

**Republic of Palau's
6th National Report
to the
Convention on
Biological Diversity**

December 2019

**Ministry of
Natural Resources,
Environment and
Tourism**







FOREWORD

Palau is committed to protecting its biodiversity. It's a promise we have made to ourselves, for our own future. The world—and global biodiversity—benefit from this commitment, both in the persistence of our pristine environments and endemic species, but also by learning from our community-based approaches.

Palau is a small country, with a population that barely crosses 20,000 people. Yet, we face the same pressures of globalization as larger countries with more resources. It is thus phenomenal that we are making solid progress on all of our National Biodiversity Targets. Three of our seven targets are on track to achieve our objectives in the timeframe adopted in the 2015-2025 National Biodiversity Strategy and Action Plan (NBSAP). Our actions and outcomes contribute to all twenty of the Aichi Biodiversity Targets.

There is still work to do. Palau's knowledgeable and engaged communities are working in close partnership with our Nation's diverse technical experts to solve these problems. Our Leadership—from National to State to Traditional—are now following a path to protection that relies on science while still being responsive to community needs. Palau continues to tackle immense issues through integrated solutions: what other nation with only 460 square miles of land has attempted to protect all fish in a 475,000 square mile National Marine Sanctuary?

I am proud to present Palau's Sixth National Report to the Convention on Biological Diversity. It is a testament to the creativity of our environment sector and the dedication and commitment of our people.

A handwritten signature in blue ink, appearing to read 'F. Umiich Sengebau'.

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

INTRODUCTION

Palau became a signatory to the Convention on Biological Diversity (CBD) in 1999. To implement National and global goals for biodiversity, Palau developed a National Biodiversity Strategy and Action Plan (NBSAP). Palau is currently operating under its second iteration of the NBSAP, which lays out National biodiversity goals and objectives, including how they related to global biodiversity targets, for 2015-2025.

This Sixth National Report (6NR) to the Convention on Biological Diversity (CBD) reports on those goals, objectives, and targets.

As requested by the CBD, the original version of this report was submitted using the online Clearinghouse Mechanism (CHM) of the CBD. Thus, this report provides a standardized set of information following the format provided by the online portal. It may be accessed at: <https://chm.cbd.int/database/record?documentID=248613>

The online portal also requested documentation in the form of websites and digital documents, which were uploaded under every section. To simplify this printed version of the report, links to those uploaded resources are included at the end of the PDF. This 6NR is not an official policy document or an academic resource, and because links were posted directly online for each section, it does not include proper Citations and References. Users are invited to refer to the online version to see how information and digital resources are linked.

Palau's Ministry of Natural Resources, Environment and Tourism (MNRET) contracted the Palau Conservation Society (PCS) to prepare this 6NR. The process of preparing this report included individual meetings with stakeholders and experts, group focus meetings, and collection and analysis of findings in literature.

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SECTION I.

TARGETS BEING PURSUED AT THE NATIONAL LEVEL

Introduction

Targets in the 6th National Report (6NR) to the Convention on Biological Diversity (CBD) are the same as Goals in Palau's 2015-2025 National Biodiversity Strategy and Action Plan (NBSAP). All goals in the NBSAP, and thus all Targets in this 6th National Report, were developed in 2014 following highly participatory and community-based processes, and subsequently formally adopted by policymakers.

Formation of Targets

NBSAP Goals, and thus these CBD 6NR Targets, were developed via a NBSAP Review Steering Committee, which included representatives of national government, nongovernment (NGO)/nonprofit organizations, business sector organizations, and subject area experts. Initiated by the National Government, the NBSAP revision process, including consultation meetings with 24 Stakeholder Groups, was facilitated by a national NGO. Multiple rounds of consultation were held to gather information and to review the initial NBSAP. The NBSAP Goals state Palau's desired, targeted achievements, and thus were adopted as the National Targets for the 6th National Report.

* P: National Target is of Primary relevance to the Aichi Target (contributes significantly to the Aichi Target).

** S: National Target is of Secondary relevance to the Aichi Target (contributes partially to the Aichi Target).

Palau's 6th National Report Targets

- Target 1: By 2020, the Palau Protected Areas Network is adequately funded, effectively managed and includes representative areas of all ecosystems and habitats in Palau (PAN)
- Target 2: Maintain healthy populations of key species and their habitats (Species)
- Target 3: Protect Palau's biological diversity from negative impacts of invasive species and Living Modified Organisms (LMOs) through prevention, mitigation, and management (IAS)
- Target 4: Integrate biodiversity conservation and ecosystem services into Palau's sustainable development goals (SDG)
- Target 5: Establish an enabling framework to support sustainable biodiversity use and biodiversity-based livelihoods (Laws)
- Target 6: Conserve and sustainably manage Palau's agro-biodiversity for the benefit of present and future generations (Agro)
- Target 7: Biodiversity conservation and sustainable resource use is integrated into all aspects of government and community planning, development and operations (Integrate)

Relevance of National CBD Target to Aichi (Global) Biodiversity Targets

<i>National Target</i>	<i>1. PAN</i>	<i>2. Species</i>	<i>3. LMO/IAS</i>	<i>4. SDG</i>	<i>5. Laws</i>	<i>6. Agro</i>	<i>7. Integrate</i>
<i>Aichi Biodiversity Target</i>							
1. Awareness of biodiversity values	S**	S	S	S			S
2. Integration of biodiversity values				P*	S		P
3. Incentives				S	S		
4. Use of natural resources					P		
5. Loss of habitats	S						
6. Sustainable fisheries					P		
7. Areas with sustainable management					P		
8. Pollution				S			
9. Invasive Alien Species			P				
10. Vulnerable ecosystems	S		S	S	S		
11. Protected areas	P						
12. Preventing extinctions	S	P	S				
13. Agricultural biodiversity			S			P	
14. Essential ecosystem services	S	S	S	S			
15. Eco-Resilience (carbon stocks)							
16. Nagoya Protocol on ABS				S			
17. NBSAPs							
18. Traditional knowledge	S		S	S		S	S
19. Biodiversity knowledge		S		S	S		S
20. Resource mobilization	P						

TARGET 1:

By 2020, the Palau Protected Areas Network (PAN) is adequately funded, effectively managed and includes representative areas of all ecosystems and habitats in Palau

Summary

- Closing off areas to harvest is a traditional form of management thus Protected Areas (PAs) are a natural fit.
- Palau and Communities have invested heavily (money, time, land, water) in PAs and subsequently into PAN.
- National and Local level are active, with many partnerships.
- It is the primary method for protecting biodiversity; evidence indicates they are successful.

Rationale for the National Target

Closing off areas to harvest or use is a traditional form of conservation in Palau, and its expression in the modern form of protected areas is a natural fit. Palau created the first protected area in the Pacific as far back as 1956; and since then each local community has established a set of protected or managed marine and terrestrial areas. In the early 2000s the National Government and Communities worked together to develop the Protected Areas Network (PAN) System, which provides financial, technical, and other support to communities for the management of protected areas; and it sets up processes to ensure that biodiversity aggregated at the National level is protected. Since 2003, when Palau passed the Protected Areas Network (PAN) Act, the nation (at all levels from government to nonprofit to community) has invested heavily in the PAN. This means there are high levels of support for the PAN, and thus the Target. Sites in the PAN are managed at the local level, via individual and community-based Management Plans, and at the National Level by a PAN Strategic Plan. PAN sites are monitored regularly for biophysical and socioeconomic impact, and there is an established and working reporting system for both local PAN sites and the National PAN System. Thus there is adequate data to report on the target as well.

