



PROTECTED AREAS NETWORK

# STATUS REPORT 2003-2015

# INNOVATION COLLABORATION CONSERVATION *Inspiration*

## REPUBLIC OF PALAU

MINISTRY OF NATURAL RESOURCES, ENVIRONMENT & TOURISM

PROTECTED AREAS NETWORK FUND



**The Palau Protected Areas Network is  
comprised of protected areas in 15 States:**



Kayangel



Ngarchelong



Ngaraard



Ngardmau



Ngiwal



Ngeremlengui



Melekeok



Ngatpang



Ngchesar



Aimeliik



Airai



Koror



Peleliu



Angaur



Hatohobei



*Sonsorol and the PAN are working closely to identify innovative mechanisms to enable public-private partnerships to jointly protect critical areas in the State.*

# MESSAGE FROM THE PRESIDENT



*We* have always known that our environment is an integral part of our life, our economy, our culture, and our future. The Protected Areas Network—or PAN—is our way of bringing that knowledge to life. Through the PAN we protect our natural resources, but more importantly, we bring our cultural values to the world of conservation. The PAN allows us to celebrate the unique approaches that each of our 16 States have for managing biodiversity, natural resources, and cultural and human resources. It also allows us to build upon our shared values to create a sense of community. The PAN has inspired strong partnerships, within Palau and all over the world.

The PAN also expresses our sense of independence and innovation. In 2003, when I first signed the PAN Act, a nationwide Network of decentralized protected areas with a dedicated, integrated funding source was new and novel. In many ways it was a leap of faith. 12 years into this experiment—new to Palau and as it turns out, new to the world—we have much to show. From newly protected sites to emulated funding mechanisms to high community involvement: the PAN is a source of Palauan pride. We certainly welcome the attention we get from our friends around the globe, and we treasure the Future Council Gold Award. The greatest sense of accomplishment, however, comes from the knowledge that the PAN is a reality today because of our shared friendship, grit, partnerships, and our well-balanced mix of traditional knowledge and modern science. I know you will be inspired by our Protected Areas Network.

**Tommy E. Remengesau Jr.**  
*President of the Republic of Palau*



Support for Protected Area Management Effectiveness (PAME) Assessments and this report was generously provided by:



The Nature Conservancy



The GEF Small Grants Programme

Charitable direct financial support to the PAN has been provided by:

CONSERVATION INTERNATIONAL



The Nature Conservancy



United Nations Educational, Scientific and Cultural Organization

25 years



GLOBAL ENVIRONMENT FACILITY  
INVESTING IN OUR PLANET

through the Micronesia Conservation Trust

The GEF Small Grants Programme



*And visitors to Palau.*



## FOREWORD FROM THE MINISTER

For those of us in Palau's natural resource conservation sector, the PAN has been a big part of our lives for over a decade. We have moved from thinking about protected areas as discrete, independent patches of land and water to thinking about them as connected to each other and to our way of life. This is why Palau's communities, resource managers, and leaders have invested so much into making the PAN successful. The PAN is a way of bridging the traditional world with the modern world, and the local with the global.

In this first-ever PAN Status Report you will find that the PAN has been successful in many areas. The PAN has spurred the creation of new protected areas and decreased destructive activities in its member sites. The PAN prompted many of our protected areas to go from ideas on paper to functioning sites creating environmental and socioeconomic benefits. PAN's innovative funding mechanism, the Green Fee, has inspired many other nations. More importantly, it has facilitated job creation, the construction of conservation infrastructure, and a constantly growing and evolving sense of appreciation for our natural resources.

The impacts of the PAN are felt beyond site boundaries. Conservation throughout Palau has benefited from the PAN. From job creation to improved infrastructure, the PAN has empowered local communities to manage their own resources in the way that is right for them. In return, local communities have enabled Palau's government to meet global commitments and its national obligations to protect resources for its own people.

The PAN exists because of the commitment of partners from all walks of life, both in Palau and across the globe. Together, we have made a nationwide Network a reality. Thank you for joining us as part of our PAN.

F. Umiich Sengebau  
Minister of the Ministry of Natural Resources, Environment & Tourism



Driftwood on beach © Levent Konuk

The PAN is administered by the PAN Office within the Ministry of Natural Resources, Environment & Tourism. National Funds for the PAN are managed by the PAN Fund.



Oversight and advice to the PAN is provided by the:

PAN Management Committee  
PAN Technical Committee

Significant partnership support,  
including indirect funding and technical expertise,  
has been generously provided by:

Palau International Coral Reef Center  
Palau Conservation Society  
The Nature Conservancy, Micronesia Program



Micronesia Challenge  
Council of Chiefs  
Governor's Association  
Palau Public Lands Authority  
Environmental Quality Protection Board  
Palau Visitor's Authority  
Belau National Museum  
Palau Community College  
Belau Tourism Association  
Ebiil Society  
Individual Experts

Ministries and Agencies in the Palau National Government  
State Governments  
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A volunteer from a community women's group helps reforest a watershed. The PAN has inspired many new community-based activities, both inside and outside protected areas.  
© Ann Singeo





# INTRODUCTION

Palau's Protected Areas Network (PAN) is both an assemblage of local State-owned *terrestrial and marine protected areas* and *an enabling mechanism* designed to optimize the conservation and management of Palau's natural and cultural heritage.

The PAN is a framework of policies, practices, knowledge, funding mechanisms, virtual and real-world tools, and government and nongovernment employee positions that support the long-term sustainable use and protection of environmental and ecological resources. The PAN framework ensures more standardized, equitable, efficient, and transparent assessment, distribution, and accounting of resources and benefits.

The PAN explicitly recognizes that individual States retain ownership of land and marine resources, and supports and empowers local management of these State-owned resources for the benefit of communities, the nation, and the globe.

*“The national government of Palau supports the States’ efforts to protect their lands and waters and encourages sustainable development of State lands.”*

Republic of Palau  
Public Law 7-42  
May 2008

## What this report does:

This 2015 Status Report provides information as reported to the PAN Office and PAN Fund by State governments and technical experts.

This 2015 Status Report:

- Analyzes, without judgment, the size and coverage of protected areas in the PAN as they existed in December 2015, as reported by States and technical experts. Values presented here are assessed based on membership in the PAN, and do not represent values for Palau's full suite of protected areas, many of which are not PAN sites. This report acknowledges that Palau's States and the national government have established protected areas and sustainable resource use outside of and in addition to the PAN.
- Reports on the 2014 and 2015 first-ever PAME Assessments. Assessments are furnished with information based on expert judgment and not solely field data.
- Reports on field data as it relates to PAN sites, where applicable.
- Reports on activities that significantly impact the PAN, including those activities conducted by partners who may not have direct PAN funding.
- Provides a financial report as provided by the PAN Fund.

## What this report does not do:

This 2015 Status Report does not in any way:

- Advocate for or formally establish the boundaries of any protected area. Boundaries depicted in this report are subject to formal surveys, State and national legal proceedings, and judicial rulings.
- This report does not advocate for or attempt to establish or negate any particular State's ownership of any particular resource, nor does this report have any bearing on State boundary disputes or legal challenges.
- Prioritize any PAN site over another in terms of funding or benefits.
- This report does not equate the findings of the PAME in the categories of Biophysical Conditions and Conservation Effect with findings achieved through on-the-ground monitoring and scientific research. This report acknowledges that PAME Assessments are based on secondary, subjective perceptions.
- This report does not assess Palau's full suite of protected areas, but focuses on PAN sites only.
- This report communicates the ability of the PAN Office and PAN Fund to assist with management of marine sites above 100 meters in depth, and does not make any judgments on the validity, worth, or benefits of PAN sites that fall below 100 meters depth.





Soft Coral Arch © Ethan Daniels

# Our Conservation Story

## Palau's Natural Environment

Palau is blessed with an exceptional array of biological diversity, both on land and in the ocean. The marine environment has diverse habitats within a relatively limited area and is home to diverse and abundant endemic, native, and endangered marine life. Palau's forests and terrestrial diversity are the most biodiverse in Micronesia. Distributed across the hundreds of islands that make up Palau are numerous habitats, including:

- Forests—upland forests, swamp forests, limestone forests, atoll forests, and mangrove forests
- Savanna and grasslands
- Freshwater habitats—rivers, streams, lakes, swamps, and taro patches
- Brackish water habitats—wetlands and coastal lagoons
- Marine lakes
- Nearshore habitats—mudflats, seagrass beds, and sandy beaches
- Coral reefs—barrier reefs, patch reefs, fringing reefs, and atoll reefs.

Palau's geographical and geological characteristics (island isolation with proximity to the Asian mainland) have allowed for extensive development of biodiversity, with over 7,000 terrestrial and 10,000 marine species known to exist in the country. Palau has one of the most biologically diverse underwater environments globally. New species are regularly discovered and described, making Palau a

hotspot for scientific research. Palau has the most extensive and species-rich forests in Micronesia, and forests in Palau are considered some of the most intact in the Pacific. Approximately 70-75% of the land area is forest.

## Importance of Environment to Society

Palau's communities rely on their natural resources for both subsistence and commercial livelihoods. Palau's marine environment also underpins the nation's primary economic industry, tourism. Palauan culture is closely linked with the environment, in terms of personal, family, and societal cultural and historical identity, and the environment forms the basis for many livelihoods.

Urbanization and development have resulted in substantial changes to the environment in some areas. Nearshore ecosystems are heavily impacted by land use in nearby land areas. As a result, seagrass beds, mudflats, mangroves, and reefs located near development are experiencing increased pressure from land based activities. Terrestrial and water resources also face direct and indirect pressures.

Much of Palau's environment is still in a healthy State and thus conservation efforts have focused on proactive protection of sites. Preserving healthy terrestrial and marine ecosystems is not only important to protect biological diversity and to secure the country's economic base, it is also a fundamental requirement towards attaining food security and livelihoods for local communities.

## Conservation History

Conservation in Palau extends back for thousands of years and is an integral part of Palauan culture. Palau has a growing and robust environmental sector, comprised of government, nonprofit, academic, and business partners. There are recognized and supported links between traditional and modern practices and governance systems. For decades, political administrations have recognized the importance of the natural environment to Palau, and numerous environmental laws and offices exist at national and State levels. There are multiple pathways for conservation, such as using protected areas to conserve threatened species and areas of high biodiversity, and broader Sustainable Land Management beyond protected areas.

Throughout history Palauans have established protected areas using traditional systems. In 1956 the government established Ngerukewid Conservation Area as its first formally protected area. Since then Palau's communities have established many more protected areas. In 2015 there were 46 discrete marine and terrestrial protected areas, 34 of which were PAN sites. This included 1,331 km<sup>2</sup> of nearshore marine habitat (46% of Palau's total nearshore marine area), 22 km<sup>2</sup> of mangrove (approximately 46% of Palau's total mangroves), and 90 km<sup>2</sup> of terrestrial habitat (approximately 22% of Palau's total terrestrial habitat). Each of Palau's 16 States has legislated or traditionally decreed protected areas.

## Global Leadership

All lands and waters from the shoreline out to 12 miles are owned by States, thus all protected areas are established by State law or by a mixture of State and traditional decree. Creation and joint management of national protected areas or cross-boundary areas requires a partnership between governments at multiple levels. In 2003 Palau established the PAN to enable such partnerships. In 2005 Palau issued the challenge that became the Micronesia Challenge, a commitment to effectively conserve 20% of the nation's terrestrial habitats and 30% of nearshore marine habitats. The Micronesia Challenge inspired similar conservation movements in the Caribbean and Indian Ocean. Palau's Green Fee, an innovative self-sustaining funding mechanism, has been emulated by other nations. Palau's two most recent Presidents (Honorable Johnson Toribiong and Honorable Tommy E. Remengesau Jr.) have declared Palau's waters to be sanctuary for sharks, marine mammals, and fisheries.

Palau's protected areas are recognized internationally. Koror's Rock Islands Southern Lagoon is a World Heritage Site; Melekeok's Ngardok Nature Reserve is a Wetland of International Significance under the Ramsar Convention; Ngeremeduu Bay (in Aimeliik, Ngatpang, and Ngeremlengui) is a UNESCO Biosphere Reserve; and Kayangel's Ngeriungs and Sonsorol's Fana Islands are Important Bird Areas (IBAs) under the Birdlife International system. Palau's conservation policies and practices have earned the 2012 Future Policy Gold Award and 2003 Pacific Asia Travel Association Gold Award. Individuals in Palau have been awarded Marine Fellowships from the Pew Trusts and the Peter Benchley Ocean Award.



From top to bottom: Abandoned taro plantation in the Rock Islands; A researcher studying Koror's marine lakes © J. Tamelander, 2011; Children playing with a watershed game; A facilitator during Conservation Action Planning © Palau Conservation Society.



# SECTION 1A: PURPOSE AND GOALS OF THE PAN

The PAN builds on Palau’s conservation history by supporting and enabling enhanced protection and management of **State-owned conservation areas**. The PAN is designed to catalyze and enable communities, States, and the national government to protect and sustainably manage the nation’s natural and cultural heritage in perpetuity.



Youth learn ethnobotany from a community expert. By bringing conservation back to its community roots, the PAN has involved and inspired multi-generational conservation initiatives. Many PAN-inspired initiatives have been supported by the GEF Small Grants Programme. © Ann Singeo

### Purpose and Goals

The PAN is a national level initiative that exists because of local level participation and excels because of multilevel (local, national, regional, and international) collaboration. In addition, the PAN framework is also designed to support conservation across State boundaries. PAN Regulations also allow for the inclusion of protected areas in national waters, protected under national law, in the PAN Network. The PAN legislation is clear, however, that **the purpose of the PAN is to enhance State-based conservation**.

The goals of the PAN include protecting Palau’s biodiversity and natural resources at the national level (while also recognizing regional and global benefits) and supporting communities to manage their protected areas sustainably. The PAN is also designed to be an important vehicle for protecting and effectively conserving cultural sites (although this is an area still under development). Beyond the PAN’s standard practices for existing conservation areas, the PAN concept is also meant to be inspirational, and to act as a catalyst for growth and improvement in Palau’s use of natural resources.

### Connecting local to national to global

The PAN represents Palau’s efforts to institutionalize national level support for conservation management of State areas, so that they accrue local, national, and global benefits and so that national resources (such as financing, expertise, and personnel) are used effectively, efficiently, and fairly. The PAN also is one mechanism by which the Palau national government can align expectations and practices from international to local levels. It is through the PAN and its support and standards for local management that Palau’s national government can meet international obligations to multilateral environmental conventions. By gaining membership to the PAN, States gain access to national level financing and technical expertise and assistance. In return, States agree to manage conservation areas such that they meet minimum standards for “effective conservation.”



Tourists visit a marine protected area © J. Tamelander, 2011

# SECTION 1B: STRUCTURE OF THE PAN

### Multi-level and Inclusive Governance

The Network consists of memberships. States apply for membership for their protected areas, and “Member Sites” are thus “PAN Sites.” The PAN is administered at the national level by the Ministry of Natural Resources, Environment & Tourism (MNRET). The PAN is administered as a Program directly under MNRET through the PAN Office by the PAN Manager. A separate, independent PAN Fund serves as trustee and objectively manages, distributes, and evaluates the use of Green Fee collections and other funds raised for the PAN.

A Management Committee, established in the original PAN legislation as a “Steering Committee” and created through congressional and ministerial actions in 2013, advises the Minister on specific matters such as evaluation of nominated sites, review of State management plans and work plan compliance, decisions regarding withdrawals from the PAN, structure and operation of the PAN Office, strategic planning, and monitoring of

finances. The Management Committee must include representatives from States with PAN sites, and thus serves as an important conduit for ensuring that States and communities are included in the PAN’s decisionmaking process. The majority of members in the committee are Governors of PAN States, with additional representation by non-PAN States, Traditional Leaders, and the Palau Public Lands Authority. Mandates set minimum criteria for Committee activities, thus ensuring stakeholder involvement and improving communication across governance levels. A Technical Committee, composed of government and independent, non-government members, provides technical expertise to the MNRET Minister. The structure of the PAN thus supports the purpose: to provide national-level support for State-owned natural resources and conservation initiatives. This system, with its checks and balances between governance, technical, and financing entities and its standardized practices, also promotes transparent and accountable processes throughout the system.





Traditional dance in Peleliu © Palau Conservation Society

### Partnerships for Compliance and Enforcement

Membership in the PAN also enables a legal enforcement partnership between State governments and the national government, although the mechanics of such a partnership are still under development. Through the PAN, the national government can assist a State with enforcement and prosecution of State laws. Additionally, the national government can assist States by issuing citations for infringements on PAN sites through national legislation, even when that legislation is lacking in the State. (For example, even if a State does not have specific legislation protecting a specific species that is managed within the PAN site, the national government can issue the citation on behalf of the State.) A growing Northern Reefs partnership between Kayangel State, Ngarchelong State, and a variety of national government and technical partners is developing and testing mechanisms for eventual joint enforcement of State and national laws within PAN sites.

### Standardized Processes

PAN Regulations lay out a standardized process for nomination and acceptance of protected areas into the PAN. States must apply for membership, develop a Management Plan with minimum components, and ratify the national PAN regulations (at the local level). Once accepted, there are regulations governing the disbursement of funds and reporting timelines.

The PAN regulations (and its Public Law) mandate Standard Operating Procedures (SOPs) for the PAN: 1) Technical Committee’s operational procedure guidelines; 2) Management Committee’s operational procedure guidelines; 3) Nomination process; 4) Technical review of application and selection criteria; 5) Final review and designation; 6) Standardized environmental monitoring protocols; 7) Monitoring and reporting requirements; and 8) PAN Design and Sustainable Development Plan. Several of these SOPs have been developed and tested and are being finalized. Efforts are in place to fill existing gaps where SOPs are missing. A system-wide Strategic Planning effort is underway.

### Links to Other Conservation Initiatives

The PAN has a close relationship with a related conservation initiative, the Micronesia Challenge. The Micronesia Challenge is a commitment by the countries and jurisdictions in Micronesia to effectively conserve 30% of their nearshore marine resources and 20% of their terrestrial resources by 2020. The PAN and the Micronesia Challenge are aligned in many ways. Funds raised through the Micronesia Challenge may be used to support PAN Sites, and effective conservation of PAN Sites contributes to Palau’s Micronesia Challenge commitment (although neither are exclusive as non-PAN sites can access funds and contribute to the goals). Both the PAN and the Micronesia Challenge have defined “nearshore marine” as all waters between the mean high water line and 100 meters depth, based on a shared understanding of the extent of coral reefs within Micronesia. The PAN and Micronesia Challenge are also technical partnerships, with data, databases, and protocols jointly developed and shared.

The PAN also has a close relationship with specific sites that are not in the PAN, such as in the case of Koror’s Rock Islands Southern Lagoon, which is a World Heritage Site. The adaptive nature of the PAN allows for agreements to share resources between PAN and non-PAN sites within PAN States and to accrue benefits at the national level from non-PAN sites. Non-PAN sites do count towards Palau’s Micronesia Challenge commitment.

