://www.abc.net.au/news/2015-12-01/australia-promises-\\$1-billion-in-climate-funding/6989440](http://www.abc.net.au/news/2015-12-01/australia-promises-$1-billion-in-climate-funding/6989440)

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