Protected and managed areas have proven to be a successful and effective tool for protecting biodiversity and allowing recovery of degraded areas, particularly in the marine environment. Biodiversity indicators (e.g. live coral cover, seagrass cover, fish abundance, fish diversity) are higher inside marine protected areas, and there is evidence that the refuge and “spill-over” effects do occur (e.g. larger fish

available outside areas with MPAs). Communities often report that protected areas provide livelihood, economic, and cultural benefits. A growing body of evidence also indicates that protected areas are one of the best forms of adaptation to global climate change.

Relevant documents and information

This Target formed the basis of Palau’s GEF5 National Project, which is strengthening the PAN. Palau’s 2015-2025 NBSAP and 2015 Climate Change Policy were developed through similar national processes at the same time, and Climate Change Policy streamlines biodiversity considerations, including several actions to achieve this Target (via the PAN). This Target was also integrated into the 2017-2021 Palau Responsible Tourism Policy Framework in multiple ways (management, with PAN Coordinators on State Tourism Councils; carrying capacity, niche opportunities, and sustainable financing).

TARGET 2:

Maintain healthy populations of key species and their habitats

Summary

- The target specifically addresses species needs that cannot be filled via protected areas.
- Palau has high levels of endemism, with endangered and threatened species
- Palau is a Signatory of CITES, with reservations.

Rationale for the National Target

This target follows Goal 2 in Palau’s revised 2015-2025 NBSAP. This goal (and thus target) was specifically developed to address the needs of species that cannot be met via protected areas. Given Palau’s high level of terrestrial endemism and the presence of numerous globally endangered species on land and in the sea, coupled with both local and global stressors, a target was needed to ensure that sufficient attention would be paid to the individual needs of species. As a signatory to CITES, Palau is committed to conserving species.

Relevant documents and information

This Target was an important driving force in the development of Palau’s Global Environment Facility (GEF)6 National Project, which seeks to improve the legislative framework, monitoring and compliance, awareness and education, and capacity especially as it relates to regulated species.

TARGET 3:

Protect Palau's biological diversity from negative impacts of invasive species and Living Modified Organisms (LMOs) through prevention, mitigation, and management

Summary

- There is high threat from Invasive Alien Species (IAS), especially facing endemic and threatened species.
- There are many existing IAS.
- Palau relies on frequent imports, a potential source.
- There is significant investment into controlling IAS.

Rationale for the National Target

This target follows Goal 3 in Palau's revised 2015-2025 NBSAP. With high levels of endemic and rare wildlife and plants, invasive alien species (IAS) and living modified organisms (LMOs) pose one of the greatest threats to biodiversity in Palau. Given that nearly all of Palau's protected areas (Target 1) include endemic or endangered animals (Target 2) with small populations, IAS and LMOs are of particular concern in both marine and terrestrial environments. IAS also poses a threat of unquantified magnitude to Palau's marine biodiversity. For instance, in a marine lake open to tourists, a non-native *Aiptasia* species of anemone has become established and is spreading, where it appears to be competing with native species. A non-native species of hydroid, *Eudendrium carneum*, was introduced via a floating bridge from China and has the potential to become a "pest" organism. Given its relatively close distance to highly populated centers in Asia, daily flights and weekly shipments from Guam (with the Brown Tree Snake), plus its dependence on tourism and foreign imports, Palau has numerous pathways for IAS and LMOs to be introduced into Palau. With a rapidly growing economy, persistent growth in agriculture, and short distances between islands, Palau also has numerous pathways for IAS and LMOs to spread. Key potential pathways include transport, tourism (tourists and the ornamental plants introduced to hotel landscaped gardens), agriculture, pet trade, foreign fishing vessels, shipping, and aquaculture. Given the high threat posed by IAS and LMOs to Palau's biodiversity, economy, human health, and food security, this Target was included in the NBSAP.

Furthermore, Palau's has significant investment already in controlling IAS (via legislation, financing mechanisms, administration, education, etc.), thus achieving the Target is feasible.

Relevant documents and information

This Target was the basis for the development of Palau's GEF6 National Project, which will develop a comprehensive, nationwide approach to preventing, controlling, and eradicating IAS and LMOs. This target was also integrated into the 2017-2021 Palau Responsible Tourism Policy Framework. In particular, this Target is fully aligned with the 2015 Climate Change Policy and the 2015 "Food Policy" (Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure).

TARGET 4:

Integrate biodiversity conservation and ecosystem services into Palau's sustainable development goals

Summary

- The environment is an economic necessity.
- Tourism is a major driving force.
- There is rapid growth in development and economy.
- Palau must account for environmental variables in economic accounting.

Rationale for the National Target

This target follows Goal 4 in Palau's revised 2015-2025 NBSAP. All goals in the NBSAP, and thus all Targets in this 6th National Report, were developed in 2014 following highly participatory and community-based processes, and subsequently formally adopted by policymakers.

Palau's beautiful natural environment is a driving force for growth in multiple sectors. Tourism has grown rapidly in the past decade, with annual tourists now outnumbering residents by a factor of 8:1, with subsequent development in the form of construction and economic growth. This is evident by a consistent rise in earthmoving permits; 2018 saw the highest number of earthmoving permits issued since at least 2007 (e.g. the limits of digital record-keeping). Palau's unique location as an isolated island near the Coral Triangle and Asian Flyways also makes it a desirable location for research (by both local and foreign researchers). Advances in education and health, coupled with economic growth, have fueled improvements in quality of life, with subsequent local development taking many forms: construction, information sharing, changes in tradition and culture, sophistication of the legal atmosphere, etc. Palau's natural environment is important to economy, identity, and culture, as well as cultural food security (in 2015 70% of families relied on local fisheries and agriculture to

provide some of their food). Thus this target is essential for ensuring that development (in all its forms) conserves biodiversity and the natural environment (and subsequently culture and identity). Development has progressed rapidly (e.g. in 2012 there were 89 earthmoving permits issued; in 2018 there were 316 permits issued) and thus Palau's legislative framework has struggled to keep pace. At the same time, modern thinking about accountability means that Palau must account for environmental variables in its environmental and economic accounting systems and policymakers are held accountable for their decisions much more rapidly. Thus, this Target is essential for ensuring sustainable development across multiple sectors.

Relevant documents and information

This Target was foundational to the development of the 2017-2021 Palau Responsible Tourism Policy Framework, which lays out a development approach for the tourism sector that includes preservation of biodiversity and culture. Aspects of this Target were integrated into Palau's GEF6 National Project, particularly as relates to environmental assessment tools and integration of scientific information into decision making.

TARGET 5:

Establish an enabling framework to support sustainable biodiversity use and biodiversity-based livelihoods

Summary

- There is high reliance on natural resource use, including extractive uses (fisheries).
- Patterns of overuse are present on land and at sea.
- Biodiversity is importance to the economy.
- There is much work completed; information available.

Rationale for the National Target

This target follows Goal 5 in Palau's revised 2015-2025 NBSAP. All goals in the NBSAP, and thus all Targets in this 6th National Report, were developed in 2014 following highly participatory and community-based processes, and subsequently formally adopted by policymakers.

Palau is highly reliant on natural resources, including extractive and consumptive uses. Therefore this Target that addresses sustainable uses of those resources was deemed necessary. This is particularly important in fisheries, where patterns of overuse are present for several nearshore species. The same is true for several rare species on land, which have declining populations. Use of land and the natural environment (both on land and sea) is also critical for most

businesses in Palau (whether in tourism, food production, or support services), thus the inclusion of this Target also addresses the need for sustainable use of the land and sea environment. The availability of information for this Target, including information on overuse and Best Practices for sustainability, makes it a feasible Target.