### Adaptive Capacity

An overarching purpose of the PAN is to improve protection and conservation of natural and cultural resources throughout Palau, even if they are not in the Network. Thus while the PAN provides a framework for prioritizing and standardizing management investments and actions, it also has the ability to be adaptive.

The adaptive capacity of the PAN also allows it to act as an enabling mechanism for addressing cross-boundary conservation issues like fisheries and climate change. The PAN supports cross-boundary conservation initiatives such as the Northern Reefs joint management process, underway at the end of 2015.

## SECTION 1C: HISTORY OF THE PAN

The PAN grew out of Palau’s long-standing and community-integrated conservation ethic. The PAN also grew out of a recognition that arose post-independence (in 1994) that formal mechanisms were needed to balance, integrate, and enhance the dual governance systems (national and State/community) with responsibility for Palau’s resources.

The “PAN Act” (Public Law No 6-39) was passed in 2003. The PAN Act offered a framework for long term comprehensive and representative protected areas planning and management. It established a countrywide structure to support terrestrial (including cultural) and marine protected areas in a shared and connected system. The 2003 PAN Act also laid the framework for a Green Fee as a financing mechanism and laid out requirements for regulations. PAN Regulations were promulgated and approved in 2007.

Five sites in four States became the PAN’s first members in 2008: Melekeok’s Ngardok Nature Reserve, Ngarchelong’s Ebiil Conservation Area, Ngchesar’s Mesekelat Conservation Area, and Ngiwal’s Ngemai and Olsolkesol Conservation Areas. Hatohobei became the fifth PAN State when it added the Helen Reef Conservation Area in 2009. By the end of 2015, there were 34 PAN Sites in 15 States.

### Innovative Funding Mechanism

Public Law 7-42 passed in 2008 clarifying the intent of the PAN to support “the States’ efforts to protect their lands and waters” and encourage sustainable development. The law also endorsed the Micronesia Challenge and recognized the role of the PAN and PAN Sites in meeting the Micronesia Challenge commitment. Public Law 7-42 implemented the Green Fee and established the PAN Fund as trustee. The Green Fee funds the PAN. Implementation of the Green Fee, which is charged to non-Palauans as an additional departure tax, began in November 2009. The PAN Fund was subsequently incorporated and chartered. Funds were first disbursed to States by an act of Congress in 2011; from March 2012 funds have been managed by the PAN Fund. Since then the Green Fee has been recognized as an innovative and effective “user pays” sustainable financing mechanism and has been emulated in other countries.

The PAN was further aligned with the Micronesia Challenge by National Congress Joint Resolution No. 7-60-10 in 2010, which endorsed the Challenge.

### Global Recognition

In 2012 Palau won the Future Policy Gold Award, a prestigious international award given by the World Future Council.

### Looking Forward

The PAN Office conducted the first system-wide Protected Areas Management Effectiveness (PAME) Assessments in 2014-2015 (reported here). A system-wide Strategic Planning process, to guide the actions of the PAN Office and supporting actions by the Minister, Management Committee, and Technical Committee, was underway in 2015. In 2015 the PAN was also supporting a multi-year effort to develop cross-boundary management of the Northern Reefs by Ngarchelong and Kayangel States. The process was testing mechanisms for cross-state management as well as identifying best practices for addressing issues that extend beyond the boundaries of protected areas (such as fisheries and climate change).



Fishermen advocating for improved fisheries legislation at Palau’s National Congress, OEK. The PAN has spurred new community-based conservation initiatives like this. © Ann Singeo



# PAN TIMELINE

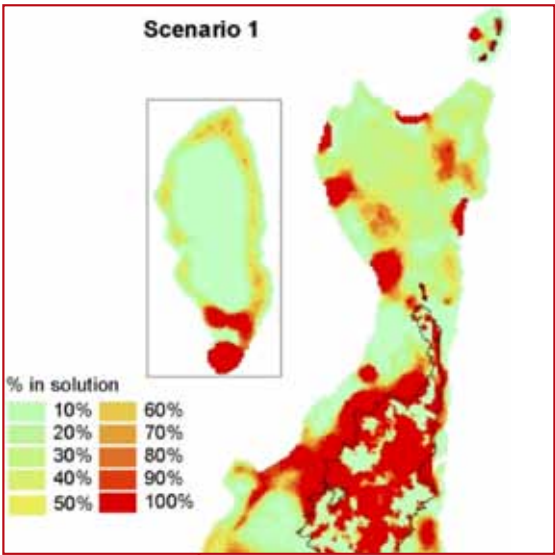
3000+ years ago

Palau is settled and a complex society arises with an integrated conservation ethic, *bul*



2003

PAN Act (6-39) passed



Conservation area targets from the Palau Ecoregional Assessment © TNC

2006

Comprehensive workshops conducted as part of an Ecoregional Assessment identify suite of conservation targets

5 Micronesian Jurisdictions formally launch the Micronesia Challenge

1956

Ngerukewid becomes Palau's first formally legislated conservation area

2002

Consultative Workshops identify 24 biodiversity "hotspots"

2004

PAN Office established and begins operating

2005

Palau's President Tommy E. Remengesau Jr. challenges fellow nations to conserve marine and terrestrial environments, inspiring the Micronesia Challenge

2007

PAN Regulations Promulgated

Ecoregional Assessment for PAN released

1994

Palau becomes an independent nation



2008

5 Sites in 4 States become PAN Sites: Melekeok's Ngardok Nature Reserve, Ngarchelong's Ebiil Conservation Area, Ngchesar's Mesekelat Conservation Area, and Ngiwal's Ngemai and Olsolkesol Conservation Areas

Law 7-42 Creates the PAN Fund

2010

Ngardmau add 4 sites to the PAN, bringing the number of PAN sites to 10 (Ngermasech, Ilyakl Beluu, Ngerchelchuus, Medal A Iyechad)

PAN Fund incorporated and chartered

OEK Resolution 7-60-10 aligns the PAN with the Micronesia Challenge

Agreement on Marine Indicators for evaluating sites (through Micronesia Challenge)

2012

Ngeremlengui's Ngeremeskang and Peleliu's Teleleu become PAN Sites

Green Fee funds disbursed by PAN Fund (and thereafter)

PAN wins the Future Policy Gold Award

PAN Technical Committee established

FY 2012

PAN disbursement to States = \$812,000

2014

First Protected Area Management Effectiveness (PAME) Assessments conducted (through 2015)

FY 2014

PAN disbursement to States = \$1,455,000

2016

First PAN Status Report released



2009

Hatothobei's Helen Reef becomes 6<sup>th</sup> PAN Site

All of Palau's EEZ becomes a Shark Sanctuary

Legislation (8-9) establishes standards for use of Green Fees and removes restrictions on State abilities to enforce State laws and collect fines

Green Fee collection begins

2011

5 States add 8 sites to the PAN (Total = 18): Aimeliik's Ngerderrar, Airai's Medal Ngediuul, Ngchesar's Ngelukus, and Ngaraard's Mangroves, Diong Era Ngerchokl, Ungellel, and Ngerkall & Metmellasech

Green Fee funds disbursed by act of OEK

PAN Fund Board of Directors formalized

Agreement on Terrestrial Indicators (through Micronesia Challenge)

FY 2011

PAN disbursement to States = \$225,000

2013

3 States add 7 more PAN Sites, for a total of 27: Ngarchelong's Northern Marine Managed Area, Koror's Ngerukewid and Ngerumekaol, and Kayangel's Ngkesol, Territorial Waters, Chermall, and Ngerusebek

PAN Management Committee established

FY 2013

PAN disbursement to States = \$1,270,000

2015

34 Sites from 15 States are in the PAN. Aimeliik's Imul, Ngerchebal, and Reef, Angaur's Marine Conservation Area, and Ngatpang's Clam, Crab, and Fish Conservation Areas join the Network

FY 2015

PAN disbursement to States = \$1,561,000





Jellyfish © Blue Orange Studio

## SECTION 1D: 2003-2015

# MORE THAN A DECADE OF PAN ACHIEVEMENTS

In the 13 years that the PAN has been in existence, it has created a world of support, empowered State management, and put in place many of the policies, procedures, methods, and infrastructure needed to make it sustainable. The PAN has been a catalyst for conservation action both inside and outside PAN Sites.

### Summary of PAN-Related Developments<sup>1</sup>

*(Policies, procedures, and methodologies put in place through the PAN or by association with the PAN)*

### Supportive Legislation and Participatory Decisionmaking Processes

- National legislation creating and supporting PAN, and providing national-level legal enforcement and legal support to State protected areas
- National legislation creating the Green Fee financing mechanism and collection and disbursement of those funds
- National level regulations guiding implementation
- Templates for State legislation and resolutions to nominate PAN sites
- Empowered, representative Management and Technical Committees with clear roles in the decisionmaking process

<sup>1</sup>This list includes those activities directly supported by the PAN legislation or Green Fee funds, plus activities catalyzed by the PAN but funded through other means. In addition, it also includes activities that were started for other reasons but have since become important to the PAN's implementation (such as monitoring protocols and baseline data).

### Institutional Infrastructure

- A PAN structure that supports its purpose of providing national-level support for State-owned natural resources and conservation initiatives. This system, with its checks and balances between governance, technical, and financing entities and its standardized practices, also promotes transparent and accountable processes.
- Establishment of a PAN Office with 5 dedicated staff to support national PAN goals and State PAN objectives; Establishment of a PAN Fund with 5 staff in place to manage funds and ensure transparency
- Nationwide support by government, nongovernment, business, and nonprofit organizations to support the PAN and its States and sites
- Initiation of a system-wide Strategic Planning effort

### Improved and Standardized Science

- Baseline data on the status of key biodiversity in marine environments and ongoing research on protected areas (including PAN and non-PAN sites), with control sites and reference sites.
- Formal and informal protocols, methods, and mechanisms for collecting, managing, and



Community work in Kayangel

analyzing monitoring data from marine sites; with associated training programs and established databases. Marine data collection systems are standardized and shared across Micronesia.

- Regular monitoring of marine environments, terrestrial birds, and shorebirds.
- Support to partners working on terrestrial management systems, including support for developing standardized terrestrial monitoring protocols, establishment of terrestrial baselines through PAN site management, and ongoing support for groups such as the Belau Watershed Association.
- Data management systems for biophysical, PAME, and socioeconomic data
- Baseline PAME Assessments (reported here)

### International Leveraging Opportunities

- International support through provision of technical expertise and funding, such as the Micronesia Challenge Endowment Fund



Youth in the annual Camp Ebil by the Ebil Society explore a taro patch and watershed. Fueled by the nation's constantly evolving appreciation for the environment, Ebil Society is an example of a local conservation organization that has grown in strength and influence since the PAN was established. © Ann Singeo

“The PAN Act demonstrates it is possible to successfully integrate and respect traditional management systems, tenure, and knowledge with contemporary science-based decision-making, and support this through a modern legislative system. It is an adaptive, ecosystem-approach to marine spatial planning, is scalable, and although it is easier in a country that has a small and relatively homogenous population like Palau, there are attempts to apply lessons learnt region-wide.”

- 2012 Future Policy Gold Award Nomination

### Informational and Planning Resources

- Education, promotional, and informational materials and partner-assisted community outreach on the PAN
- Templates and guiding criteria for:
  - State legislation
  - Management Plans
  - Activities Reporting and Evaluation
  - Financial Planning
  - Financial Reporting
  - Marine and Bird Monitoring
  - Socioeconomic Monitoring
  - Outreach materials
- Participatory adaptive planning processes made available to States and communities:
  - Selection and delineation of protected areas
  - Nomination of sites
  - Participatory management planning
- Training programs and workshops:
  - Enforcement
  - Field exercises
  - Biophysical monitoring



# Benefits from the Network

Compared to the decades and even generations of conservation history that Palau has seen, the PAN is relatively young. Yet, in such a short time, the PAN has already brought benefits to communities and to the nation. It is a testament to the power of innovation, community, and partnerships.

Since its inception the PAN has benefited Palau's communities and the nation as a whole.

## Local benefits to States and communities:

- Creation of community-approved protected areas that have helped States move towards more sustainable use of their natural resources and increase tourism opportunities
- Maintenance or improvement in some marine resources, such as increases in fish biomass, both inside and outside PAN Sites, with likely benefits arising from PAN-related awareness, management planning, and monitoring
- Apparent increases in bird diversity in PAN sites
- Improved understanding of sustainable harvesting Best Practices
- Access to a mechanism and support for improving conservation to achieve local targets and objectives
- Over \$4,000,000 in funding for State-based management actions from the Green Fee and the creation of a conduit for international, regional, and national funds to reach local resource owners
- Increases in staffing and creation of new jobs to manage PAN Sites, protected areas, and natural resources within most States
- Detailed management plans with guidance for yearly to daily actions, with identification of threats and priority actions
- Formalization and growth of management partnerships between States (such as the Northern Reefs partnership between Kayangel and Ngarchelong), with more efficient use of resources and improved enforcement
- Improved fiscal management and accountability at the State level, with associated increases in community and national level support for local management of conservation areas
- Improved capacity (expertise, staffing, and infrastructure) to enforce protected areas, including modernization of equipment.

## Benefits to Palau as a nation:

- International recognition of Palau's decades-long conservation ethic and a wellspring of financial and technical expertise
- 2012 Future Policy Gold Award, with reporting across the globe and recognition from such entities at the Global Environment Facility and International Convention on Biological Diversity.
- Leverage and rationale for accessing global funds from new and existing partners and for accessing funds available to Palau as signatories to International Conventions
- Grants/Funds or Matching Funds from
  - The Nature Conservancy
  - Conservation International
  - Global Environment Fund (GEF4)
  - GEF Small Grants Programme
  - UNESCO
  - OneReef
  - GEF5. The PAN is one of three components of Palau's GEF5 project; this represented the first time in history that Palau applied for GEF funds directly (rather than through a conglomeration of nations or through SPREP).
- Impetus for the creation of funds such as the Micronesia Challenge Endowment Fund
- An improved mechanism for protecting and assessing biodiversity goals at the national level through partnerships with local entities
- Creation of relevant and repeatable training programs in topics such as enforcement and monitoring
- Increased support for strengthened nationwide protections, such as bans on fishing to allow for recovery and establishment of size limits
- Increasing attention to and investment in cross-boundary issues such as fisheries, climate change, invasive species, and water protection.

## Global benefits

- Inspiration and information for other countries, such as those in Micronesia starting their own Protected Areas Networks and associated funding mechanisms
- Tools and protocols with regional and international relevance (such as monitoring tools and databases)
- Research published in technical journals
- Scientific contributions to the understanding of protected areas and protected area networks, and improved global understanding of the role of climate change on protected resources
- Protection of biodiversity important to global targets.



A visiting fisherman measures and photographs his catch during a Catch and Release Fishing Derby © Ann Singeo

## Northern Reef Fisheries Management

This project serves as a case study for the development of bi-state, multipartner, cross-boundary, and cross-sector (e.g. climate change and fisheries) management. Practitioners are testing model systems such as:

- A two-state Co-management Committee between Kayangel and Ngarchelong
- A stakeholder-driven Northern Reef Fisheries Cooperative
- Strengthening of enforcement capacity in both States
- Standard and shared legislation in both States establishing a moratorium on fishing for specific species (to allow recovery) and to reinforce size limits
- Promulgation of regulations adhered to by both States to further support fisheries management
- System-wide (cross-boundary) Management Planning, including revising of site designs to include both fisheries and climate objectives
- Shared efforts to develop alternative livelihood opportunities
- Monitoring and a technical feedback mechanism through partnerships with government, nongovernment, and State agencies (Kayangel and Ngarchelong States, The Nature Conservancy, Palau Conservation Society, Bureau of Marine Resources, and the PAN Office).



Napoleon Wrasse © Frantisek Hojdisz



Table 1. PAN Sites by State

State	PAN Site	Nearshore marine PAN Sites (km²)*	Terrestrial PAN Sites (km²)	TOTAL square area of PAN Site (km²)	IUCN Category (if assigned)**
Aimeliik	Imul	0.8	0.0	0.8	III
Aimeliik	Marine Reef Sanctuary	2.8	0.0	2.8	II
Aimeliik	Ngerchebal	0.3	0.0	0.3	VI
Aimeliik	Ngerderar Watershed Reserve	0.0	3.8	3.8	VI
Aimeliik Subtotal		3.9	3.8	7.7	
Airai	Medal Ngediull Conservation Area	3.2	0.1	3.3	II
Airai Subtotal		3.2	0.1	3.3	
Angaur	Angaur Conservation Area	0.7	0.0	0.7	IV
Angaur Subtotal		0.7	0.0	0.7	
Hatohobei	Helen Reef Conservation Area	162.0	1.0	163.0	Ia
Hatohobei Subtotal		162.0	1.0	163.0	
Kayangel	Territorial Waters	331.0	0.0	331.0	Ia
Kayangel	Ngkesol	81.0	0.0	81.0	Ia
Kayangel	Ngaruangel Marine Reserve	30.0	5.0	35.0	Ib
Kayangel	Ngerusebek	0.000	0.003	0.003	VI
Kayangel	Chermall	0.000	0.003	0.003	VI
Kayangel Subtotal		442.0	5.0	447.0	
Koror	Ngerukewid Islands Wildlife Preserve	3.3	7.7	11.0	Ib
Koror	Ngerumekaol Conservation Area	2.1	0.0	2.1	III
Koror Subtotal		5.4	7.7	13.1	
Melekeok	Ngardok Nature Reserve	0.0	5.0	5.0	
Melekeok Subtotal		0.0	5.0	5.0	
Ngaraard	Ngaraard Mangrove Conservation Area	2.9	0.0	2.9	II
Ngaraard	Ungellel Conservation Area	0.03	0.0	0.03	VI
Ngaraard	Diong Ra Ngerchokl Conservation Area	0.0	0.9	0.9	
Ngaraard	Ngerkall Lake Conservation Area	0.0	2.2	2.2	
Ngaraard Subtotal		3.0	3.1	6.1	
Ngarchelong	Ngarchelong Marine Managed Area	521.0	2.0	523.0	Ia
Ngarchelong	Ebiil Conservation Area	19.1	0.0	19.1	Ib
Ngarchelong Subtotal		540.1	2.0	542.1	
Ngardmau	Ngermasech Marine Protected Area	3.3	0.0	3.3	II
Ngardmau	IleyaklBeluu Reef	0.6	0.0	0.6	IV
Ngardmau	Ngerchelchuus Ridge Conservation Area	0.0	0.3	0.3	
Ngardmau	Medal-A-Ieychad Waterfall "Taki" CA	0.0	6.1	6.1	
Ngardmau Subtotal		3.9	6.4	10.3	
Ngaremlengui	Ngeremeskang Bird Sanctuary	0.0	1.5	1.5	
Ngeremlengui Subtotal		0.0	1.5	1.5	
Ngatpang	Oreuaol Ibuchel	0.8	0.0	0.8	III
Ngatpang	Iuul Conservation Area	0.4	0.0	0.4	VI
Ngatpang	Crab Conservation Area	0.3	0.0	0.3	VI
Ngatpang Subtotal		1.5	0.0	1.5	
Ngchesar	Ngelukes Marine Protected Area	0.5	0.0	0.5	IV
Ngchesar	Mesekelat Watershed Reserve	0.0	3.8	3.8	
Ngchesar Subtotal		0.5	3.8	4.3	
Ngiwal	Ngemai Conservation Area	1.0	0.0	1.0	III
Ngiwal	Olsoikesol, Ngerbekuu River	0.0	1.1	1.1	
Ngiwal Subtotal		1.0	1.1	2.1	
Peleliu	Teluleu Conservation Area	0.8	0.0	0.8	III
Peleliu Subtotal		0.8	0.0	0.8	
	Total Area - PAN Sites	1167.4	40.5	1207.93	
	Total Marine or Terrestrial Area - Palau	2868	410		
	Total Area - PAN Sites	41%	10%		

\*Includes mangroves

\*\*As assigned by individual Management Plans

## SECTION 2: STATUS OF PAN

The Protected Areas Network includes sites throughout the nation, in almost every State. There are coral reefs, seagrass beds, and mangroves represented. Waterfalls, mountains, and quiet streams are found in multiple sites.