Relevant documents and information

Both of Palau's GEF5 and GEF6 National Projects integrate aspects of this Target, ranging from implementation of Best Practices in key consumptive sectors, to research into capacity and sustainable harvests. This Target was also fully integrated into the 2017-2021 Palau Responsible Tourism Policy Framework and the and the 2015 "Food Policy" (Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure).

TARGET 6:

To conserve and sustainably manage Palau's agro-biodiversity for the benefit of present and future generations

Summary

- Traditional Knowledge (TK), practices are important.
- Agriculture to important to families.
- There has been growth in agriculture, with impacts.
- Unique practices, diversity of species, lots of knowledge are documented.
- Palau has a history of genetic contributions (taro).

Rationale for the National Target

This target follows Goal 5 in Palau's revised 2015-2025 NBSAP. All goals in the NBSAP, and thus all Targets in this 6th National Report, were developed in 2014 following highly participatory and community-based processes, and subsequently formally adopted by policymakers.

Traditional agricultural practices have been an important part of communities for thousands of years. Agricultural practices have been finely tuned to the unique location and environment of a community or even family unit, and were closely aligned with maintaining biodiversity. Agricultural practices are important for food, medicinal purposes, building and tools, modification of the environment (e.g. to manage water and flooding), and ceremonial practices. Documenting and maintaining agricultural practices (both traditional and "modern") remains important as a means of preserving ecosystem and habitat diversity in both the natural and human-influenced landscape.

As with all of Palau's plants, Palau's agro-biodiversity is also unique, with many endemics. For instance, there are 32 local varieties of Taro, plus an additional 16 introduced varieties, grown in a variety of production systems. Palau's diversity of taro is famous in the Pacific: blight-resistant Palauan taro varieties imported from Hawai'i allowed growers in American Samoa, and later in Samoa, to recover from the severe losses caused by taro leaf blight. Maintaining the many varieties and endemism, especially with the growth of imported agricultural products and a transition to newer farming techniques, prompted investment into agro-biodiversity via this Target.

Relevant documents and information

This Target was integrated into the 2017-2021 Palau Responsible Tourism Policy Framework and the and the 2015 "Food Policy" (Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure). Preservation of agro-biodiversity via community-based agricultural development was included in the Small Grants Programme 6th Operational Strategy.



TARGET 7:

Biodiversity conservation and sustainable resource use is integrated into all aspects of government and community planning, development and operations

Summary

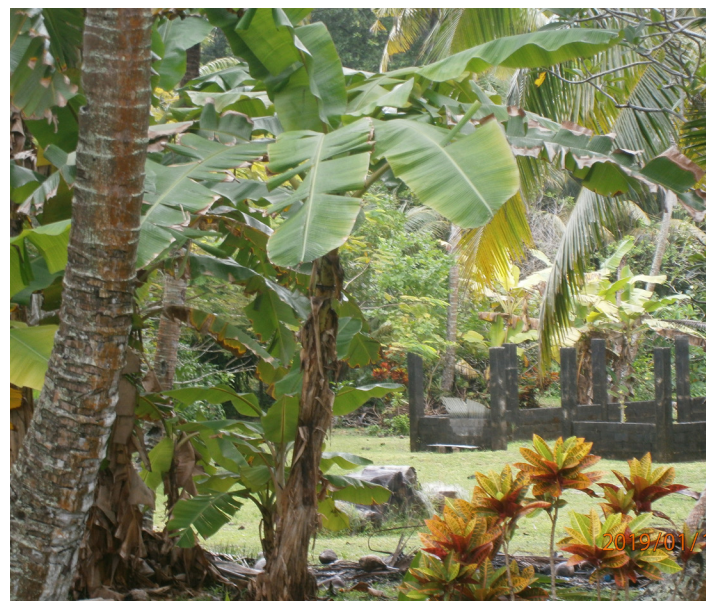
- Biodiversity is important across sectors.
- A High level approach complements other efforts on the ground.
- Needs include integrating into systems and education.

Rationale for the National Target

This target follows Goal 5 in Palau's revised 2015-2025 NBSAP. All goals in the NBSAP, and thus all Targets in this 6th National Report, were developed in 2014 following highly participatory and community-based processes, and subsequently formally adopted by policymakers. This Target is included to emphasize the importance of biodiversity to Palau's economy, identity, culture, and future. It applies across all economic and societal sectors. It takes a very high level approach and perspective to ensuring that biodiversity remains a central part of life and sustainable development as Palau continues to grow. Community involvement and civil society are very strong in Palau, and thus investment in them will benefit biodiversity locally and globally. With a single education system (with national leadership), integrating biodiversity into education is feasible.

Relevant documents and information

Mainstreaming biodiversity into development was a key driving force in the development of Palau's GEF6 National Project.



SECTION II.

IMPLEMENTATION MEASURES, THEIR EFFECTIVENESS, AND ASSOCIATED OBSTACLES AND SCIENTIFIC AND TECHNICAL NEEDS TO ACHIEVE NATIONAL TARGETS

Introduction

This report identifies seven (7) measures. Measures refer to the type of activities being conducted to achieve the Targets and to implement the NBSAP. Measures in this 6th National Report were identified and named based on activities in the 2015-2025 NBSAP Action Plan. Measures represent a way of characterizing and organizing the work being done so that it can be assessed for effectiveness and impact across common themes.

Assessment of Measures

The 6th National Report template required that measures be assessed for effectiveness and rated as “effective, partially effective, ineffective, or unknown.” The tools and information used to assess the measure were described and uploaded to a CBD online reporting system. Measures apply to multiple Targets and are applied in multiple sectors, thus the assessment necessarily combines effectiveness in many areas.

Palau’s Implementation Measures

1. Governance, Policy, and Legislative Framework
2. Training and Capacity Building
3. Communications, Outreach, and Awareness
4. Data Collection, Research, Monitoring, and Knowledge Management (KM)
5. Planning and Coordination
6. Field Activities
7. Resource Mobilization (Financial, Technical, Partnership-building)

Overview of Implementation Measures and Assessment of Effectiveness at achieving desired outcomes

Implementation Measure	Assessment	Reason for Assessment (see text for detail)	National Target where Measure is important						
			1. PAN	2. Species	3. LMO/ IAS	4. SDG	5. Laws	6. Agro	7. Integrate
1. Governance, Policy, and Legis.	Partially Effective	Gaps remain. When laws are coupled with regulations and enforcement, then effective.	X	X	X	X	X		X
2. Training and Capacity Building	Partially Effective	Many gaps, but also many more people trained. Hard to keep up with needs and demand. Many partners, not always coordinated.	X	X	X	X	X	X	X
3. Communications, Outreach, and Awareness	Effective	Awareness is high and public participation growing. Challenge is in knowledge management; so much information it can be overwhelming.	X	X	X	X	X	X	X
4. Data, Research, Monitoring, and KM	Effective	Well studied, good capacity for research and monitoring, processes to use findings as well as to meet local needs. Good training programs.	X	X	X	X	X		
5. Planning and Coordination	Partially Effective	Plans that are not used, or are not adopted. Slow feed back (results-based adaptation).	X	X	X	X			X
6. Field Activities	Partially Effective	Vary widely. Some efforts successful. High effort required. Very individualized and hard to meet demand.	X	X	X		X	X	
7. Resource Mobilization (Financial, Technical, Partnership-building)	Partially Effective	Not enough to finance NBSAP fully. Green Fee/ Impact Fees are models and improve ground management. Focus on resource mobilization sometimes distracts from on-the-ground action.	X	X	X	X	X	X	X

Governance, Policy, and Legislative Framework

Measures taken to implement NBSAP

Many of the targets are achieved by developing State and National legislation, regulations, or adopted policies that have the force of law or funding behind them. National Legislation tends to be most effective because of the enforcement capability it enables. The Protected Areas Network (Target 1) was established and funded by National Legislation in 2003, and now is functioning across the country with a feedback system and many elements of sustainable financing. For Target 1 (PAN), focus includes developing and updating State and Local legislation and updating regulations. Improving the governance capacity of local leadership to oversee PAN Sites and Funding, including through Results-Based Management, is also a key element of this measure. Funding, at the local level and via international and regional agreements such as the Micronesia Challenge, also requires legislative support.

A key legislative achievement for Target 2 (Species) is the update of the Endangered Species Act (ESA) List. Much of Palau's conservation history has focused on protected areas, leaving species as a gap. The focus on the ESA, followed by regulations and action on the ground, is a major step in protecting endangered and endemic species.

For Target 3 (IAS/LMO), a Biosecurity Act was passed and regulations are now being drafted to enable enforcement. A legal framework will also be developed to enable a Cost Recovery System, which will be set up before 2024.

A key element of Target 4 (Policy Integration) is to identify and fix legislative, regulation, and policy gaps (e.g. such as economic incentives/disincentives like taxes, fees, and fines), as well as to align national goals so that they are aligned with adopted laws and policies. The implementation of national and local policies and plans once they are adopted is also the focus on efforts to raise governance capacity by providing access to information. Palau passed its Access and Benefit Sharing (ABS) legislation and is now developing regulations.

In future years, a strong legislative framework will need to be built to better achieve Target 5 (Sustainable use), particularly within fisheries. Gaps in fisheries management and legislation have been identified, and filling those gaps with additional laws, regulations, and enforcement is key. Governance of Nearshore Fisheries will be improved.

For Target 7 (Awareness & Participation), there is an emphasis on integrating community input into the decision-making process, including through formal legislative pro-

cesses. Improving governance by involving the public is also a focus of this measure.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes *Measure taken has been partially effective*

Tools or methodology used for the assessment of effectiveness above

There are still legislative, policy, and regulatory gaps to be filled. National Legislation, when coupled with enforcement capacity and funding, is effective.

Other relevant information

Palau was honored with the Future Policy Gold Award in recognition of the two outstanding marine policies, the Protected Areas Network Act, initiated in 2003, and the Shark Haven Act from 2009.

The Protected Areas Network Act establishes the framework for a network of marine and terrestrial protected areas ensuring a long-term sustainable use of natural resources. It involves local and supports traditional systems of natural resource management, which have a long history in Palau. Palau seeks to protect 30 per cent of its near-shore marine environment and 20 per cent of its terrestrial environment by 2020.

At a Glance

- The Palau Protected Areas Network (PAN) Act establishes a nationwide framework that empowers communities to designate and manage marine and terrestrial protected areas.
- It provides standards, criteria, application processes, technical and sustainable financial assistance for management and monitoring of sites.
- The Protected Area Network Fund (PANF) is sourced from visitor and other contributions.

Training and Capacity Building

Measures taken to implement NBSAP

With significant growth in the environment sector in the past decade, there is continual demand and need for training and capacity building, across all Targets. This measure is particularly important to Target 1 (PAN), which regularly brings new PAN Officers and Resource Managers into the sector. These individuals require training in many topics (Planning and Results-based Management, Enforcement and Surveillance, Biophysical and Socioeconomic monitoring, Accounting, etc.). Trainings are offered by a variety of

partners, but demand is high. For Target 2 (Species), training needs will vary based on the species action plans that are developed. In 2020 there will need to be capacity built for a National Bird Survey. Target 3 (IAS/LMO) will have an extensive investment in training and capacity building via the GEF6 National Project, with trainings developed and offered in Early Detection and Rapid Response (EDRR), Eradication and Control methods, Biosecurity, Cost Recovery, and other new procedures that will arise from the project (by 2024). As Best Practices and Partnership Programs are developed for Target 5 (Sustainable Use), there will be ongoing capacity building in a variety of topics (e.g. tourism, fisheries, etc.). Target 6 (Agro-biodiversity) requires training in agricultural practices, new technologies, and information sharing). As Target 7 focuses on awareness, trainings and capacity building will be fully integrated into all actions.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes
Measure taken has been partially effective

Tools or methodology used for the assessment of effectiveness above

It is difficult to keep up the rapid pace of change and high demand. There are also many partners who offer capacity activities, and these are not always coordinated or tracked. Many capacity gaps have already been filled, and those people who are well trained go on to become vital members of the conservation community.

Obstacles and scientific and technical needs related to the measure taken

Knowledge Management and coordination of the many training opportunities offered remains a challenge.

Communications, Outreach, and Awareness

Measures taken to implement NBSAP

Palau's government, nonprofits, and even businesses have comprehensive and robust communications programs that focus on environmental issues and biodiversity. This measure is fully integrated into every target of the NBSAP, but is also the specific focus of Target 7, with the explicit goal of raising public and stakeholder awareness and participation, and thus ownership of, the decision-making process. The measure is implemented in a wide range of forms, including written and printed materials, audio and visual (including on national television and radio), and hundreds of in-person events. For most targets, awareness is essen-

tial their success (e.g. awareness and compliance with protected area regulations, biosecurity protocols, etc.). Thus, Palau's organizations have invested heavily in this measure. Environmental outreach occurs at all levels and ages, for all sectors of society.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes
Measure taken has been effective

Tools or methodology used for the assessment of effectiveness above

Qualitative and quantitative data in Target 7 show that awareness is high and informed public participation in modern environmental decision-making is growing.

Other relevant information

Case Study: News article explains 'Explore lightly': Palau makes all visitors sign pledge to respect environment: International arrivals must sign promise to children of Pacific nation that they will 'tread lightly, act kindly' during their stay.

Obstacles and scientific and technical needs related to the measure taken

The amount of educational information produced can be overwhelming. Because there is so much outreach and awareness information available (stretching back decades), Palau struggles with Knowledge Management. While some efforts are underway (e.g. Palau's GEF5-funded Capacity Building (CB2) Project to build an Information Database), tracking information and impact remains a challenge.

Data Collection, Research, Monitoring, and Knowledge Management

Measures taken to implement NBSAP

Research and monitoring is key to success of several targets, and in most cases is fully integrated into all environmental and biodiversity projects. Knowledge Management is slowly becoming more prominent and efforts are increasing to catalog and improve long-term access to knowledge. Palau is fortunate to be the focus of researchers from around the world, and to be the home of world class research institutions. The discovery of resilient coral reefs has made Palau a particularly popular location for climate change/climate adaptation work.

Target 1 has a significant research and monitoring component. Nationwide research continues to assess the network for efficiency and design (Warner Report - Improving

PAN Design), including identification of critical areas, and individual sites are monitored for biophysical and socio-economic conditions.

Research and monitoring is a key element of Target 2 (Species) in order to determine species status and range and develop an endangered species listing or to implement a Species Action Plan. Species are monitored as part of protected areas and on their own right.

Target 3 (IAS/LMO) has included some research efforts to identify IAS. In the coming years there will be a significant effort to map the range and extent of Invasive Species. Much more research is needed to better understand LMOs, their role ecologically, and how Palau should respond. There is also ongoing collaborative research across the region into IAS biotypes and identifying successful control and eradication protocols.