In a short 7-year period between 2008 and 2015, when the PAN became functional and sites became PAN members, 34 sites joined the Network. These represent 41% of Palau’s nearshore marine area and 10% of its terrestrial area.

The PAN includes a mixture of small and large sites with a variety of protection regimes.

Palau is far ahead of global averages for indicators such as local governance, Management Effectiveness Assessments, and marine coverage. There is also much room for the PAN to grow and strengthen, both in composition and extent.

### Limited to PAN Sites only

This section reports exclusively on the 34 PAN Sites in 15 States that existed at the end of 2015. This section does not report on Palau’s full suite of protected areas. As Stated in the Introduction in “Our Conservation Story,” Palau has 46 formally designated protected areas in all 16 States, covering 46% and 22% of Palau’s nearshore marine and terrestrial areas, respectively.

### 100 meter depth and above

This report analyzes coverage of marine protected areas only above the 100 meter depth line, even if PAN Site includes areas deeper than 100 meters. Conclusions and recommendations in this report apply only to the PAN, and specifically to areas above the 100 meter line.

Although the PAN has the flexibility to include areas below the 100 meter line, the majority of management effort has gone into managing areas above 100 meters depth, where the majority of coral and marine resources exist. The majority of PAN efforts have gone into working with States to improve conservation in the priority marine and terrestrial areas above 100 meters depth.

This also aligns with the Micronesia Challenge definition of “nearshore marine areas” being above the 100 meter line. Palau’s reporting to the Challenge also includes protected areas that are outside the PAN.

### Source of information used in this report

Data on size and percent of site that is marine or terrestrial has been provided by The Nature Conservancy with information provided through partnership with the Palau Automated Land and Resource Information System (PALARIS) and State governments based on legislation for protected areas.

Most sizes have been calculated using GIS software. There is a clear need to verify the mapped and legislated sizes with the actual sizes as delineated in the field and most surface areas of marine and terrestrial PAN Sites are still awaiting verification.

Additional information on the history of sites came from individual site Management Plans, records at the PAN Fund, and records at the Palau Conservation Society.



Uchab blossom © Palau Conservation Society



**PALAU**

- MPA PAN Sites
- Kayangel MMA above 100m
- Ngarchelong MMA above 100m
- Land
- Coral Reef
- State Boundary- approximate

**The PAN has catalyzed the creation of new protected areas, increasing marine area significantly and nearly doubling terrestrial area protected.**

## SECTION 2A: SITE SIZE ANALYSIS

The Network consists of **34 discrete sites** within **15 of Palau's 16 States** (Table 1, Figure 1, Figure 2). Of these, 18 sites are exclusively marine protected areas, 11 are exclusively terrestrial, and 5 are mixed marine and terrestrial.<sup>1</sup>

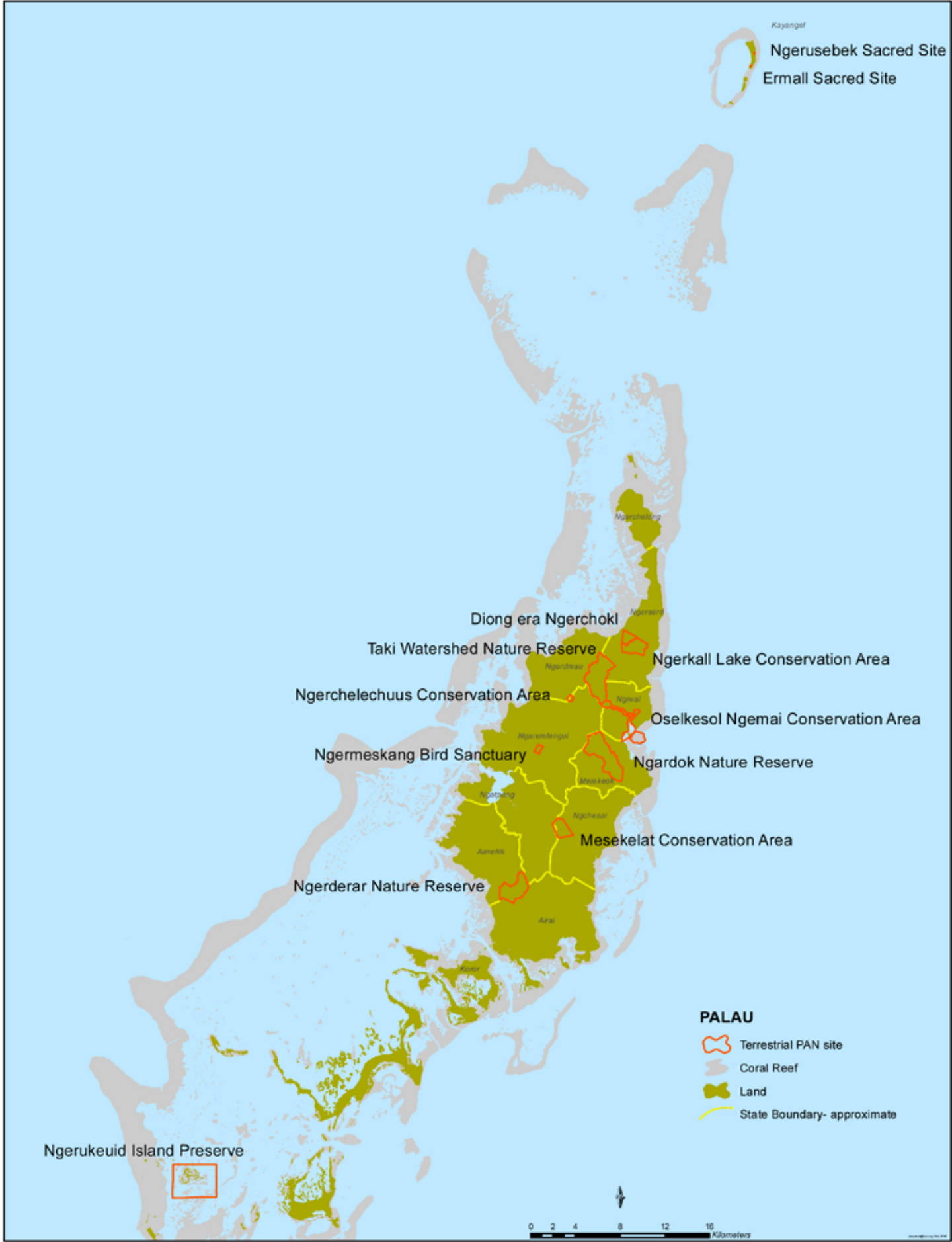
Palau's **percentage of nearshore marine areas** that are protected and in the PAN **far surpass global averages**. Globally, in 2014 approximately 11% of all coastal waters were protected<sup>2</sup>. In 2014, 41 % of Palau's nearshore marine area was included in the PAN.

2. Global values are based on country-reported values from the IUCN's World Protected Area Database and only include areas that are listed in the database as IUCN Categories 1a to VI.

The new sites added after 2003 increased the amount of marine protected area in the PAN dramatically and nearly doubled the amount of terrestrial area in the PAN. New sites created after the PAN was created consisted of 1,852 km<sup>2</sup> of marine protected areas (852 km<sup>2</sup> of nearshore



Figure 2. Terrestrial PAN Sites



marine and 1,000 km<sup>2</sup> of pelagic and marine areas deeper than 100 m) and 16 km<sup>2</sup> of terrestrial protected areas, representing 30% of Palau’s nearshore marine area and 4% of Palau’s terrestrial area.

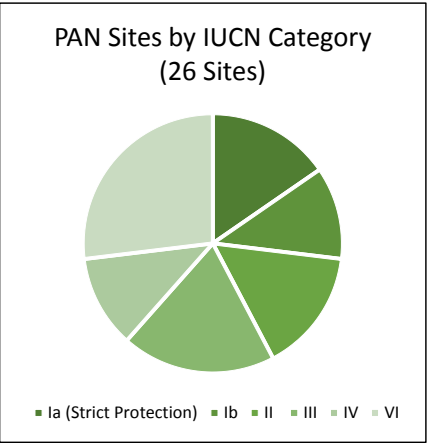
The promise of protected area funding appears to play more of a role in the management of protected sites than in the creation of protected areas. Only 9 of the 16 new PAN Sites were created after 2008, when the PAN Fund and Green Fee legislation was passed. Thus, 25 PAN Sites were already formally protected before passage of laws creating a funding mechanism. However, the **promise of a funding mechanism is closely linked with nomination of sites** for acceptance into the PAN. Only 10 sites from 7 States became members of the PAN between 2008 (when it became functional) and 2010. After the implementation of the Green Fee and creation of the PAN fund in 2010, the other 24 sites (from the 8 remaining States plus one additional site from an existing PAN State) formally joined the PAN.

**Types of Protection and IUCN Categories**  
Of those PAN Sites that have been through a management planning and evaluation process (26 of the 34 sites), the majority *by number* (**19 sites or 73%**) **of the 26 sites have an IUCN management category representing the highest protection levels (Ia/Ib to IV; Figure 3)**. These IUCN categories are intended to protect wilderness values. Seven (7) sites (27%) are Category VI, areas set aside for sustainable use.

In terms of *actual square area* in the PAN with an IUCN category, the majority of nearshore marine area in the PAN is Category VI (78%). Only **22% of square area of sites that have been categorized in the PAN falls under the strictest IUCN levels**. Of terrestrial sites, **84% of square area of sites in the PAN that have been categorized falls under the strictest IUCN levels**.

In terms of Palau’s total nearshore marine and terrestrial areas, this means that only 5% of Palau’s total nearshore marine areas and 8% of Palau’s total terrestrial area (**13% total**) **have been formally designated within the PAN at the highest IUCN levels of protection (Ia/Ib to IV)**. Palau’s

Figure 3. IUCN Categories in PAN



percentage of highly protected sites (strict IUCN categories) **lags the global average**. Globally (according to sites listed within the UNEP-administered World Database on Protected Areas (WDPA)), 50% of sites with an IUCN

*By number*, the majority of PAN Sites are designated with IUCN categories that offer the strongest protections. By square area there is need for improvement to ensure that biodiversity is protected.

**Palau exceeds a CBD target for Management Effectiveness Assessments.**

**Palau far surpasses global goals and averages by having a high percentage of sites governed by local authorities.**

category fall within the highest protection levels of Ia/Ib to IV, much higher than Palau’s 13%. Globally, 40% of protected areas with an IUCN designation are category VI, although that value is growing steadily. Any site with an IUCN rating from Ia/Ib to VI may qualify towards the Aichi Targets; **globally those sites within Ia/Ib to IV perform better with regards to additional indicators of success**.

**Management Effectiveness Assessments**  
Of Palau’s 34 PAN Sites, 24 or **71% have been assessed for Protected Area Management Effectiveness (PAME)**. In terms of square area in the PAN, these 24 sites represent 56% of the area protected within the PAN. This **exceeds a Convention on Biological Diversity (CBD) target that at least 60% of sites have a PAME**. In 2013, only 29% of protected area within the WDPA had been assessed for PAME.

**Governance Structures**  
By design, the Palau National Government administers 0% of PAN Sites. **Local/municipal governments administer 100% of PAN Sites**. The WDPA defines governance by local governments as governance by “indigenous peoples” and “local communities.” Thus Palau **far surpasses global goals** for local governance. In 2014, sites within the WDPA reported that 82% of protected sites (56% of square area) was governed by national or sub-national government entities and only 1% of sites (5% by square area) was governed by local communities. This indicates that governance of sites in Palau is **more diverse and equitable** than in other parts of the world.



Distribution of PAN Sites

The 15 States with PAN Sites each have between 1 and 5 sites in the PAN (Figure 4).

PAN Sites range in size. Nearshore marine PAN Sites range in size from 0.03 to 521 km² and terrestrial sites range in size from 0.003 to 7.71 km². The average square area (combined, nearshore marine and terrestrial) of PAN Sites in each State is 80 km², however this is **not equitably spread**. The three States of Hatohobei, Ngarchelong, and Kayangel contain 95% of the PAN’s nearshore marine areas (Figures 5a and 5b).

Terrestrial PAN Site sizes also vary. 12 States have terrestrial protected areas in the PAN with an average size of 2.4 km². States contribute between 0.3% and 19% of the total protected terrestrial area within the PAN (Figure 6). Comparing the contribution of PAN Sites given the size of each State’s total land area, the contribution is uneven, with **States contributing between 0.3% and 62% of their total land area** to the PAN. (*Kayangel’s values in Figure 6 include Ngeruangel; if Ngeruangel is excluded then Kayangel has 0.2% of its land area in the PAN.*)

The **majority of sites in the PAN are small (Figure 7)**. By number, 41% are smaller than 1 km² in size and 38% are between 1.0 and 10 km² in size. The 3 largest PAN Sites make up 95% of the total square area protected in the PAN. This inequity in size distribution may mean that habitats for species located outside of the largest areas may not be adequately protected. This is an area where additional research is needed both locally and globally. Research on the value of many small versus fewer large protected areas is conflicting.

Figure 4. PAN Sites per State

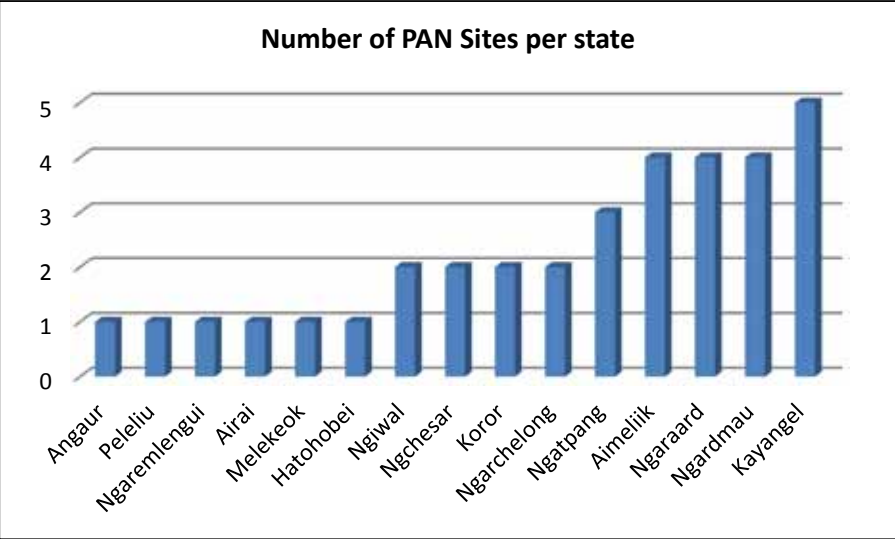


Figure 5a (large). Square area of PAN Sites per State.  
Figure 5b (inset). Enlarged part of graph showing more detail of square area of PAN sites in Angaur to Koror.

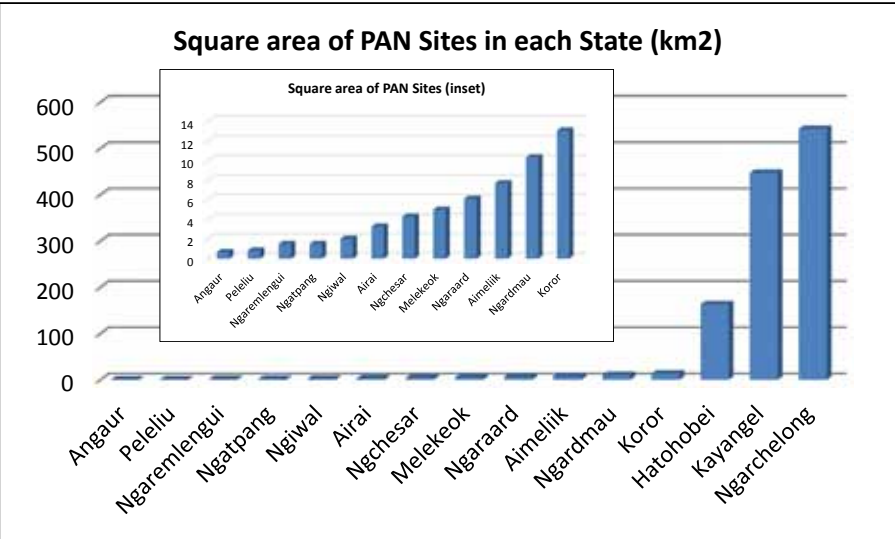
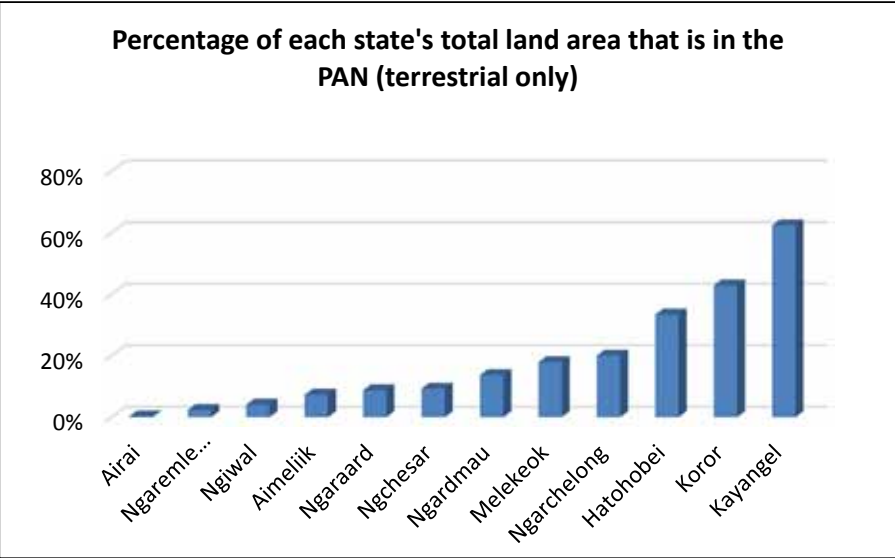


Figure 6. Percentage of each State’s land area that is in the PAN (of the 12 States with terrestrial PAN Sites).