Target 4 (ABS and Sustainable Development) includes a key piece that will impact this measure - namely regulations that will govern Access and Benefit Sharing as it pertains to biological research conducted in Palau.

Research on Target 5 (Sustainable Use) is ongoing, with much effort going into identifying Best Practices for sustainable use. Monitoring of resource status is also key to the success of this Target. Within fisheries there is a wide range of research that is being led by a wide range of partners, ranging from fisheries-dependent stock estimates to studies of reproductive potential and Size at Maturity. For this Target to be successful, in upcoming years Palau will need to develop an overview of all the research efforts that are happening and then make plan to fill gaps in order to improve fisheries management.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes
Measure taken has been effective

Tools or methodology used for the assessment of effectiveness above

Palau is well studied and there are good procedures in place to ensure that research and monitoring has a local partner, meets local needs, and meets ethical standards. The number of Palauan researchers steadily increases. Feedback mechanisms to better use data (such as in annual reports to PAN, or when PAN Management Sites are updated) are improving daily. Because so much research is done in response to specific management needs, it is thus used and impactful. There are also good training and capacity needs programs in place to keep the cadre of young researchers growing.

Obstacles and scientific and technical needs related to the measure taken

Data analysis and Knowledge Management remain challenges. Data is often collected but not analyzed, and knowledge is generated but then lost or difficult to access. There are still many data gaps in key sectors (e.g. near-shore fisheries).

Planning and Coordination

Measures taken to implement NBSAP

Planning and Coordination is integrated into all aspects of the NBSAP. Many formal planning efforts are underway, including for protected areas through the PAN (Target 1), Species Action Plans (Target 2), economic sector-based sustainable development plans (Target 4), and revisions to National Policies (Target 7). As part of the GEF6-funded National Project, before 2024 there will be many planning steps in the area of Invasive Species management (Target 3), including planning for an Early Detection and Rapid Response (EDRR) system and Eradication and Control implementation. Many decades of protected areas planning have identifying Best Practices for planning, including participatory, community-based approaches and creation of empowered outputs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes
Measure taken has been partially effective

Tools or methodology used for the assessment of effectiveness above

Although it is improving, often planning efforts results in plans that are not used, or if used, are not monitored and evaluated. An effort to raise capacity in Results-Based Management (RBM) throughout the Project Cycle is working to improve the efficacy of planning and coordination. Access to funding through the Small Grants Programme (SGP) is also a catalyst for improved planning. National events such as the National Dialogue and National Environmental Symposium are happening more frequently (due to increased commitment by local agencies to sponsor and fundraise for them) and are contributing to improved coordination. However, these efforts still cannot meet the high demand or reach all planners or policymakers.

Other relevant information

See news article on National Dialogue: "Strengthening collaboration and coordination of community based efforts and National Government Initiatives and Programs was the thematic spirit behind this National Dialogue event..."

Obstacles and scientific and technical needs related to the measure taken

There is so much demand for planning and coordination expertise and facilitation that is difficult for technical partners to service the public.

Field Activities

Measures taken to implement NBSAP

All of the research, monitoring, planning, and collaborative efforts eventually end up "in the field" and thus field activities are essential to all targets. They are particularly important to Target 1 (PAN) in the form of surveillance and enforcement of protected area boundaries and regulations, implementation of PAN Sites plans (e.g. installation of educational signs, boundary markers, etc.), and forest restoration. For Targets 2 (Species) and Target 3 (IAS/LMOs) field activities include eradication and control efforts, coupled with activities to protect species, such as banding and translocation. Many hours of field work have gone into IAS control (especially vine removal). Species monitoring is always a field activity. Testing, education, and implementing best practices in the field is essential for all sectors in Target 5 (Sustainable Use). Restoration of agricultural plots and practices are a key field activity in Target 6 (Agro-biodiversity).

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

Tools or methodology used for the assessment of effectiveness above

The impacts of field activities vary widely. In some places, eradications have successfully reduced the threat of IAS and others they have not. Many Best Practices must be piloted and demonstrated in the field, and it is hard to meet the demand for this type of individualized activity.

Resource Mobilization (Financial, Technical, Partnership-building)

Measures taken to implement NBSAP

The entire NBSAP relies on resource mobilization. Resource mobilization is of particular importance to Target 1 (PAN), which has built-in sustainable financing mechanisms that are tied to performance criteria. Palau's Green/Environmental Impact Fees are tied to long-term financing of the PAN. Funds are managed independently through the Palau PAN Fund. Target 3 (IAS) also has a sustainable financing component, with the creation in the next few years of improved fees, fines, and a Cost Recovery system. Target 4 (development policies) will also examine the role of taxes, financial incentives/disincentives, fees, fines, and other financial mechanisms to improve biodiversity action on the ground. Many planning efforts and research efforts rely on securing technical expertise through building partnerships (e.g. species work for Target 2, and improved access to information for Target 7).

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

Tools or methodology used for the assessment of effectiveness above

While Palau has led with the establishment of the financed PAN, first by the Green Fee and then by the Pristine Paradise Environmental Fee, there are still not enough resources to finance all aspects of the NBSAP. However, these sustainable financing programs are good models for country-driven and country-owned resource mobilization and have led to improvements on the ground.

Obstacles and scientific and technical needs related to the measure taken

The push to mobilize resources often distracts from on-the-ground biodiversity efforts.



SECTION III.

ASSESSMENT OF PROGRESS TOWARDS EACH NATIONAL TARGET

Introduction

This section assesses progress towards meeting National Targets (called Goals in the NBSAP). Each Goal in the NBSAP is measured by 2-3 Impact Indicators, which measure whether the ultimate purpose of the Goal is being met. Each NBSAP Goal also includes a series of Objectives (measurable actions needed to achieve the Goal). Each Objective is measured by 1-4 Outcomes (which indicate whether the action has been carried out successfully).

This section is organized by National Target. For each National Target there are the following sections:

1. An overall Assessment of Progress for the indicator, across all indicators (required by the CBD).




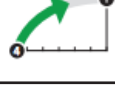


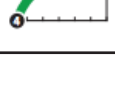
2. A detailed Narrative for each indicator(organized by Impact Indicators and then Outcome Indicators).
3. Summary Table listing the Indicators and their progress.
4. A “Level of Confidence” of the reported progress assessment, with rationale.

The online version of this National CBD Report included over 150 documents, websites, and reports that provide evidence for the reported progress. References in the narrative text refer to those online documents. The online version can be found via Palau’s Country Profile Page: <https://www.cbd.int/countries/?country=pw> (Scroll to find “Sixth National Report”).

Assessment of Progress

From 2018 to 2019 the Palau Ministry of Natural Resources, Environment, and Tourism contracted the Palau Conservation Society to prepare this Sixth National Report. The process of preparing this report included individual meetings with stakeholders and experts, group focus meetings, and collection and analysis of findings in literature. In particular, the Palau Conservation Consortium ranked the progress of Palau in meeting each National Target, forming the basis for the final Assessment. The National Report was then approved by the Ministry. The Ministry approved and published the Report online (as required by the CBD) and subsequently prepared this written version for local circulation in Palau.

Overview of Progress Assessment

National Target	Progress Assessment	Level of Confidence	
Target 1: By 2020, the Palau Protected Areas Network is adequately funded, effectively managed and includes representative areas of all ecosystems and habitats in Palau (PAN)		On track to achieve target	Based on comprehensive indicator information
Target 2: Maintain healthy populations of key species and their habitats (Species)		Progress but at an insufficient rate	Based on partial indicator information and expert opinion
Target 3: Protect Palau’s biological diversity from negative impacts of invasive species and Living Modified Organisms (LMOs) through prevention, mitigation, and management (IAS)		Progress but at an insufficient rate	Based on expert opinion
Target 4: Integrate biodiversity conservation and ecosystem services into Palau’s sustainable development goals (SDG)		On track to achieve target	Based on partial indicator information and expert opinion
Target 5: Establish an enabling framework to support sustainable biodiversity use and biodiversity-based livelihoods (Laws)		Progress but at an insufficient rate	Based on partial indicator information and expert opinion
Target 6: To conserve and sustainably manage Palau’s agro-biodiversity for the benefit of present and future generations (Agro)		Progress but at an insufficient rate	Based on expert opinion
Target 7: Biodiversity conservation and sustainable resource use is integrated into all aspects of government and community planning, development and operations (Integrate)		On track to achieve target	Based on partial indicator information and expert opinion

TARGET 1:

By 2020, the Palau Protected Areas Network is adequately funded, effectively managed and includes representative areas of all ecosystems and habitats in Palau

Rate of progresses toward the implementation of the selected target



March 31, 2019:
On track to achieve target

Summary of the assessment of progresses toward the implementation of the selected target

Palau's government and communities have made significant investments into achieving this Target, and it remains one of the country's top environmental and sustainable development priorities. The Protected Areas Network (PAN) has been integrated into national and local governance. Sustainable financing systems are developed and dependable, enabling adequate funding of basic operational needs (WildAid Assessment) at the local and national levels. Progress is being made on effective management of all sites and inclusion of representative areas.

Narrative description by indicator

Section 1: Impact Indicators

Impact Indicator 1: The PAN Fund is able to fund approximately 50% of each Member State's request every year. The average cost of each State's Management Plan (combined across PAN Sites in the State) is around \$170,000 per year. The average funding to States is around \$90,000 per year. Even at the 50% or \$90,000 funding level, many Member States still have carryover funds at the end of the Fiscal Year. (PAN Fund 2017 Report). Protected areas

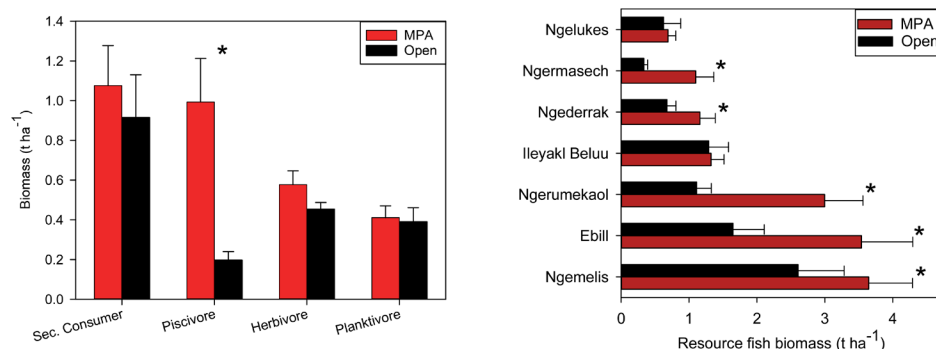
management effectiveness (PAME) assessments included questions on sustainable finance for PAN Sites (including, "Is a Sustainable Financing plan being implemented that covers more than 75% of the annual operational cost?"). PAME assessments in 2014-2015 revealed that only 3 out of 23 PAN Sites (13%) received a rating of "Good" or "Adequate" for Sustainable Financing (PAN 2003-2015 Status Report).

Impact Indicator 2: PAN Sites have made significant progress in achieving effective conservation. In 2015, every single assessed PAN site (100%; 23 out of 34 were assessed) was performing in at least one management category at a level of Good or Effective (PAN Status Report 2003-2015) (Covering 678.34 sq.km). 9 out of 23 sites received 4 or more "Good or Effective" scores (out of 12 possible on the scoring rubric) (Covering 195.43 sq.km). 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. 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.

1) Marine Protected Areas (MPAs)

Effectiveness is influenced by size, shape, age, movement of individual species, and level of protection, and "Fully protected areas have... much greater conservation benefits compared with areas under lesser levels of protection" (Friedlander et al. 2017). In a meta-analysis of seven no-take MPAs and their nearby reference sites, ranging in size from 0.4 sq. km to 40.3 sq. km, Friedlander et al. (2017) concluded that the majority were effective at conserving fish biomass relative to reference sites (Figure 1). Larger

Figure 1. Fish biomass inside MPAs (in red) versus outside. MPAs have higher biomass in sampled sites.



(From Friedlander et al., 2017)

(left): Comparison of resource fish biomass (t/ha, mean ± standard error) inside and outside MPAs. From Figure 3 in Friedlander et al. (2017). (right): Biomass (t/ha, mean ± standard error) by fish trophic groups and management (open to fishing and MPA). From Figure 6 in Friedlander et al. (2017). * Asterisk identifies significant differences between MPA and adjacent open area.

MPAs contained higher abundance and nearly twice (2x) the overall biomass (5x for piscivores) than smaller MPAs. They concluded that because there was little difference in benthic habitat, the difference was due to protection status.

However, analysis of MPA monitoring using the PAN Monitoring protocol (Outcome 1.2.2) shows that MPAs have much more mixed effectiveness. Depending on the variable desired, only some MPAs are fully effective (Table 1.1).

How community members perceive MPAs varies wildly. The Palau International Coral Reef Center (PICRC) conducts socio-economic monitoring of MPAs, and asks about perceived benefits. Nine surveys completed in 2016 to 2019 were averaged in the table below (Table 1.2). The majority of respondents did not perceive any change due to the MPA; for all indicators there was a larger percentage of respondents who perceived increased (desirable) impacts. The highest percentage of respondents reported that they strongly agree with the statement that MPAs provide environmental benefits. Fewer respondents agree that MPAs provide livelihood or economic benefits, with even fewer who agree that MPAs provide cultural or spiritual impacts. Only half of respondents strongly agreed that benefits from MPAs were provided equitably.

2) Mangrove Protected Areas

33% of Palau’s mangroves are managed in some way, surpassing the Micronesia Challenge target of 30%, but below the Palau Mangrove Management Plan target of managing 75% of mangroves. 8% of mangroves are protected in No-Take PAs and 7.6% are in the PAN. Only 2 Protected Areas have been assessed, but they appear to be performing well. Socio-economic surveys in Airai and Ngarard (states with large mangrove PAs) indicate that 77-83% perceive the Mangrove PA has increased or remained stable for: Quality of Environment, Abundance of Fish, Size of Fish, Availability of Food, and Spiritual and Cultural amenity. 80-91% agreed with statements that the Mangrove PA provided livelihood, economic, cultural/spiritual, environmental, and equal benefits.

3) Terrestrial Protected Areas

25% of Palau’s terrestrial area is managed in some way, surpassing the target of 20%. 10% is No-Take and 10% is in the PAN. Ecological scores for Terrestrial Protected Areas have not been established or updated. Those parts of the Terrestrial Monitoring Protocol that are complete have not been widely implemented over time, or only baseline data exists, or data has been collected but not tied to a specific Terrestrial Protected Area. The 2015 PAN Status Report included baseline Protected Areas Management

Table 1.1. Performance of PAN MPAs to determine BIOPHYSICAL effectiveness (From 2019 SOE) (References from PICRC elaborated in the 2019 State of the Environment (SOE) Report.)