A variety of habitats and species are represented in the PAN.  
Some key biodiversity targets are not yet in the PAN.

The inclusion of State networks of protected areas in the PAN shows increasing consideration of ecosystem linkages between sites.

Criteria and practices for including cultural sites in the PAN are minimal and only just being developed.

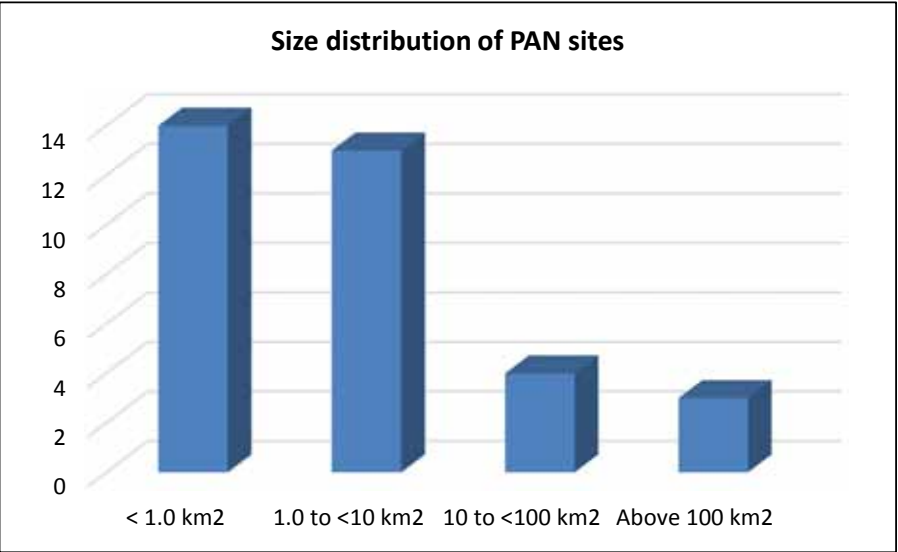
SECTION 2B:  
SITE COMPOSITION ANALYSIS

Of marine areas in the PAN, **coral reefs, lagoon, mangroves, and seagrass are represented across multiple sites**. Several habitats are poorly represented, with only 1 or 2 occurrences in the PAN, including channels (particularly for spawning and aggregation), estuary, and mudflat/sandflat. **Marine lakes are missing from the PAN**. (Some sites are protected outside of the PAN. Marine lakes are protected in the Rocks Islands Southern Lagoon, and do benefit from improved management through membership of Koror’s Ngerukewid and Ngerumekaol in the PAN.) Of critical marine areas listed in the 2007 Ecoregional Assessment, there are notable gaps in the East coast’s Outer Fringing Reefs, Turtle Nesting Beaches, and Important Insect Areas. (Data used in the Ecoregional Assessment (Marxan Analysis) may need to be updated or verified.) Formal analysis of key biodiversity areas and habitats during nomination and

selection of PAN Sites is needed and is a consideration in the ongoing network-wide Strategic Planning.

Of terrestrial sites, **forests and rivers are represented across multiple sites** (even though terrestrial coverage is below target across the board). The PAN also includes both (100%) of Palau’s freshwater lakes and sites on both (100%) of Palau’s sandy atolls. Several habitats are poorly represented, with only 1 or 2 occurrences across the PAN. **Beach strand (both on volcanic and limestone substrates), raised coralline atoll, savanna, and swamp forest are poorly represented. Two bird nesting and breeding locations (for endangered species or aggregations) are missing from the PAN** (Kayangel’s Ngeriungs and Sonsorol’s Fana Island). There is little Limestone forest represented.

Figure 7. Size distribution of PAN Sites



Shark in the Rock Islands © J. Tamelander, 2011





Reforestation efforts © Ann Singeo

**PAN Sites provide habitats for 100% of Palau’s endangered megafauna**, although whether the amount of area protected is sufficient to support these fauna is unknown. Earlier Ecoregional Assessments and ongoing work have shown that critical habitats are found on both public and private lands, as well as on land where ownership is unclear. To adequately capture all important habitats in the PAN, obstacles to working with private owners and on contested lands must be resolved.

No terrestrial PAN Sites in different States are adjoining. Thus, **fragmentation of existing habitat within the PAN is problem**. Most terrestrial sites in the PAN are small, thus there is the risk that **species requiring larger habitats may not have their life cycle needs fully met** within the PAN. The PAN includes a flexible framework to allow for cross-boundary management. Several model systems (such as Co-Committees) in the Northern Reefs Fisheries Management project are being tested and would apply to multi-State terrestrial conservation systems.

Palau should progress in protecting key biodiversity areas and areas important to **ecosystem services**, although **indicators for measuring such progress are still to be fully developed**, both at the national and global levels. Global indicators for terrestrial biodiversity coverage include coverage of Important Bird Areas (IBA) and Alliance for Zero Extinction Sites (AZE). In 2015 there were no AZE Sites in Palau (there were no qualifying sites holding at least 95% of a Critically Endangered or Endangered species). Palau’s 8 IBAs cover 216 km<sup>2</sup>; **14% of Palau’s IBA area is included in the PAN**. Terrestrial PAN Sites in Kayangel, Ngarchelong, and Airai are not within Palau’s IBA network.

There is growth in State-based networks that consider a wider biodiversity perspective. **8 of the 15 States (53%) with PAN Sites designated those protected areas with a State-wide goal of protecting linked watersheds and marine areas or entire marine ecosystems**. The **low numbers of terrestrial protected areas is limiting performance** of this indicator.

There are currently no global indicators to assess connectivity, but Palau is working on local indicators for connectivity. The fact that Palau has a Network of protected areas is one indicator that Palau is making progress in addressing ecosystem connectivity. Research on marine sites is showing good connectivity between sites protecting coral reefs. There appear to be some gaps in connectivity between marine sites on Babeldaob’s East Coast, Peleliu, and Ngkesol in the Northern Reefs area.

**Cultural sites are represented in six PAN Sites (23%)**; representing only a small fraction of Palau’s known culturally important sites. Additional work is needed to ensure PAN Site selection captures important sites. This is an area in which the PAN still needs to develop a full suite of selection criteria, evaluation procedures, and management best practices.

The **majority of sites in the PAN were designated discretely**, without consideration of national biodiversity goals or connectivity between sites. Site-based Traditional Knowledge has been and continues to be an important criteria for inclusion of sites in the PAN. Scientific research has verified that many sites selected using Traditional Knowledge are important to biodiversity and connectivity.

There is **existing data that can be used to strengthen the PAN**. Ecoregional Assessments and Important Bird Area (IBA)/Key Biodiversity Area (KBA) analyses are examples of existing data. There are **gaps in understanding of deeper marine areas, freshwater species, and microfauna** and the role these areas and species should play in the PAN. Palau is making progress in planning for Climate Change, but there is a **gap in inclusion of climate-change related areas in the PAN**. There is also significant need for innovation in private-public and contested land conservation partnerships if the PAN is improve connectivity and representation of areas important to biodiversity.

# Growing the Network

Fulfilling the multiple purposes of the PAN means that the PAN must grow through the addition of protected areas, either already existing or newly created. This is essential to ensure that Palau’s biodiversity, natural resources, and eventually cultural sites are protected. This is also important for ensuring that all States receive access to the benefits that PAN provides, and for strengthening those benefits through increased cross-network sharing.

## Recommendations for strengthening the PAN, Site size and composition:

### Increasing the number of PAN Sites

- Develop a strategy for identifying and guiding high value terrestrial, marine, and cultural sites into the PAN
- Increase the amount of terrestrial area included in the PAN, with particular attention to IBAs and any other locally identified high biodiversity areas
  - Continue processes to identify high value terrestrial areas using multiple terrestrial indicators
  - Continue ongoing work to identify best practices and monitoring indicators for terrestrial management, whether inside or outside the PAN
  - Continue processes to integrate the PAN with Palau’s Sustainable Land Management (SLM) initiative as a way of reducing impacts on terrestrial PAN Sites
- Target the one remaining non-PAN State and find innovative private-public solutions for including its lands in the PAN
- Continue to support new protected areas financially so as to spur the creation of even more areas and to catalyze improved management

- Seek to improve indicators of equity through the creation of new protected areas or by acknowledging differences in contributions to the PAN based on the percent of area covered in a State by PAN Sites
- Actively pursue the movement of missing key marine biodiversity areas (such as marine lakes) into the PAN. This includes lands and waters that may be protected outside of the PAN (such as Koror’s Rock Islands Southern Lagoon), so that they may be evaluated as part of the PAN in a standardized way.

### Addressing Composition Gaps

- Advocate for the creation or shift of marine sites from sustainable use protected levels (IUCN VI) to the more strict IUCN Levels (1a to IV) to ensure that biodiversity is protected
- Pursue research into connectivity and fragmentation and seek additional PAN Sites (if needed) to address connectivity issues
- Continue with PAME Assessments until 100% of PAN Sites have been assessed. Ensure that all PAME Assessments are standardized. Develop and test criteria for assessing PAN Sites that have been established to protect cultural resources
- Develop and pursue a strategy to protect cultural sites within the PAN.



Aerial view of the Rock Islands © J. Tarnelander, 2011



A satellite image of the Northern Reefs in Palau, showing a large, irregularly shaped island with a complex coastline. The island is surrounded by a shallow lagoon with a light blue-green hue, and the surrounding waters are a deep blue. The island's interior is dark, suggesting dense vegetation. The overall shape of the island is somewhat elongated with several smaller peninsulas and inlets.

## SECTION 3: PROTECTED AREA MANAGEMENT EFFECTIVENESS (PAME) ASSESSMENT RESULTS

One of the hallmarks of the PAN is that it seeks to evaluate and compare management and investment in Palau's protected areas using **fair, transparent, and standardized** criteria. To achieve this, partners to the PAN, including the PAN Office, national government partners, and local community partners, conducted Protected Areas Management Effectiveness (PAME) Assessments of 26 PAN Sites in 2014 and 2015. Network-wide results of the PAME Assessments are presented here. Results for individual States are presented in the Appendix.

In the seven years (2008 to 2015) that the PAN has been active, it has helped move **every single PAN site towards Effective Conservation in one or more category**. This is a remarkable feat, given that **prior to 2008, many of these sites did not exist** or did not have any management in place.

The PAN has excelled in its **inclusion of Traditional Knowledge** and in the **growth of partnerships**. The PAN has moved **financial and technical resources to States**, resulting in **improved management, particularly in compliance and enforcement**. The PAN is **not yet showing any clear impact on the biophysical** conditions of any PAN Site.

### How PAME was assessed

PAN Sites were assessed for Protected Areas Management Effectiveness (PAME) in 2014 and 2015. PAME Assessments were carried out for 26 of the PAN Sites—those sites that had been in the PAN for at least a year and had a management plan.

PAME Assessments were carried out in the field by a team of national and local individuals with expertise about the targeted PAN Site. Teams ranged from 10 to 15 individuals who asked a series of 63 questions (Table 2) about the PAN Site. Answers to the questions were scored according to criteria. Teams produced one final score per criteria by consensus.

This first-ever round of PAME scores used general understanding and perceptions, and did not rely on biophysical data. Thus PAME results in the “Conservation effect” category may not represent true changes to natural resources in the PAN. This report identifies ways in which the PAME tool may be improved. *Also see note on Page 36.*

### How PAME is reported here

Two sites in Kayangel, Chermall and Ngerusebek, were assessed in this way. Through the process, however, it became clear that these two sites, set aside because they are culturally sacred sites, could not be assessed fairly using the same criteria as sites protected for marine or terrestrial values. Thus only some scores for these sites are reported here.

Where available, additional data is presented as a comparison to the PAME Scores. This additional data was collected using methods that differed from the PAME Assessments.

PAME was assessed against 12 categories of criteria (Table 2). In this report these categories have been organized into three groups: 1) Natural Features group of categories, 2) Infrastructure and Logistics categories and 3) Community Effects categories.



Table 2. PAME Categories and Questions

Category	Question
Questions assessing Community Effects	
Socio-economic	Was the site selected based on socio-economic criteria identified through baseline assessment?
Socio-economic	Have there been efforts to gain the support of resource users through providing alternative livelihoods?
Socio-economic	Have alternative livelihood opportunities been explored?
Socio-economic	Has regular socially related monitoring started?
Traditional knowledge	Was the site selected based on socio-economic or biophysical criteria identified through traditional knowledge or practice?
Traditional knowledge	Has the proposed PA site been under some form of structured traditional or community-based management?
Stakeholder engagement	Have public consultations been conducted to share results of the biophysical or socio-economic assessments toward site designation and to raise awareness on the PA concept and potential benefits?
Stakeholder engagement	Has the PA boundaries been delineated?
Stakeholder engagement	Does the management planning team include representation from key stakeholder groups (leadership, resource users, etc.)?
Stakeholder engagement	Has management planning been a participatory process that allows adequate opportunity for key stakeholders to influence the management plan?
Stakeholder engagement	Has the management plan been endorsed by the community?
Stakeholder engagement	Have education awareness activities been initiated that is focused on the marine resource condition, threats, and management efforts in the PA?
Stakeholder engagement	Are there mechanisms available to ensure stakeholder participation?
Stakeholder engagement	Are stakeholders aware and concerned about marine resource conditions and threats?
Stakeholder engagement	Has community support for PA been sustained or has increased?
Stakeholder engagement	Has a formal education and outreach program been established?
Stakeholder engagement	Mechanism for stakeholder and leadership consultations has been internalized into existing management structure?
Stakeholder engagement	Are all information boards, boundary markers and anchor buoys in place and are being maintained?
Questions assessing Infrastructure and Logistics	
Planning	Has a management planning team with clear roles and responsibilities been established?
Planning	Does the management planning team have access to material and technical guidance for the planning process?
Planning	Has a management plan for the PA been produced?
Planning	Does the management plan State a clear vision for the PA?
Planning	Does the management plan set objectives consistent with the vision of the PA?
Planning	Has a management structure been established to implement management strategies and promote accountability?
Planning	Is the management body actively implementing/following the management plan?
Planning	Have the results of the regular biophysical monitoring been incorporated into planning and decision-making?
Planning	Have the results of the regular socially-related monitoring been incorporated into planning and decision-making?
Planning	Has the PA management plan been regularly reviewed and where relevant updated and refined for adaptive management?
Planning	Have strategies or programs to support connectivity with neighboring PAs and/or networking in the region been initiated?
Planning	Is the PA management and any associated zoning integrated with the various local government spatial planning processes?
Legal	Has the proposed PA been formally designated through a traditional, community or government decree?
Legal	Does the decree clearly State PA objectives?
Legal	Does the decree clearly define closure period?
Legal	Has the management plan been endorsed by government?
Legal	Have the necessary mechanisms and procedures been established to support operations?
Legal	Is there a clear legal framework to deal with the prosecution process regarding PA violations?
Staffing	Is the staffing level sufficient to effectively manage the site?
Staffing	Has the management body received preliminary training and capacity building to manage the PA?
Staffing	Are capacity-building opportunities available for management staff?
Staffing	Are the staff fully trained to meet their required proficiencies and tasks?
Enforcement	Is/are an enforcement group(s) in place to enforce PA regulations (i.e. patrols)?
Enforcement	Have anchor buoys, marker buoys and/or boundary markers been installed?
Enforcement	Has a formal enforcement program been established?
Enforcement	Is the enforcement program actively enforcing PA rules and regulations?
Enforcement	Are illegal and destructive activities reduced/halted within the PA?
Enforcement	Are all extractive activities effectively stopped within the PAs no-take zone/area?
Infrastructure/equip	Are there basic facilities and equipment to support operations?
Finance	Has a budget been allocated and is accessible for PA management from government or from other sources?
Finance	Have avenues for sustainable financing for the PA been explored?
Finance	Have components of sustainable financing mechanism/s for the PA been initiated or established?
Finance	Has the economic contribution of the PA been determined in relation to local economic development?
Finance	Has the local government committed resources and personnel to ensuring a sustainable future for the PA?
Finance	Is a sustainable financing plan being implemented that covers more than 75% of the annual operational costs?
Questions assessing Natural Features	
Biophysical	Was the site selected based on biophysical criteria identified through baseline assessment?
Biophysical	Has regular biophysical monitoring started?
Conservation effect	Biophysical priority 1: [ _____ ] - condition is stable and or improved.
Conservation effect	Biophysical priority 2: [ _____ ] - condition is stable and or improved.
Conservation effect	Biophysical priority 3: [ ____invertebrates_____ ] - condition is stable and or improved.
Conservation effect	Biophysical priority 4: [ __habitat_____ ] - condition is stable and or improved.
Conservation effect	Biophysical priority 5: [ _____ ] - condition is stable and or improved.
Conservation effect	Are the goal(s) and target(s) identified in the management plan achieving >75% of the planned results according to monitoring or survey results?
Conservation effect	Have the identified threats to the PA been abated or reduced significantly (>75%) ?
Ecosystem services	Has analysis been undertaken to determine the extent and impact of ecosystem services the PA is conserving/enabling?

Participatory and culturally-appropriate planning is effective at PAN Sites.

100% of PAN Sites that have been established for at least one year have a Management Plan with a clear vision.

Stakeholder engagement in PAN is high.

## SECTION 3A: PAME RESULTS

# PLANNING AND INVOLVEMENT

### Management Planning

100% of PAN Sites with a completed PAME have a management plan with a clear vision (26 sites) . Only the newest PAN Sites do not have management plans in place yet. 100% of those management plans are in line with the vision of the protected area.

Of the 26 sites with PAME surveys, 77% are included in efforts to network with or support connectivity with neighboring protected areas. 46% of these PAN Sites have been fully integrated with larger State Land Use and Zoning plans.

Palau is showing excellent performance in participatory and culturally-appropriate planning. 100% of assessed sites were selected as protected areas using traditional practices or knowledge. 77% of sites are represented by a planning team that includes key stakeholders; 11 of 13 States (85%) have a representative management planning team in place. 92% of PAN Sites have a management plan that has been endorsed by the wider community.

There is significant room for improvement in terms of using data to select sites and adapt plans. Only 50% of the assessed PAN Sites were selected as protected areas based on baseline biophysical assessments. Similarly, only 56% of the sites were selected based on baseline socioeconomic assessments. For those sites with active biophysical and socioeconomic monitoring, only 46% of sites have incorporated biophysical monitoring data and 27% have incorporated socioeconomic monitoring into adapting or updating plans. However, nearly all plans (98%) have been reviewed regularly and updated when needed. Thus, there is a clear need to include monitoring data into management planning and reviews. There is also a clear need to increase financial planning; only 2 sites (8%) have sustainable finance plans in place to cover more than 75% of annual costs.

### Legislative and Institutional frameworks

At the national level, since inception the PAN has made significant progress in establishing frameworks necessary to identify, create, support, and evaluate protected areas throughout Palau. This includes passage of National legislation creating the PAN, national PAN regulations, establishment of the Green Fee funding mechanism, and creation of the PAN Fund as an autonomous decisionmaking authority. Support staff are in place at the national level and infrastructure is in place, such as criteria for selecting sites, minimum requirements for management plans, financial standards, standardized reporting templates and tools, standardized evaluation, national level fundraising for local goals, and national level advocacy. National government and nongovernmental entities provide a suite of capacity building and field support to local communities to support PAN Sites.

### Partner involvement

There are at least 37 discrete groups of non-State-government actors who are active in the environmental sector in Palau. Of these at least 23 are highly involved in the implementation and design of the PAN. This is in addition to the 16 State governments.

The composition of partners involved in the day-to-day management of PAN Sites has changed over time and with the progression of PAN events. In 2003, protected area planning and evaluation was led by national level entities with assistance from international and foreign entities. In 2015, planning was a participatory process that included stakeholders from national to local groups. 126 individuals were involved in the PAME process in 2014 and 2015. Of these individuals, 76% represented a local jurisdiction (State government through community representative).



SECTION 3B: PAME RESULTS

OVERARCHING FINDINGS

**From an Idea to “Effective” Conservation**  
PAN Sites have made significant progress in moving from “paper parks” (legislated in theory only) to managed sites with active management. **Every single site (100%) is performing in at least one management category at a level of Good or Effective.** This is one of the PAN’s **most significant achievements** so far: **catalyzing action while allowing for diversity and local approaches** at the site and State level, and putting in place the capacity for sites to improve management and eventually improve across all PAME categories. **Several of these PAN Sites were not even protected areas before the PAN was established, and many sites did not have management plans or any on-the-ground management actions.** By engaging with the PAN, States have built capacity to better manage sites.

Many sites show **Good or Effective use/implementation of Traditional Knowledge, Planning, Stakeholder Engagement, and Staffing.** Success in these categories

shows that the PAN has established a foundation in areas that have traditionally been important to Palauans, such as communities and culturally-appropriate practices. This is a testament to the **working and effective systems that the PAN has put in place to move natural areas from unprotected places to functioning, managed sites**, in a way that is right for each site.

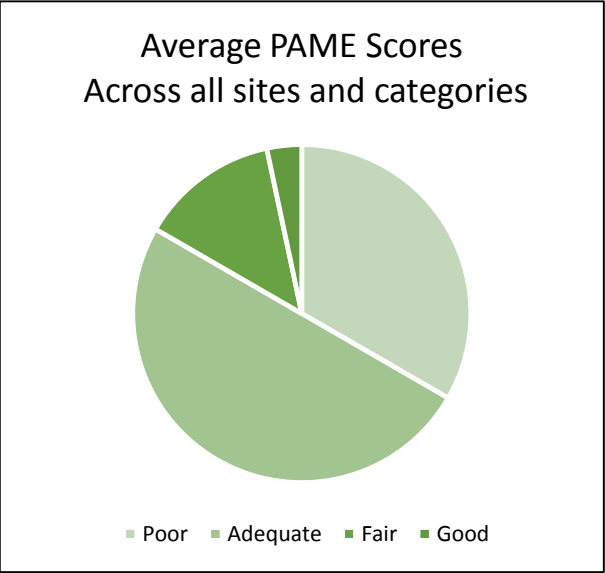
*\* Note on the PAME Results: The Appendix to this report goes through each PAME category by Site and State and identifies cases in which the PAME scores need review. In some cases, biophysical data was cited in the PAN Site’s Management Plan, but not used in the PAME Assessment. In several sites, the Conservation Effect category was calculated without having a full suite of 5 conservation targets, using a score of zero (0) as default. In other cases, the PAME was generalized for all sites in a State, regardless of the presence of conservation targets in those sites. Additionally, by definition, sites with “stable” conservation targets received a score of 1 out of 2, and thus a percentage score of 50 %, which is defined as “Poor.” This score applied regardless of the initial State of the target. The Appendix also identifies suggestions for improving the PAME tools. This is the first time this PAME tool was used by PAN.*

Table 3. Results of the PAME Assessments, per State and category, and highlighting “Effective” and “Good” results

Name of Protected Area <sup>*(see note above)</sup>	State	Year Estab-lished	Traditional knowl-edge	Planning	Stakeholder engagement	Legal	Staffing	Conserva-tion effect <sup>*</sup>	Bio-physical <sup>*</sup>	Enforce-ment	Socio-economic	Ecosys-tem services	Finance	Infrastruc-ture/ Equipment	Total # of Good or Effective Ratings
Ngerukewid Wildlife Preserve	Koror	1956	Effective	Good	Good	Good	Effective	Poor	Fair	Adequate	Poor	Good	Good	Poor	6
Ngerumekaol Spawning Area	Koror	1976	Effective	Good	Good	Good	Fair	Poor	Fair	Fair	Poor	Poor	Adequate	Poor	5
Kayangel Protected Areas Network-Ngeruangel	Kayangel	1996	Effective	Good	Fair	Fair	Good	Poor	Adequate	Poor	Fair	Poor	Poor	Poor	3
Ngardok Nature Reserve	Melekeok	1997	Effective	Good	Fair	Poor	Good	Good	Poor	Adequate	Adequate	Poor	Poor	Adequate	3
Ebiil Conservation Area	Ngarchelong	2000	Effective	Poor	Poor	Adequate	Fair	Fair	Adequate	Good	Poor	Poor	Poor	Poor	1
Teluleu Conservation Area	Peleliu	2001	Poor	Good	Effective	Fair	Fair	Adequate	Poor	Good	Poor	Effective	Poor	Poor	4
Helen Reef Marine Protected Area	Hatohobei	2001	Effective	Effective	Effective	Good	Fair	Good	Effective	Good	Adequate	Poor	Poor	Adequate	7
Mesekelat Conservation Area	Ngchesar	2002	Effective	Fair	Fair	Effective	Fair	Poor	Poor	Fair	Adequate	Poor	Poor	Adequate	2
Ngelukes Conservation Area	Ngchesar	2002	Effective	Good	Fair	Fair	Fair	Good	Effective	Poor	Good	Poor	Poor	Poor	5
PAN Legislation Passed - 2003															
Ngerchelchuus Conservation Area	Ngardmau	2005	Effective	Fair	Fair	Fair	Fair	Poor	Fair	Poor	Fair	Poor	Poor	Adequate	1
Medal Ngediull Conservation Area	Airai	2005	Effective	Good	Good	Effective	Fair	Poor	Poor	Fair	Adequate	Poor	Poor	Poor	4
Orsooklesol Waterfall/ Ngerbekuu River Nature Reserve and Ngemai Conservation Area	Ngijwal	2008	Effective	Poor	Fair	Fair	Fair	Poor	Poor	Good	Poor	Poor	Poor	Poor	2
Ngermeskang Bird Sanctuary	Ngeremlengui	2008	Effective	Good	Good	Effective	Fair	Poor	Poor	Fair	Adequate	Poor	Poor	Poor	4
Kerradel Conservation Network - Ngerchokl	Ngaraard	2008	Effective	Fair	Poor	Fair	Adequate	Poor	Poor	Poor	Poor	Poor	Poor	Poor	1
Kerradel Conservation Network - Ngerkall & Metmellasech	Ngaraard	2008	Effective	Fair	Poor	Fair	Adequate	Poor	Poor	Poor	Poor	Poor	Poor	Poor	1
Kerradel Conservation Network - Ungelel	Ngaraard	2008	Effective	Fair	Poor	Fair	Adequate	Poor	Poor	Poor	Poor	Poor	Poor	Poor	1
Kerradel Conservation Network - West Coast Mangrove	Ngaraard	2008	Effective	Fair	Poor	Fair	Adequate	Poor	Poor	Poor	Poor	Poor	Poor	Poor	1
Ngerderar Watershed Conservation Area	Aimeliik	2009	Effective	Fair	Good	Effective	Fair	Good	Effective	Adequate	Effective	Poor	Adequate	Adequate	6
Ilyakl el Beluu	Ngardmau	2009	Effective	Good	Effective	Fair	Fair	Poor	Adequate	Adequate	Fair	Poor	Poor	Adequate	3
Ngermasech to Bkul a Chelid Conservation Area	Ngardmau	2009	Effective	Good	Effective	Fair	Fair	Poor	Effective	Adequate	Fair	Poor	Poor	Adequate	4
Taki Waterfall Conservation Area	Ngardmau	2009	Effective	Fair	Fair	Fair	Fair	Adequate	Fair	Poor	Fair	Poor	Poor	Adequate	1
Kayangel Protected Areas Network-Ngkesol	Kayangel	2012	Effective	Good	Fair	Fair	Good	Poor	Poor	Poor	Adequate	Poor	Poor	Poor	3
Kayangel Protected Areas Network-Territorial waters	Kayangel	2012	Effective	Good	Fair	Fair	Good	Poor	Poor	Poor	Poor	Poor	Poor	Poor	3
Total Number of Sites with Good or Effective Performance in the Category	22	13	9	7	6	4	4	3	2	2	1	0			

<sup>\*</sup> See note on PAME Results above. This particularly applies to the Biophysical and Conservation Effect targets, which are likely underrated. In many of the States

Figure 8. Average PAME scores across all sites and categories



**Impact by Category Group**  
The PAN appears to be providing **clear benefits to States in the form of infrastructure and logistics.** The impact of the PAN on biophysical conditions and community effects are unclear. Averaging across all assessed PAN Sites across all assessed PAME categories, performance shows a clear need for improvement. Across all sites and categories, 50% of sites are performing on average poorly, and no sites are “Effective” across all categories (Figure 8).

with multiple sites, PAME assessments were generalized across the State and not specific to each site.

“Conservation International is proud to be supporting Palau’s Micronesia Challenge commitment through Palau’s Protected Areas Network (PAN) and commend the PAN Office and PAN Fund Board for their innovation and leadership. Through our engagement in the Helen Reef Resource Management Program we have seen this protected area go from strength to strength, exemplifying a PAN site in action. Palau’s PAN is building pride and leadership in the effective management and conservation of critical natural capital in the Pacific Islands region. We example Palau’s PAN in our global work as a model for sustainably financed conservation which is inspiring and we support Palau as a global leader in protected areas.”



- Sue Miller Taei,  
Executive Director, Pacific Islands & Ocean Program, Conservation International



# SECTION 3C: PAME RESULTS

## IMPACT ON NATURAL RESOURCES

Membership in the PAN appears to provide some biophysical benefits, although the links are not clear and need more thorough study.

A State’s cumulative PAN budget appears to positively influence the State’s biophysical PAME scores. **States with higher cumulative allocations from the PAN fund between 2011 and 2015 have higher PAME scores in categories measuring natural resources.** Similarly, States with **more staff have higher biophysical PAME scores.**

PAN Sites may have **higher bird diversity** than non-PAN sites. All assessed PAN Sites reported some sort of **decrease in illegal or destructive activity**. In 25 out of 26 assessed sites, **conservation targets were reported as stable or increasing.**

Membership in the PAN may provide benefits to terrestrial sites and species. Benefits to marine sites are not clear. Sites in Melekeok, Hatohebei, Aimeliik, Ngardmau, Koror, Ngchesar, and Peleliu all reported one or more “Good” or “Effective” PAME score in one of the three Biophysical PAME categories (Table 3).

### Size versus Score

There seems to be no correlation or relationship between PAN Site size and its PAME score.

### Marine PAN Sites

There is no indication that inclusion of a marine site in the PAN yields any benefits to coral cover or benthic community composition. Establishment of a site as a protected area (*not necessarily as a PAN Site*) appears to yield significant benefits to fish size structure, with the biomass of top predators being 5 times as large as in unprotected sites. The greater abundance of resource fish inside MPAs is likely due to protection and not to differences in the State of the coral community. The **increase in fish biomass, however, does not appear to be linked to establishment of the PAN, as protected sites inside and outside the PAN exhibited the same trends.**

At least **one marine PAN Site shows in increase in waterbird/shore bird** population.

### Terrestrial PAN Sites

Comparing PAN Sites to other terrestrial sites (protected and unprotected), **PAN Sites exhibited a modestly higher bird species diversity** than in other sites. This is not an indication that PAN Sites cause diversity to increase, as many terrestrial protected areas were established based on existing higher diversity. However, the **establishment**

**of a PAN Site is not enough to halt the decline of birds: both species diversity and indicator bird populations have declined** inside some PAN Sites.

### Length of time in PAN

Length of time in the PAN may positively impact biophysical conditions. **PAME scores for biophysical features, conservation effect, and ecosystem services are generally higher for sites that have been in the PAN longer.** *It is important to note, however, that PAME scores are based on subjective assessments and do not rely on scientific data.* However, the **years that a site has been protected** (including before the PAN was established) is also correlated with higher PAME scores for biophysical features and conservation effect.

### Improved Enforcement

Individual site answers to PAME questions on Enforcement show that **100% of sites assessed report some decrease in illegal and/or destructive activities.**

### “Poor” Biophysical Averages across PAN sites

Averaging all PAN sites together, the **majority of PAN Sites score “Poor” in the three PAME categories related to biophysical conditions.** A “Poor” score in the Biophysical category (Figure 9) means that site selection did not use biophysical criteria and/or regular biophysical monitoring is not in place. A “Poor” score in Ecosystem Services (Figure 10) means that there has been no analysis to assess changes to ecosystems services at the site. A “Poor” score in the Conservation Effect category (Figure 11) means that conditions of conservation targets (species or habitats) are not improving. The way the PAME is currently structured, sites with stable populations also received a score of 50%, or “Poor.”

Figure 9. Average Biophysical PAME Rating across all PAN Sites

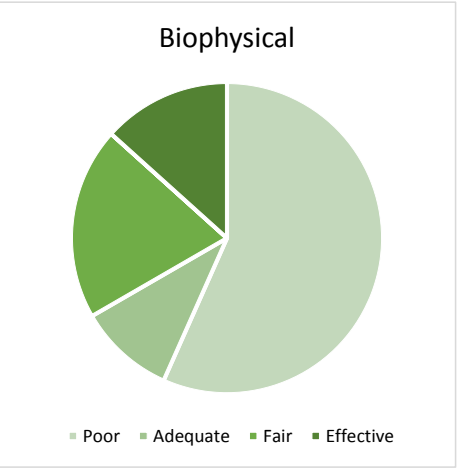


Figure 10. Average Ecosystem Services PAME Rating across all PAN Sites

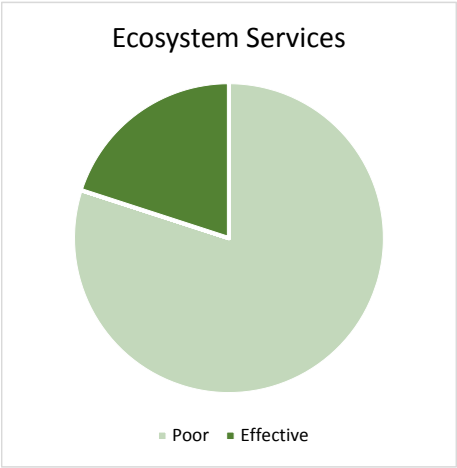
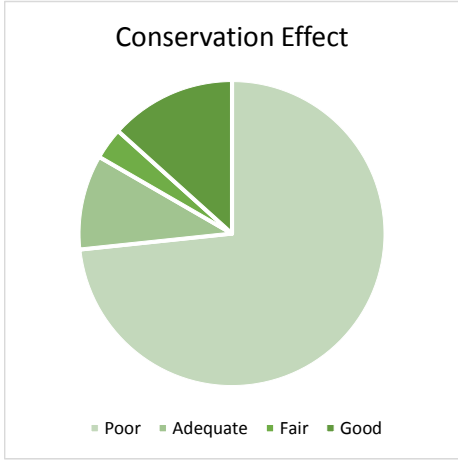


Figure 11. Average Conservation Effect PAME Rating across all PAN Sites



### PAME Versus Budget

There may be a correlation between the total cumulative amount of funds received by a State between FY 2012 and 2015 and that State’s PAME scores. **States that received a higher cumulative amount across all four years had higher PAME scores in the Biophysical and Conservation Effect categories** (Figure 12). *Note: the analysis done here is not a statistically relevant analysis.*

**Increased staff, also associated with higher PAN budgets, also seem to be correlated with higher PAME scores in the three Biophysical PAME categories** (Figure 13).

During the PAME evaluation, reviewers assessed Conservation Effect by asking if biophysical targets were improving or stable. This question was repeated for the top 5 biophysical targets in each site. Although these results are subjective, they did arise from multiple perspectives from a variety of experts. **In 25 of the 26 sites (96%) evaluated, reviewers perceived stable or improved conditions for at least 1 of the 5 biophysical targets. The support provided through the PAN is already leading to biophysical benefits in most sites.**

Figure 12. Total budget over 4 years versus biophysical PAME scores

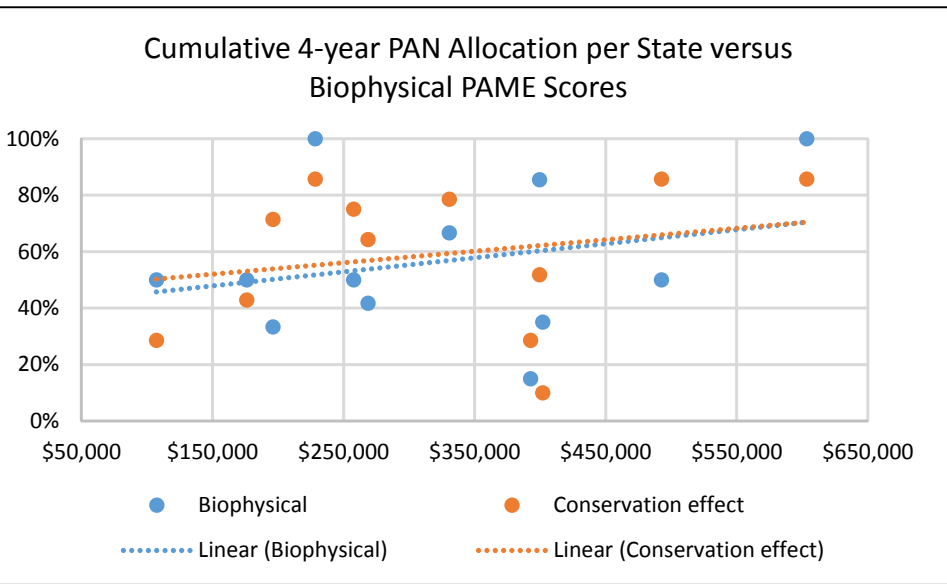
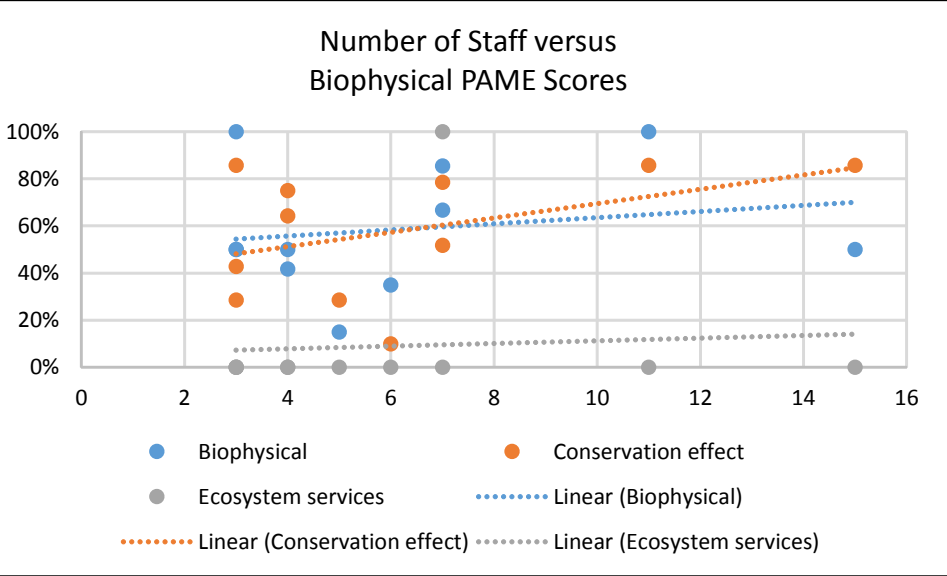


Figure 13. Number of Staff versus biophysical PAME scores





PAN funding is linked to improved biophysical conditions, staffing, and infrastructure and equipment.