Site and Size	State					Grade ¹
	Habitat	Coral or Seagrass Cover	Fish Biomass	Fish Abundance	Macro-Invertebrates	2019
Nger-medellim, Melekeok 0.43 km ²	Seagrass	<ul style="list-style-type: none"> Higher inside MPA 	<ul style="list-style-type: none"> No recorded commercially important fish 		<ul style="list-style-type: none"> Only 1 clam 	<ul style="list-style-type: none"> Healthy seagrass. Productive. Recovering (typhoon).
	Reef flat	<ul style="list-style-type: none"> Lower inside Increasing 	<ul style="list-style-type: none"> Slightly Higher inside 	<ul style="list-style-type: none"> Higher inside Declined (2015) 	<ul style="list-style-type: none"> More inside 	
Teluleu, Peleliu 0.76 km ²	Seagrass	<ul style="list-style-type: none"> Lower inside MPA Declining 	<ul style="list-style-type: none"> Higher inside Highest of all seabed MPAs 	<ul style="list-style-type: none"> Higher inside Higher diversity inside 	<ul style="list-style-type: none"> Low Abundance 	Protection benefits fish populations
Iuaiu, Angaur 1.11 km ²	Seagrass	<ul style="list-style-type: none"> Higher inside MPA Higher than reef 	<ul style="list-style-type: none"> Higher inside MPA Increased (2014) 	<ul style="list-style-type: none"> Same inside, out Higher than reef area 	<ul style="list-style-type: none"> Same in/out Low Abundance 	<ul style="list-style-type: none"> Seagrass thriving. Reef not thriving, Lower & declining fish. Beneficial for clams. No management plan.
	Reef flat	<ul style="list-style-type: none"> Lower inside MPA 	<ul style="list-style-type: none"> Much Lower inside MPA 	<ul style="list-style-type: none"> Lower inside Declined (2014) 	<ul style="list-style-type: none"> Many More inside 	
Ngemai, Ngiwal 2.32 km ²	Seagrass & Flats	<ul style="list-style-type: none"> Lower inside MPA 	<ul style="list-style-type: none"> Lower inside Low overall 	<ul style="list-style-type: none"> Lower inside Low overall 	<ul style="list-style-type: none"> Declined by factor of 57 	<ul style="list-style-type: none"> After 10 years of protection, not benefitting fish. Likely poaching.
	Fore reef	<ul style="list-style-type: none"> Same inside, out Stable 	<ul style="list-style-type: none"> Lower inside MPA 	<ul style="list-style-type: none"> Lower inside MPA 	<ul style="list-style-type: none"> More inside Very few 	
Ngemelachel-Ngederrak (Lighthouse), Koror 5.88 km ²	Reef	<ul style="list-style-type: none"> Coral cover recovery on areas of hard substrate; no recovery on rubble Limited recovery on north end Recovery started on south end, many small colonies Cover at Lighthouse recovering well, at 29% <ul style="list-style-type: none"> Parrotfish and Surgeonfish populations Increasing at Lighthouse Reef 				<ul style="list-style-type: none"> Profound recovery.

¹ Basis for Grade: Subjective, depending on assessment conclusions in the source document.

Table 1.2. Performance of PAN MPAs to determine SOCIOECONOMIC effectiveness (From 2019 SOE) (References from PICRC elaborated in the 2019 State of the Environment (SOE) Report.)

State (Average and Range, N=9) ¹					Grade
<i>Perceived Impact on:</i>		<i>Increased</i>	<i>No change</i>	<i>Decreased</i>	
Quality of marine environment	Average	16%	66%	7%	Fair
	Range	0-42%	25-93%	0-25%	
Abundance of fish and invertebrates	Average	15%	63%	10%	Fair
	Range	0-35%	26-94%	1-32%	
Size of fish and invertebrates	Average	13%	65%	9%	Fair
	Range	0-35%	44-94%	2-31%	
Availability of food from fish and invertebrates	Average	13%	63%	11%	Fair
	Range	0-35%	26-95%	2-31%	
Spiritual and cultural amenity	Average	8%	69%	5%	Fair
	Range	0-33%	50-95%	0-15%	
<i>Level of Agreement with:</i>		<i>Strong</i>	<i>Moderate/Little</i>	<i>None</i>	
MPA provides livelihood benefits	Average	54%	29%	8%	Good
	Range	23-92%	5-71%	1-21%	
MPA provides economic benefits	Average	60%	24%	5%	Good
	Range	25-91%	4-69%	2-14%	
MPA provides cultural/spiritual benefits	Average	48%	25%	10%	Fair
	Range	23-79%	8-71%	3-34%	
MPA provides environmental benefits	Average	67%	22%	3%	Good
	Range	23-90%	6-72%	0-8%	
MPA provides equal benefits	Average	50%	24%	15%	Fair
	Range	22-78%	9-71%	2-64%	

Effectiveness scores: 36% of Terrestrial PAs had average scores of “Good” or “Adequate.” Ecological scores have likely improved in key locations since then due to invasive species removals in the Rock Islands and Kayangel. Socio-economic performance varies wildly. Terrestrial PAs are perceived to have increased quality of the environment, spiritual and cultural amenities, size of building materials, and freshwater resources. Over 80% of respondents agree that Palau’s Terrestrial PAs provide livelihood, economic, and environmental benefits.

Impact Indicator 3: In 2019, Total land and sea area of PAN Sites was 1259.20 sq. km (1213.4 marine, 4.3 mangrove, 41.5 terrestrial). These include 21 clearly defined habitats.

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 ma-

rine 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.

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) and shorebird sites are missing from the PAN (Kayangel’s Ngeriungs and Sonsorol’s Fana Island, Peleliu Lkes IBA). There is little Limestone forest in the PAN (although protected).

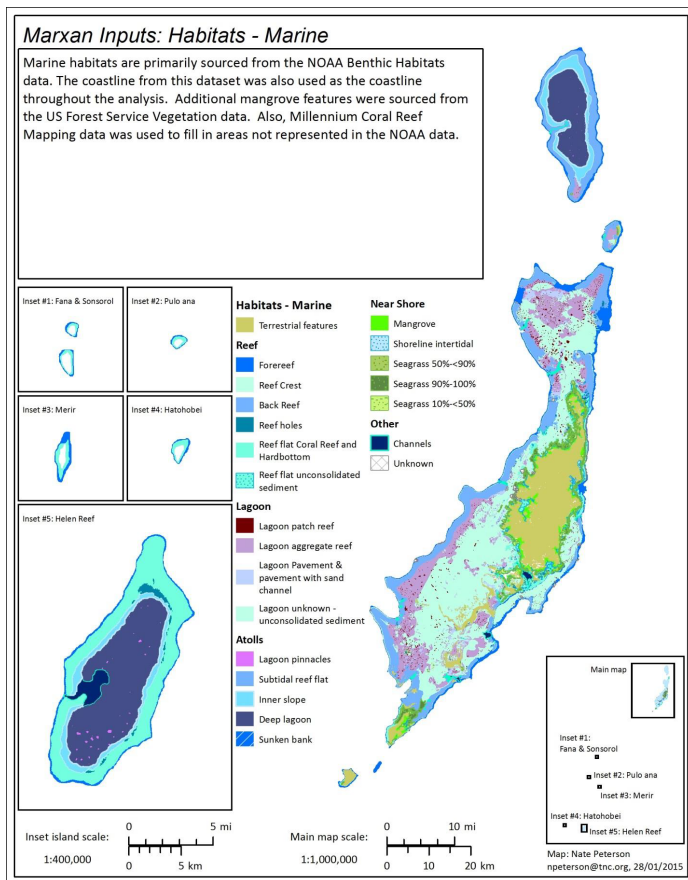
Section II: Outcome Indicators

Outcome 1.1.1: There is a significant and growing body of traditional and scientific knowledge available to inform the development of a comprehensive inventory of candidate areas in need of protection. Marine habitats have been well studied and mapped (Figure 1), design criteria

(ecological, socio-cultural, and economic) have been developed and applied (Warner-PAN Design), and important sites have been identified (Figure 2). A 2012 Ministerial Directive provides governance support for pursuing additional PAN Sites that fit the design. However, the consultative process needed to review the available science and select and prioritize candidate sites has not yet occurred. New research also continues to new data on new sites that should be protected (e.g. Mesophotic Reefs, Bumphead spawning sites). Even without an inventory, Palau continues to make progress in protecting new sites, both inside and outside the PAN; for instance after PICRC (Gouezo et al., 2016) identified low percentages of reef in no-take MPAs in the PAN, a dedicated effort led to an increase in no-take reef MPAs in PAN by 50% (from 11.2% in 2015 to 16.8% in 2019). Other desired aspects of the design have been achieved, such as connectivity between MPAs. On land, Important Bird Areas and some key forest/ endangered plant areas have been identified, but additional work is needed to fully achieve the Target.