Stakeholders report that at least one conservation target in every PAN site is stable or improving.

PAN Sites have improved enforcement and fewer destructive practices.

# SECTION 3D: PAME RESULTS IMPACT ON INFRASTRUCTURE

## Cumulative Budget versus PAME Results

The cumulative budget that a State has received has a clear impact on PAME scores for Infrastructure and equipment. The **greater the total allocation, the higher the Infrastructure and equipment PAME score**. Adequate scores mean that the site has at least the minimum basic facilities and equipment to support operations in place.

Staffing is correlated with several of the Infrastructure and logistics PAME scores. PAN Sites with **more staff had higher PAME scores in the categories of Enforcement, Infrastructure and equipment, and Planning**.

## PAN Membership and PAME Scores

There is no link between length of time in the PAN and a site’s PAME Score in the Infrastructure and Logistics group of PAME categories. These scores are more closely

linked to length of time that the protected area has been in existence.

Membership in the PAN appears to have a **clear effect on the capacity of States to enforce** protected area laws and regulations, with more than 50% of sites reporting at least “adequate” or better performance. **100% of sites have enforcement groups in place** to enforce regulations. More than 50% of sites also had **adequate or better staffing and planning** in place.

Averaging all sites, the majority of PAN Sites scored “adequate,” “fair,” “good,” or “effective” in the PAME categories of Enforcement (Figure 14), Staffing (Figure 15), Planning (Figure 16), and Legal/Policies. There is significant room for improvement in the PAME categories of **Infrastructure and equipment and Finance, with more than 50% of sites performing poorly**.

Figure 14. Average Enforcement PAME Rating across all PAN Sites

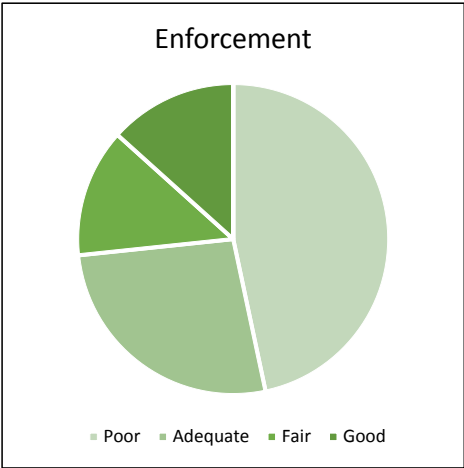


Figure 15. Average Staffing PAME Rating across all PAN Sites

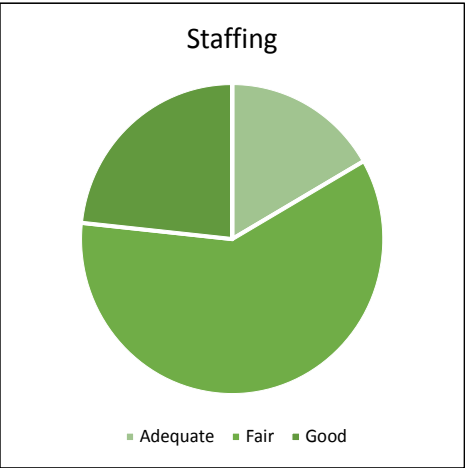
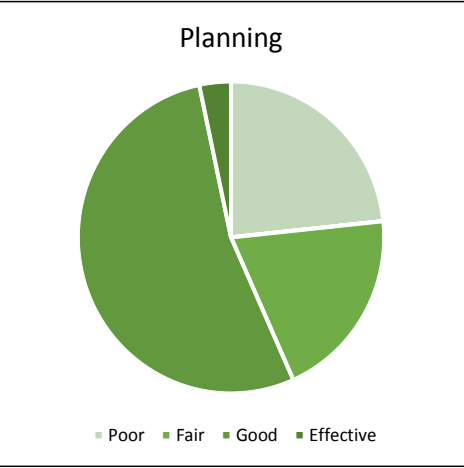


Figure 16. Average Planning PAME Rating across all PAN Sites



# SECTION 3E: PAME RESULTS COMMUNITY EFFECTS

## Respect for Traditional Knowledge

PAN Sites are **excelling and mostly effective in the inclusion of traditional knowledge** in management of sites. Only 1 site rated “Poor” in the Traditional Knowledge PAME category, while all other sites rated “Effective” (Figure 17). This means that most PAN Sites were selected using some sort of Traditional Knowledge or traditional practices, and the site is under some sort of traditional or community-based management.

## Positive Community Impacts

PAN Sites are also **performing well with regards to Socioeconomic PAME scores (Figure 18) and Stakeholder**

**Engagement (Figure 19)**. More than 50% of sites are performing adequately or better in these areas.

In terms of Socioeconomic PAME scores, this means that the majority of sites have socioeconomic monitoring and include findings in planning processes, and development of alternative livelihoods is present. In terms of Stakeholder Engagement, this means that the majority of PAN sites are reporting adequate or better public involvement, awareness, representation in decisionmaking, participation in planning, education and outreach, and feedback mechanisms.

Figure 17. Average Traditional Knowledge PAME Rating across all Sites



Figure 18. Average Socioeconomic PAME Rating across all PAN Sites

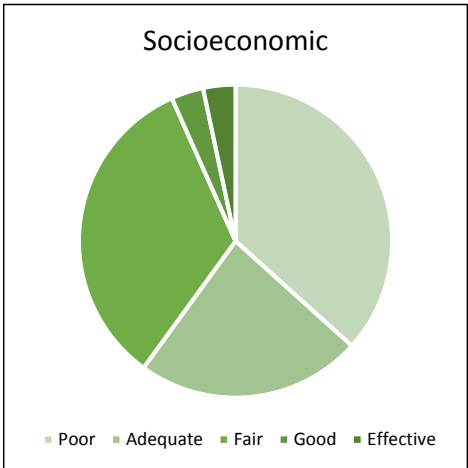


Figure 19. Average Stakeholder Engagement PAME Rating across all Sites



Left to right: Fishermen at a community meeting © Palau Conservation Society; Community reforestation project © Ann Singeo







# SECTION 4A: NATIONAL PRIORITIES LOOKING FORWARD

The PAN is always growing and improving. At the State and community level, the PAN looks to increase sites and species included in the PAN and implement Best Management Practices. At the national level, PAN continues to improve its transparency, networking capacity, fundraising opportunities, and ability to serve the States to the best extent possible.

## Needs and Gaps

As outlined in Section 2, the PAN has specific needs, such as an increase in the amount of terrestrial protected area in the Network and improved management of terrestrial areas. The PAN also has gaps in its inclusion of areas important to biodiversity, natural resources, or cross-boundary issues such as fisheries, connectivity, and climate change. Field verification is needed to identify boundaries and true PAN coverage. Significant increased effort is needed to create criteria and best practices for bringing more cultural sites into the PAN.

In terms of the PAN’s operational framework, there are numerous gaps in Standard Operating Procedures (SOPs) as required by the PAN Regulations. In addition, tools and information to prioritize and streamline planning and evaluation are not fully developed; these are root causes of many of the threats faced by PAN Sites. Fully developed monitoring tools, best practices for identifying and protecting high biodiversity areas, baseline species status and needs assessments, and overarching national level effectiveness evaluation tools are all needed.

Effective Conservation remains challenging. There has been progress in incorporating and measuring management effectiveness, through the development of informal and formal scorecards and by aligning with global management effectiveness tools such as the MPA Management Effectiveness Tracking Tool required by the GEF and the Protected Areas Management Effectiveness (PAME) Tool reported here.

## System-wide Strategic Planning

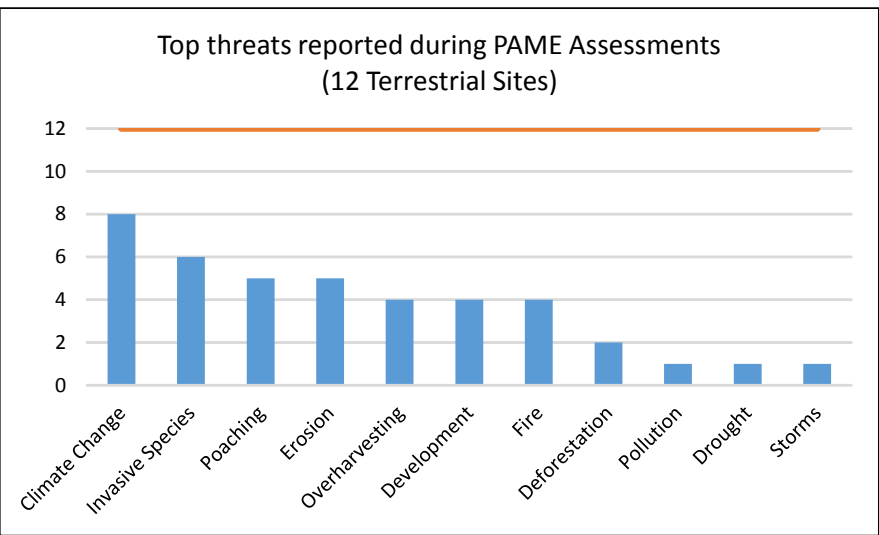
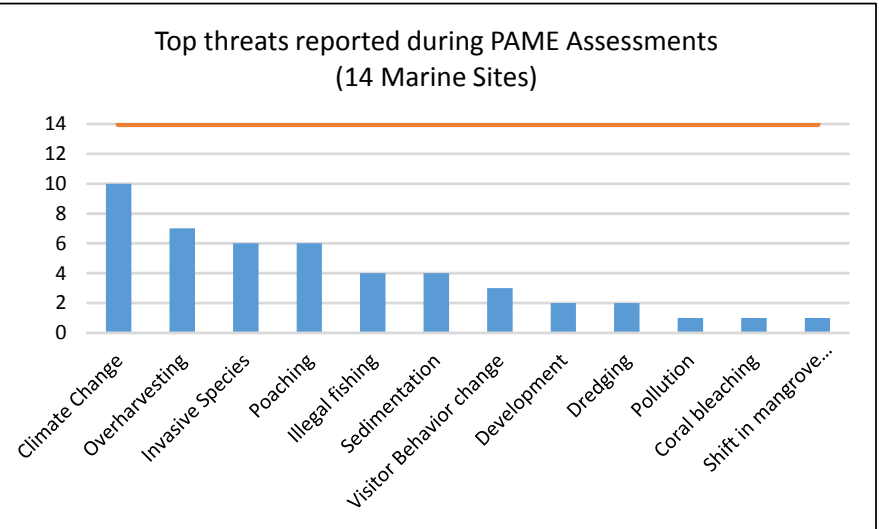
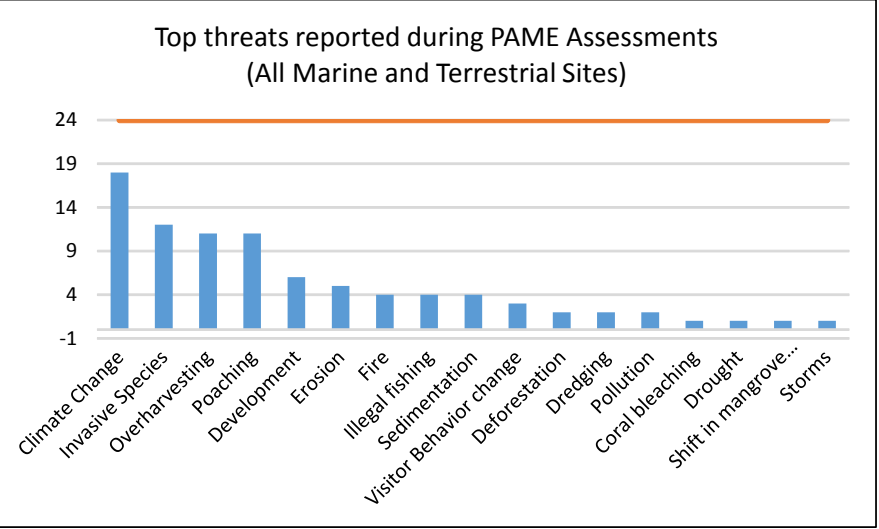
The PAN is undergoing a Strategic Planning process to address many of system’s gaps and needs. The planning effort is led by the PAN Office through a participatory process in conjunction with the Management Committee and the Technical Committee. The planning process has identified 5 system-wide goals for the PAN (Table 4).

Table 4. System-wide goals for the PAN (in development)

Category	Draft System-wide Strategic Goal
Capacity Building	By 2020, the entire PAN System is operating under effective and efficient management
Communications	The PAN is valued and supported at all levels of stakeholders and government
Governance	The Network is transparent and there is accountability at all levels of governance
Revenue	By 2020, The Protected Areas Network is sustainably financed and responsive to changes affecting the Network
Stakeholder Engagement	(In development)

# SECTION 4B: STATE PRIORITIES PRIORITY THREATS

Figures 20-22. Priority threats identified by States during PAME Assessments



## Rationale for Actions

Once Sites become members of the PAN, States must develop Management Plans that lay out priorities and objectives to guide activities and the rationale behind those priorities. Management Plans must meet minimum criteria by addressing several topics. Identifying and prioritizing underlying threats is one essential topic.

States develop annual work plans based on the Management Plan, and PAN funding and evaluation is tied to these annual work plans.

During the PAME Assessments, reviewers surveyed stakeholders to identify top threats. Figures 20-22 show the frequency of identified threats throughout the Network and in marine and terrestrial sites.

Cross-sector and cross-boundary threats like climate change and invasive species were identified as priority threats by a majority of sites.

The PAN Office and its partners are responding to these cross-sector issues by developing mechanisms to manage sites across boundaries and by sharing expertise.



Mangrove trees in a Marine Lake © J. Tamelander 2011





Ebill Conservation Area © Palau Conservation Society

# SECTION 4C: STATE'S TOP OBJECTIVES

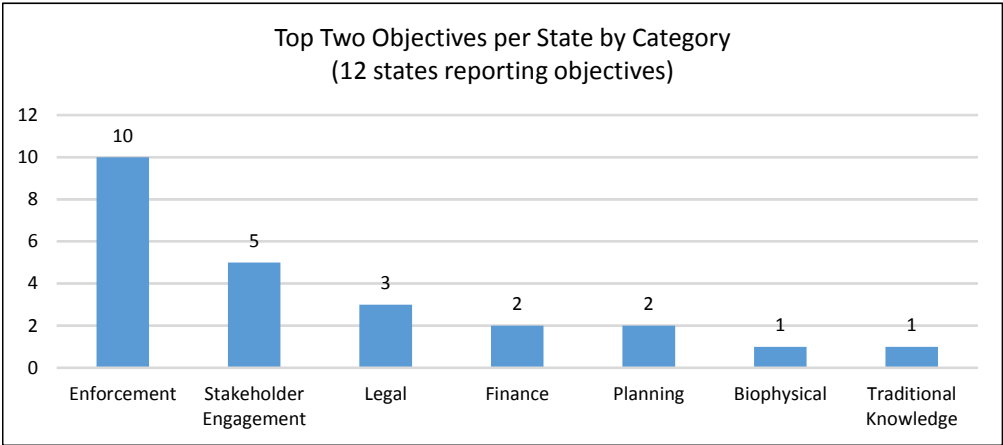
## Measurable and Achievable Objectives

Both Management Plans and annual work plans must have measurable and achievable objectives that build off the threats, conservation targets, and other conservation priorities.

During the PAME Assessments, reviewers recorded the top two objectives reported by each State (Table 5). In this report, these were labeled to match the PAME Categories in order to give a better understanding of where Network-wide priorities lay. **Enforcement is a priority objective in 10 of the 13 States assessed** (Figure 23).

**Comparing priority threats to top objectives reveals a discrepancy** that can be addressed through the nationwide PAN Network: Priority threats listed by the majority of States included such things as climate change and invasive species. However, these priority threats are not directly addressed through top objectives, which prioritize enforcement, stakeholder engagement, and legal processes.

Figure 23. Top 2 objectives across the Network, by State



<sup>1</sup> (Table, right) Enforcement includes "traditional enforcement" such as patrols and minimizing illegal activities, but in this case it is the only PAME category that could be used to describe implementation of field management actions (such as reforestation). In this report, field-based objectives and activities were grouped under enforcement.

Table 5. Top 2 objectives per State (12 States reporting)

PAME Category <sup>1</sup>	State	Top 2 Objectives
Stakeholder Engagement	Aimeliik	1. By 2020, youth and adults have been educated about the NWCA, so that they understand its historical and cultural significance, and the current and potential benefits of its natural ecosystems.
Finance	Aimeliik	2. By 2020, tourists visit the NWCA, contribute to the Aimeliik economy, and sustain the management of the site.
Enforcement	Airai	1. Medal Ngediull is restored to a healthy reef the way it is remembered by senior community members over 30 years ago.
Legal	Airai	2. PA is supported by improved rules & regulations & full enforcement.
Planning	Hatohobei	1. To improve populations of key species and ecosystem health by establishing management zones that is sufficiently large, representative, and resilient by 2012.
Enforcement	Hatohobei	2.Over the next five years the majority of people of Hatohobei and their guests use Helen for subsistence, cultural, and recreational purposes at least once a year.
Enforcement	Kayangel	1. Improve conservation knowledge and enforcement skills of personnel, and to build sufficient practical regulatory environment and institutional capacity for efficient and sustainable management of protected areas.
Stakeholder Engagement	Kayangel	2. KPAN is effectively managed and providing a learning platform and enjoyment by the people, visitors, researchers and academic community and further offers new sustainable livelihood opportunities for the local community.
Biophysical	Koror	1. By 2016, biological baseline data within the RISL has been developed, focusing on key terrestrial and marine species.
Stakeholder Engagement	Koror	2. By 2015, the effectiveness of protected areas in the RISL has been strengthened, by creating new conservation areas, and promoting the importance f protected areas to the community.
Enforcement	Melekeok	1. To provide high quality water supply for the people of Melekeok State.
Stakeholder Engagement	Melekeok	2. To provide for the enjoyment and education of the people of Melekeok State, Palau and visitors.
Legal	Ngaraard	1. By 2021, the laws, regulations and plans that govern NCA's are effectively implemented and enforced.
Stakeholder Engagement	Ngaraard	2. Education and awareness programs promoting the value of conservation CA's to the people of Ngaraard are developed.
Enforcement	Ngarchelong	1. Manage activities within the Ebill Conservation Area to maintain economically important fish and invertebrate populations at current or increasing levels by 2012.
Enforcement	Ngarchelong	2.Minimize violations within the Conservation Area by building the capacity of the State Government for effective surveillance and enforcement activities, reducing infractions to near negligible levels by 2011 .
Enforcement	Ngardmau	1. By December 2015, the OSCA is effectively managed to achieve its purpose (reducing illegal and destructive practices)
Traditional Knowledge	Ngardmau	2. By 2015, the OSCA helps to sustain positive cultural practices and is managed using the best management practices and traditional conservation ways.
Enforcement	Ngchesar	1. By 2020, sites are healthy, critical streams continue to provide clean water, abundance of valuable invertebrates and valuable fish species in Ngelukes is maintained or improved
Finance	Ngchesar	2. By 2020, sites will be generating annual revenues for Nghcesar State.
Enforcement	Ngeremlengui	1. Maintain ecological integrity and protect biodiversity.
Enforcement	Ngeremlengui	2. Strengthen enforcement and increase compliance .
Planning	Ngiwal	1. Create guidelines for allowable activities that can take place within the protected areas within 1 year of implementation of this plan. (Indicator: Guidelines completed and approved)
Legal	Ngiwal	2. Establish necessary infrastructures within the legal authority to support allowable recreation activities within the protected areas within 1 year of implementation of this plan. (Indicator: Waiting house, toilets and dock constructed in designated areas within the nature reserve.)



# SECTION 4D:

## ACTIVITIES IN PAN SITES

States reported their two priority activities during the PAME Assessments. In this report, these were categorized to match PAME categories. There is fairly **good alignment between the State’s objectives** (Figure 23) **and the priority activities being carried out in each State** (Figure 24; Table 6).

<sup>1</sup> (Table - below) PAME Categories were added during analysis of the PAME data for this report. During the surveys, States provided the text of their objectives in numerical order.

Figure 24. Top 2 activities, by State

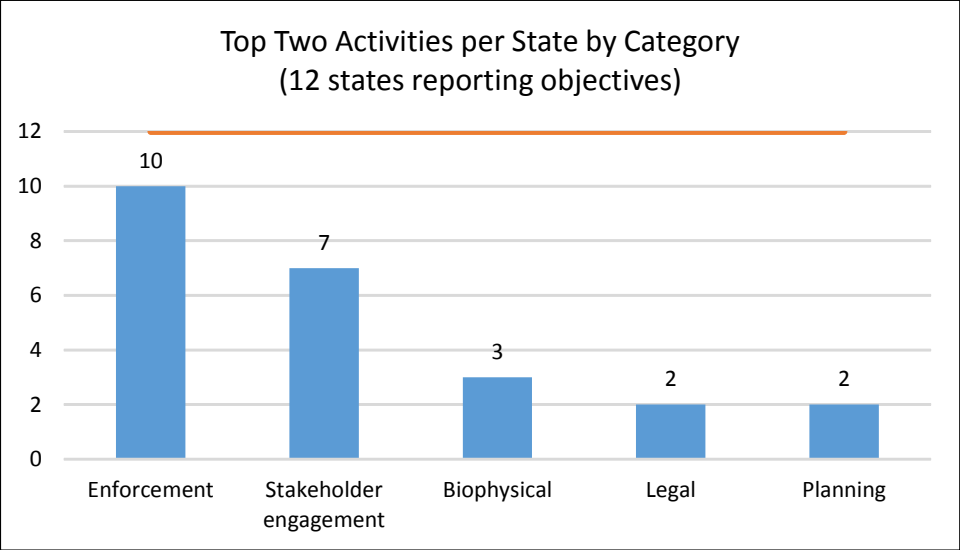


Table 6. Top activities per State

PAME Category <sup>1</sup>	State	Activity / Description
Biophysical	Koror	1. Conduct surveys on turtle nesting and population, dugong habitat, sea cucumber populations, bird diversity with emphasis on megapodes, and surveys focusing on rare and/or endemic species.
Biophysical	Ngardmau	2. Monitoring
Biophysical	Ngeremlengui	1. Develop a simple monitoring plan to gauge the status of key biological indicators and to better understand natural or human impacts by the end of 2014.
Enforcement	Aimeliik	1. Sedimentation control
Enforcement	Airai	1.By March 2014, immediate actions to reduce run-off into MCA are taken & monitoring is in place to track amount of run-off captured.
Enforcement	Airai	2. By March 2014, PA rangers are implementing 24 hour surveillance & patrol of the protected area
Enforcement	Melekeok	1. Erosion control and fire reduction accomplished through reforestation.
Enforcement	Ngaraard	1. By Dec. 2015, non-compliance offenders will be reduced by 50%.
Enforcement	Ngarchelong	2. Conduct surveillance of the site through a combination of active patrolling and remote surveillance methods.
Enforcement	Ngardmau	1. Enforcement
Enforcement	Ngchesar	1. Field activities minimize sediment and pollution entering streams
Enforcement	Ngeremlengui	2. Establish and maintain an enforcement and surveillance program by the end of 2013.
Enforcement	Ngiwal	2. Establish effective enforcement program within Ngiwal's protected areas.
Legal	Hatohobei	2. Develop a zoning and regulation system that allows for sustainable subsistence, cultural, and recreational use by end of 2011
Legal	Kayangel	1. By January 2013, rules & regulations for the KPAN have been promulgated & the DNRES is fully implementing & enforcing the regulations.
Planning	Kayangel	2. By October 2014, DNRCs has developed a program that guides long term protection for vulnerable species.
Planning	Koror	2. Establish protected areas known for spawning sites.
Stakeholder engagement	Aimeliik	2. Education
Stakeholder engagement	Hatohobei	1. Undertake annual community biological monitoring trips with staff and community members to understand if the zoning system effectively balances biological needs and human uses.
Stakeholder engagement	Melekeok	2. Awareness increased amongst all stakeholders.
Stakeholder engagement	Ngaraard	2. By Dec. 2016, 50% of community survey respondents support the conservation areas.
Stakeholder engagement	Ngarchelong	1. Promote awareness among community and other stakeholders of the biological and economic importance of Ebiil Channel and the Ebiil Channel Management Plan rules and provision as a means to increase compliance.
Stakeholder engagement	Ngchesar	2.Community members know and value the importance of Nghesar's protected areas and their resources.
Stakeholder engagement	Ngiwal	1. Conduct outreach and awareness program within Ngiwal State regarding the management of Ngiwal's protected areas.



Children learning about nature © Palau Conservation Society



The Green Fee is the primary source of PAN funds. On average, the PAN supports \$90,000 in expenditures in each State each year.

The bulk of PAN expenditures support management actions by States.

PAN expenditures vary widely by State and are in accordance with PAN Sites and their Management Plans.

## SECTION 5: FINANCIAL HIGHLIGHTS

The Palau PAN Fund (PANF) manages PAN funds with independent authority. PANF is audited yearly and produces a yearly audit report with detailed financial information. Section 3C of this report noted two correlations associated with funding: 1) higher PAME scores in States with higher cumulative PAN expenditures, and 2) higher PAME scores in States with more staff.

The Green Fee was the source of over 80% of the total PAN budget from FY 2012-2016 (Figure 25; Table 7). The amount budgeted per year varies per year as the Green Fee is dependent on the number of visitors to Palau. Values in Figure 26 and Table 7 include Green Fees budgeted per year for States activities, PANF, the PAN Office, and Competitive Grants. They exclude uses of the Green Fee for an Emergency Fund, Legal Reserve, and Palau’s contribution to the Micronesia Challenge Endowment Fund (Palau account), which is 5% of Green Fee revenues.

Figure 26. Total Green Fee lines from Fiscal Year Budgets (2012-2015)

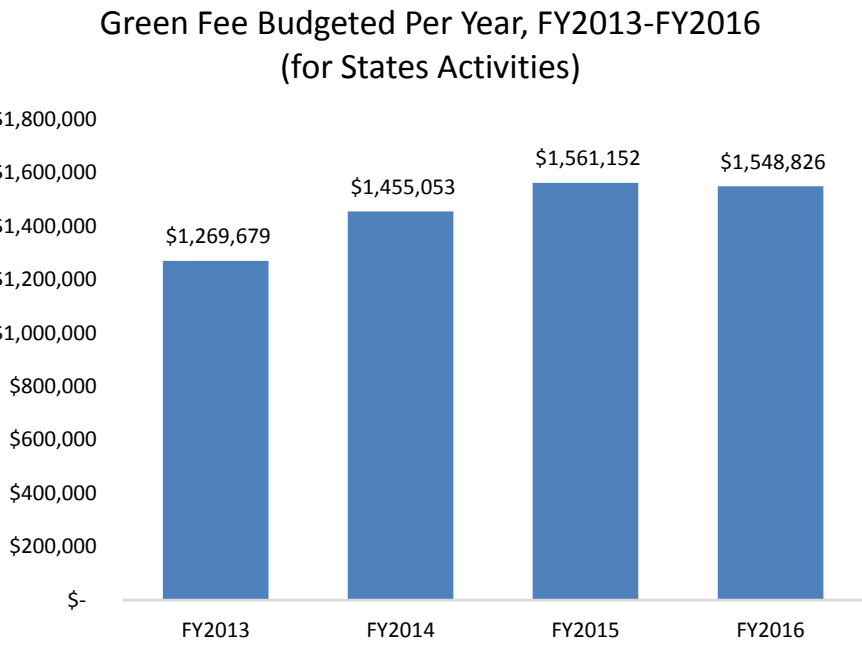
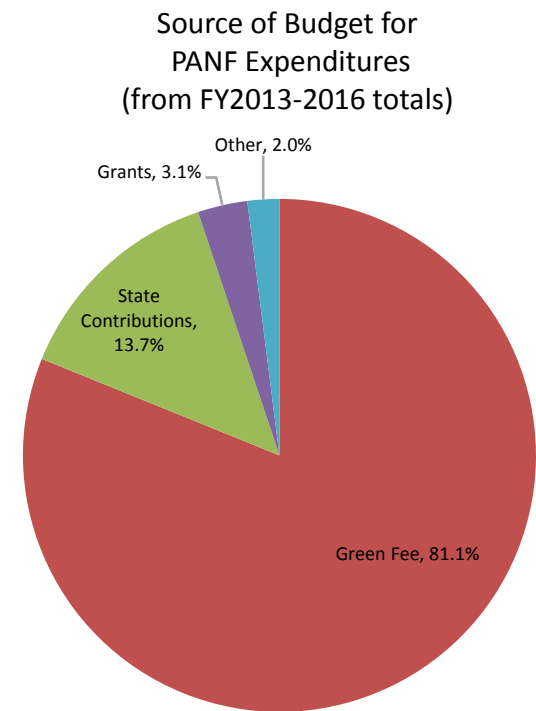


Table 7. Green Fee Budgeted Per Fiscal Year, for PAN States, PAN Fund, and PAN Office (PANO) operations plus Competitive Grants.

Fiscal Year	Green Fee Budgeted
FY2013	\$1,269,679
FY2014	\$1,455,053
FY2015	\$1,561,152
FY2016	\$1,548,826
TOTAL (Budget for PAN States, PANF, PANO, and Competitive Grants)	\$5,834,710

Figure 25. Source of Budget Expenditures (based on cumulative totals from FY2013-2016)



The bulk of the PAN Fund budget directly supports conservation activities by the States (Table 8; Figure 27). FY2012 saw a large contribution to the Micronesia Challenge Endowment Fund (managed by the Micronesia Conservation Trust; MCT). Since then the annual contribution to the fund has been at the 5% mark, with the majority of funds going to the States (Figure 28). The PAN Fund is also used to support operations of the PAN Office and the independent PAN Fund (Table 9; including oversight and audits) as well as grants and an emergency fund. Both the PAN Fund and the PAN Office may receive additional funding support from outside sources. The average PAN expenditure per State is nearly \$90,000 per year (Table 10).



Signing of 2008 legislation that established the Green Fee as the PAN’s sustainable Financing Mechanism © TNC

Table 8. Summary of PAN Fund Budget (all categories), FY2012-2015

Category of Expense	FY2012 (\$)	FY2013 (\$)	FY2014 (\$)	FY2015 (\$)	Total (\$)
PAN States	811,762	813,460	1,311,115	1,169,122	4,105,459
PAN Office (PANO) <sup>1</sup>	-	129,354	203,435	198,541	531,330
PAN Fund Board/Office (PANF)	33,850	161,206	193,478	290,291	678,825
Micronesia Conservation Trust (MCT) - Micronesia Challenge Endowment	1,400,000	84,596	96,750	98,177	1,679,523
Competitive Grant	-	44,226	37,219	23,486	104,931
Emergency Fund	-	-	31,210	-	31,210
Grants	-	-	25,000	41,819	66,819
Total	2,245,612	1,232,842	1,898,207	1,821,436	7,198,097

<sup>1</sup> These values represent expenditures from the PAN Fund to PANO. They do not match actual PANO expenses per year (Table 9) because the PAN Office may receive additional funding/grants from outside the PAN Fund and/or may carry over funds between years.

“The Palau Protected Areas Network (PAN) is a wonderful example of an innovative and effectively executed conservation strategy and sustainable finance mechanism. Palau is leading the way in demonstrating how to work collaboratively with many partners to design and build a resilient PAN, resulting in improved resource health for the benefit of local communities. A key to this effective network is the PAN Fund, which helps to ensure adequate, stable resources for long-term management, enforcement, and monitoring. The Nature Conservancy is honored to be a partner of the Palau government in supporting the PAN.”

- Steven Victor, Director, Micronesia Program, The Nature Conservancy





Figure 27. Breakdown of total PAN Expenses by category, FY 2012-2015

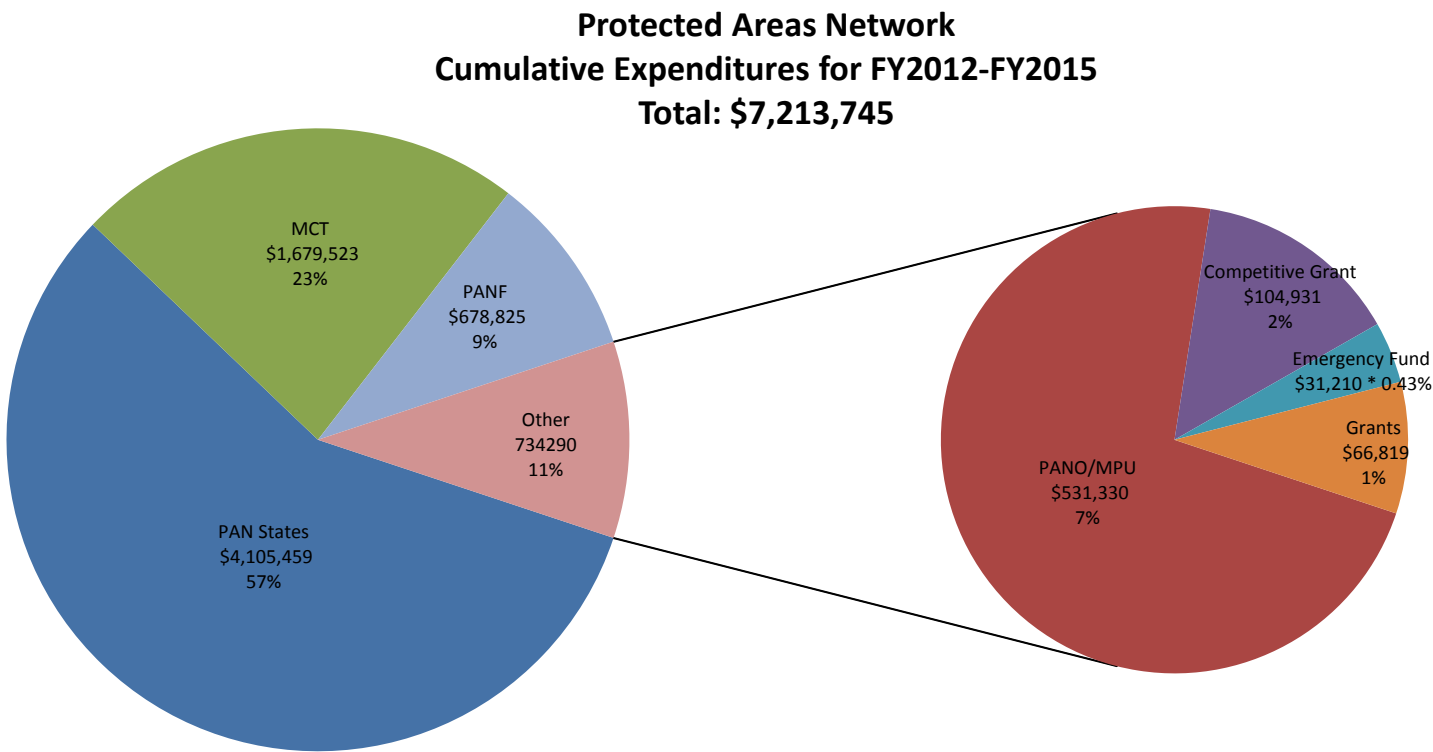


Figure 28. PAN Expenses by year, by category

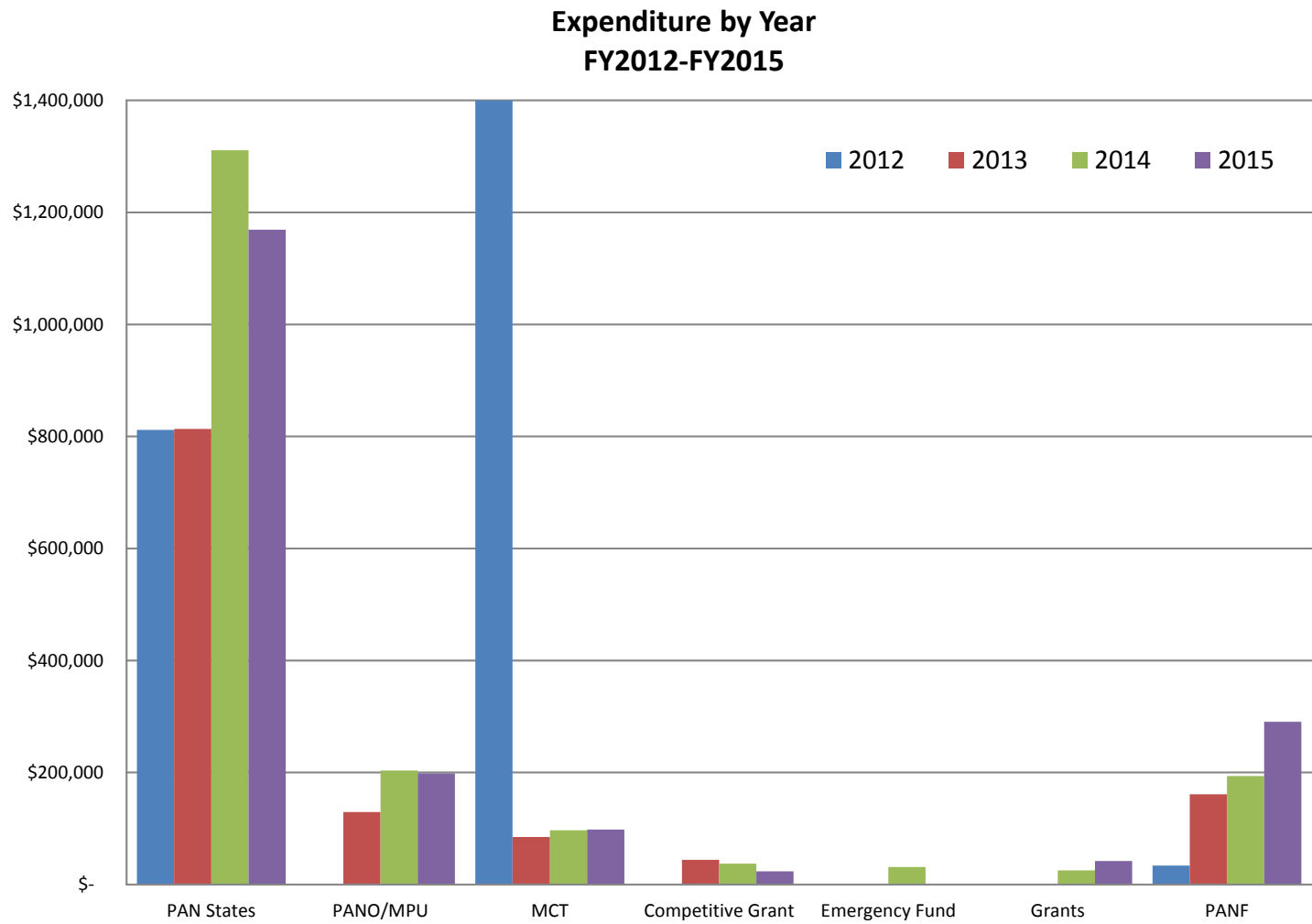


Table 9. Detailed information on A) PANO and B) PANF Expenses (all categories), FY2012-2015

A. PAN Office (PANO) <sup>1</sup> Detailed Expenditures					
Expense Category	FY2012 (\$)	FY2013 (\$)	FY2014 (\$)	FY2015 (\$)	TOTAL (\$)
Personnel	-	68,839	167,057	73,633	309,529
Professional Services	-	-	5,509	-	5,509
Capital Assets/Equipment	-	7,354	10,931	1,860	20,145
Equipment/Asset Maintenance	-	3,383	1,504	3,555	8,442
Occupancy: Rent, Communication,Utilities	-	403	915	5,179	6,497
Supplies & Material	-	4,578	969	737	6,284
Activities	-	-	-	6,550	6,550
Printing/Adversiting Cost	-	72	-	-	72
Meeting/training Cost	-	1,132	5,124	-	6,256
Travel	-	1,415	-	6,295	7,710
Fuel	-	4,560	3,044	3,377	10,980
Fringe Benefits	-	-	12,469	12,686	25,154
Salaries & Wages	-	-	-	500	500
Payroll Deductions	-	-	-	22,218	22,218
Accrued Expense	-	-	-	(4,827)	(4,827)
Miscellaneous	-	471	-	302	773
Indirect Cost	-	-	3	-	3
TOTAL	-	92,207	207,524	132,064	431,795

B. PAN Fund Board/Office (PANF) <sup>2</sup> Detailed Expenditures					
Expense Category	FY2012 (\$)	FY2013 (\$)	FY2014 (\$)	FY2015 (\$)	TOTAL (\$)
Salaries and wages	15,761	52,660	65,765	85,814	220,000
PAN Technical assitance				63,741	63,741
Professional fees	-	17,364	22,468	5,389	45,221
Outreach/awareness meetings	455	9,012	20,953	11,507	41,927
Employee benefits	6,137	22,327	17,176	26,524	72,164
Travel and conferences	700	11,526	12,958	13,955	39,139
Rent	-	7,200	12,600	13,645	33,445
Communications	1,497	9,558	8,002	8,349	27,406
Audit fees - grant funded	-	-	-	7,500	7,500
Depreciation	-	2,436	4,678	5,442	12,556
Utilities	-	3,739	2,848	4,117	10,704
Advertisements	1,004	3,063	2,424	666	7,157
Repairs and maintenance	2,810	783	2,230	1,621	7,444
Professional development	-	11,482	122	26,047	37,651
Other	5,486	10,056	21,254	15,974	52,770
TOTAL	33,850	161,206	193,478	290,291	678,825

<sup>1</sup> PANO expenses reflect grants and donations received in addition to funds received from the PAN Fund. The totals for PANO in Table 9 do not necessarily match the values presented in Table 8 both due to non-PANF funding and because of carryover between fiscal years.

<sup>2</sup> The PAN Fund, managed by the PAN Fund Board and its support staff at the PAN Fund Office, are audited annually. The PAN Fund releases financial statements and an Independent Auditors' Report every year.





Snake © J. Tamelander, 2011

Expenditures vary widely based on sites and Management Plans. The number, type, distribution, and size of PAN sites varies widely among. As States add sites to the PAN, those sites may receive PAN Funds, according to the planning needs or Management Plan activities (Figure 29; Figure 30; Table 10).

Figure 29. PAN Expenditures by State, by Fiscal Year

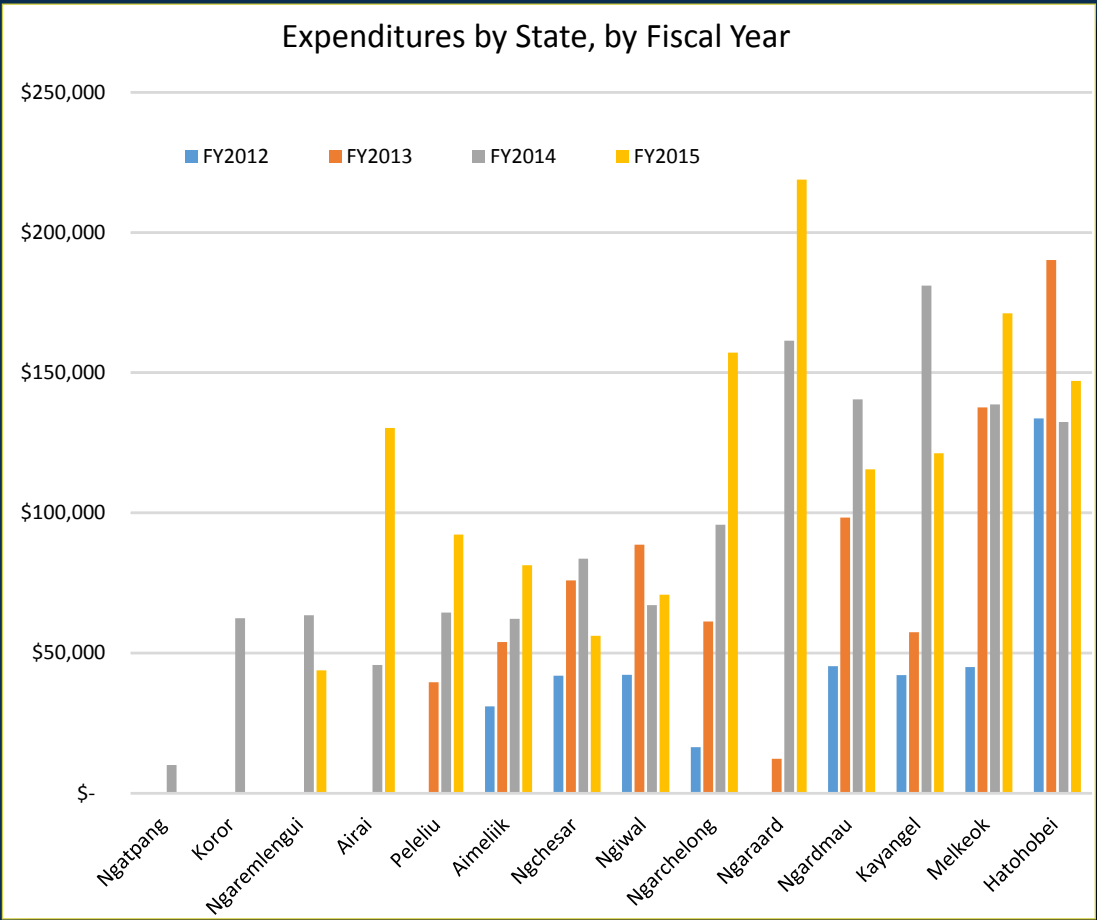


Table 9. PAN Expenditures by State

	FY2012 (\$)	FY2013 (\$)	FY2014 (\$)	FY2015 (\$)	Cumulative Expenditures, FY2012-2015 (\$)
Aimeliik State Total	30,983	53,885	62,192	81,276	228,336
Airai State Total			45,789	130,299	176,089
Hatohobei State Total	133,708	190,162	132,449	147,062	603,380
Kayangel State Total	42,149	57,446	181,106	121,282	401,982
Koror State Total			62,364		62,364
Melkeok State Total	44,946	137,627	138,712	171,166	492,451
Ngaraard State Total		12,305	161,468	218,846	392,620
Ngarchelong State Total	16,455	61,227	95,810	157,116	330,609
Ngardmau State Total	45,323	98,338	140,469	115,496	399,626
Ngaremlengui State Total			63,443	43,785	107,227
Ngatpang State Total			10,000		10,000
Ngchesar State Total	41,959	75,916	83,697	56,154	257,726
Ngiwal State Total	42,244	88,655	67,046	70,779	268,724
Peleliu State Total		39,594	64,397	92,227	196,218
TOTAL State EXPENDITURES	397,766	815,155	1,308,942	1,405,489	
Number of States with PAN Expenditures	9	11	14	12	

The amount of PAN funds that States received from Fiscal Year 2012-2015 varied widely based on years in the PAN, the number of PAN Sites per State, and the needs of those sites according to their management plans (Figure 30).

States use PAN funds in a variety of ways (Figure 31). Personnel costs—for a variety of positions ranging from enforcement to conservation to administrative—make up a large portion of the Finance, Administration, and Management Category. PAME scores were higher in States with more staff (Section 3C).

Transparency and Accountability

Transparency in financial reporting is essential in order to determine the impact of PAN financing on conservation outcomes. The PAN has in place mechanisms and infrastructure to ensure fair and consistent evaluation of funding needs and distribution. This is currently based largely on Management Plan needs of PAN Sites. States have required assistance to be able to report at the standards necessary to be transparent and to remain in compliance with PAN requirements and their own State objectives. Continued investment in accountability mechanisms will enable further understanding of the impact of the Green Fee and other funding mechanisms on protected areas in the PAN.

Figure 30. Cumulative (FY 2012-2015) PAN Expenditures by State

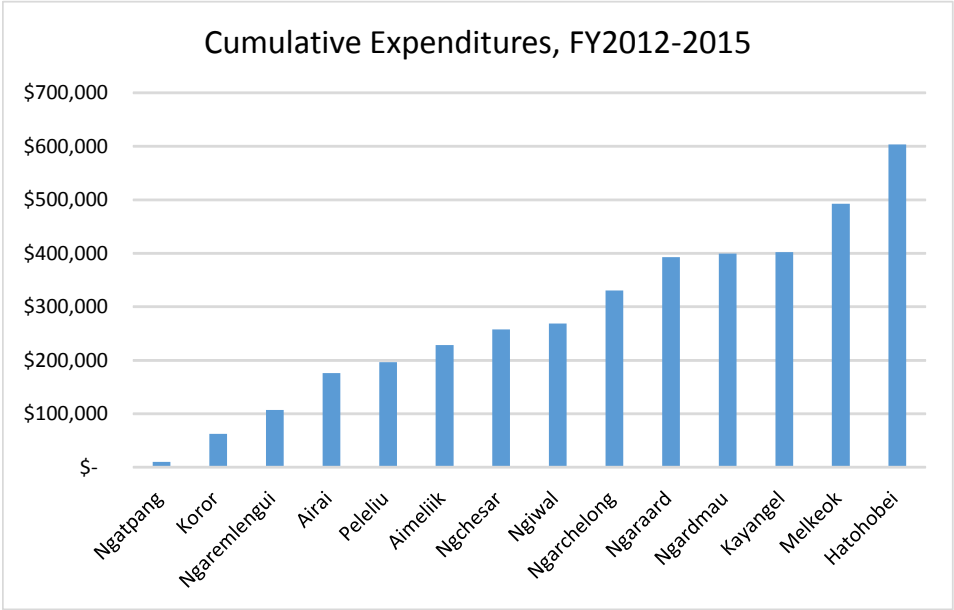
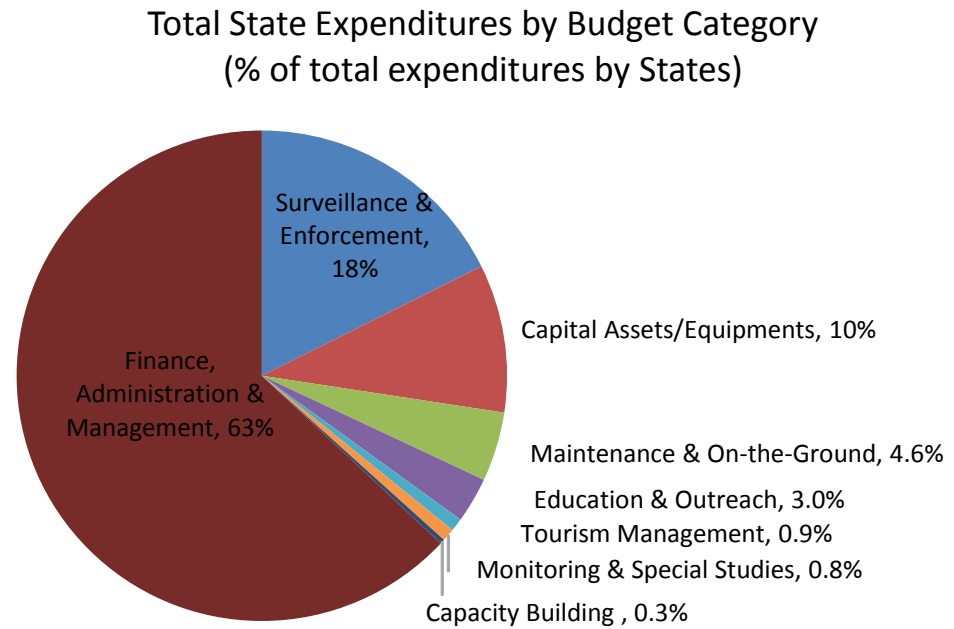


Figure 31. Comparison of PAN State expenditures by category



Ngardmau's Medal-A-leychad "Taki" Waterfall (left) and the Angaur Conservation Area (right)



# Jewels of the Network

Each of the 15 States with PAN Sites have places that are unique within Palau and the world. PAN Sites are home to mountains and waterfalls, sharks and snails, wetlands and drylands. These jewels of Palau, protected by a nation committed to a sustainable future, are the future for our people, our culture, and our nation.

More details about these PAN Sites and States and PAME scores by State and Site may be found in the Appendix to this report, online at [www.palaupanfund.org](http://www.palaupanfund.org).



Clockwise from bottom left:

**Ngardok Nature Reserve, Melekeok State (2008 - year of State's first PAN membership)**  
A Ramsar Site, Lake Ngardok is the largest freshwater lake in Micronesia. It is home to Saltwater Crocodiles and its surrounding forest protects the Capitol's water source.

**Ebiil, Ngarchelong State (2008)**  
Ebiil Channel, part of the Northern Marine Managed Area, has a grouper spawning and aggregation area and climate-change resilient coral.

**Mesekelat Watershed, Ngchesar State (2008)**  
The site protects the upper reaches of the Mesekelat watershed. Forests are highly diverse and include old growth.

**Ngerbekuu Nature Reserve, Ngiwal State (2008)**  
The Reserve contains pristine forest and the Olsokesol Waterfall and protects lands and waters from ridge to reef.



© Paul Collins



**Helen Reef, Hatohebei State (2009)**  
Helen Reef is one of the Pacific's outstanding sandy atolls, with diverse marine habitats and nesting terns numbering into the thousands.

**Ongedechuul System of Conservation Areas, Ngardmau State (2010)**  
Conservation areas in the system include Ngermasech, home to innovative conservation practices.

**Ngerderar Watershed, Aimeliik State (2011)**  
The watershed protects the Ngerderar River and watershed. Its forests are home to cultural sites and refuge for endangered birds.



© TNC

Left to Right:

**Medal Ngediull, Airai State (2011)**  
This highly diverse site includes mangroves, reefs, seagrass and mud flats, cultural sites, rock islands, and vital nursery areas.

**Ngeruangel Marine Reserve, Kayangel State 2011)**  
Part of the Kayangel Protected Areas Network, the site includes pristine reef and a unique coralline atoll that is home to nesting birds.

**Ngerkall Lake, Ngaraard State (2011)**  
Palau's only other freshwater lake is part of the Kerradel Conservation Network, which protects forests, rivers, and cultural sites.

**Ngeremeskang Bird Sanctuary, Ngeremlengui State (2012)**  
This site is biologically diverse with endemic birds and other forest species, and has a cultural site.

Clockwise from right:

**Teleleu Conservation Area, Peleliu State (2012)**  
With seagrass beds and patch reefs, Teleleu is a nursery for many economically important marine species.

**Ngerukewid, Koror State (2013)**  
Palau's oldest formally protected area, Ngerukewid is teeming with marine and terrestrial life in the Rock Islands Southern Lagoon, a World Heritage Site.

**Angaur Conservation Area, Angaur State (2015)**  
This stunning coastal site has seagrass beds and reef flats important to subsistence fisheries.

**Crab Conservation Area, Ngatpang State (2015)**  
Ngatpang's system of three conservation areas protect mangrove crabs, clams, and fish.



© Evan Buechley



© Ann Kitalong



© OptionM



**Fana Island, Sonsorol State**  
Land in Sonsorol State is privately owned. PAN is working on innovative private-public conservation partnerships that will expand the capacity and flexibility of the PAN. Fana Island is home to thousands of nesting Red-footed Boobies, abundant coconut crabs, and nesting sea turtles.





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Mastigias papua jellyfish © J. Tamelander, 2011

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