Outcome 1.1.2: 100% of PAN Sites are governed by and managed by a formal Management Plan. To be eligible for PAN funding, these Management Plans must meet minimum criteria that includes biophysical and socioeconomic

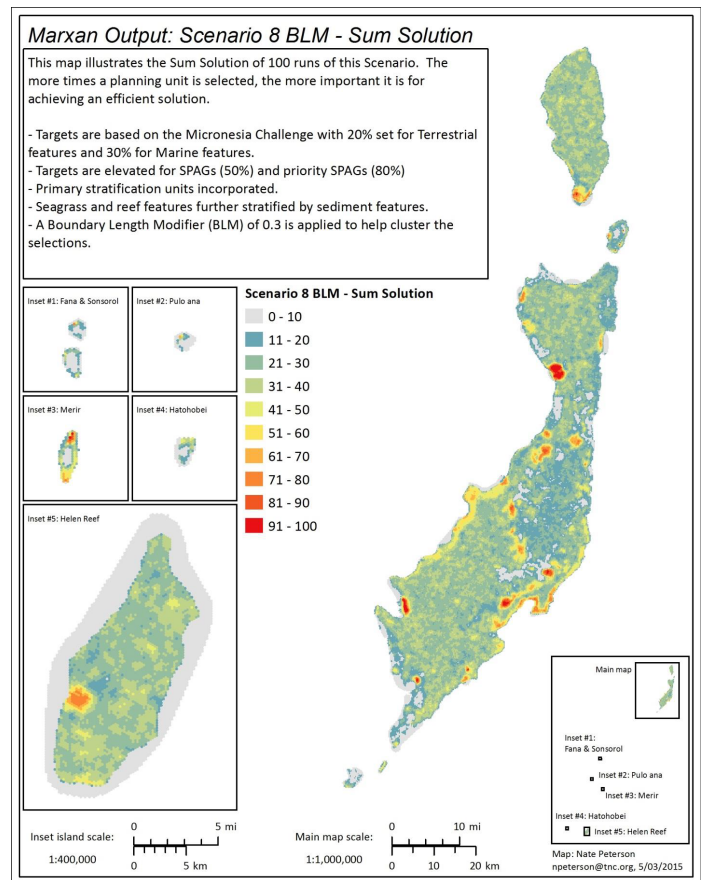
Figure 1. Example of PAN Design - Mapped Marine Habitats (From Warner - PAN Design Study)



considerations and must be in line with National Policies. However, Management Plans are generally written for 5-6 years and many have lapsed and are in need of review; a 2018 review of several Management Plans also found inconsistencies among plans (WildAid Palau PAN Assessment). The review process has started and the PAN Fund has set aside funds to support these reviews and updates (2017 PAN Fund Report).

Outcome 1.2.1 and Outcome 1.2.2: A broad 2015 study communicated the general types of information, and more importantly how that information should be presented, to facilitate decision making processes within the PAN (ANU Stakeholder Study). Thus, data needs and monitoring protocols have been developed to meet decision maker needs. Natural resource and Socio-economic data needs for MPAs have been identified and indicators for these data needs have been incorporated into monitoring, evaluation, and reporting protocols that have been adopted and implemented (MPA Monitoring Protocol). Marine resource indicators include: Reef fish, Benthic community, Invertebrates, Seagrass, Sediment, Visibility, and Temperature (Figure 3). A process for monitoring these indicators, both inside MPAs and at relevant nearby reference sites has been developed; a training program also exists to en-

Figure 2. Map showing sites that are important for achieving an effective Protected Areas Network (From Warner - PAN Design Study)



sure its application. The MPA monitoring protocol was developed over several years of field trials combined with stakeholder input, in line with development of PAN Management Plans. Socioeconomic indicators are modified from the Micronesia Challenge Socioeconomic Monitoring Plan (Micronesia Socioeconomic Plan) to focus on desired Palauan community-desired benefits (PICRC 14-05 PA Conservation Benefits). Socioeconomic indicators include: Demographics, Activities & Use, Perceived Conditions, Threats, Benefits, and Awareness. Terrestrial data needs vary widely; and most Management Plans include a unique monitoring plan for terrestrial sites (e.g. with indicators ranging from water variables to birds to extent of threats). However, progress has been made in developing widely applicable terrestrial protocols for forested sites, modified from the Forest Inventory and Analysis (FIA) Program, Pacific Northwest Research Station, USDA Forest Service (Figure 4). Indicators include: Vegetation cover (e.g. seedlings, saplings, sprouts, and DBH for trees by species), Bird diversity, Bird population, Invasive species, Fire, and Water quality. A Forest Inventory monitoring protocol has been developed and tested, but not yet adopted. A Bird Monitoring protocol has been adopted for use by the PAN. Key gaps remain in monitoring compliance and enforcement, particularly with such data being held in decentralized locations (if at all). At the national level, PAN Reporting Requirements enable tracking of key indicators such as: Employment, Assets, and Distribution and use of funds.

Outcome 1.3.1 and 1.3.2: A National PAN Management Strategy and Action Plan (PAN Strategic Plan) was adopted in 2016 and is currently being implemented. It used a Marxan Framework to develop a design for PAN (Warner -

Figure 3. Example of data collected as part of the MPA Monitoring Protocol (Benthic community) (From Gouezo et al., 2017).

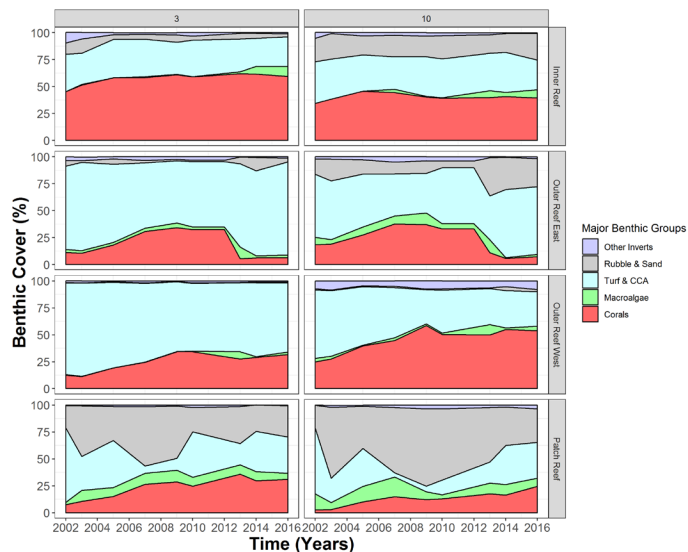
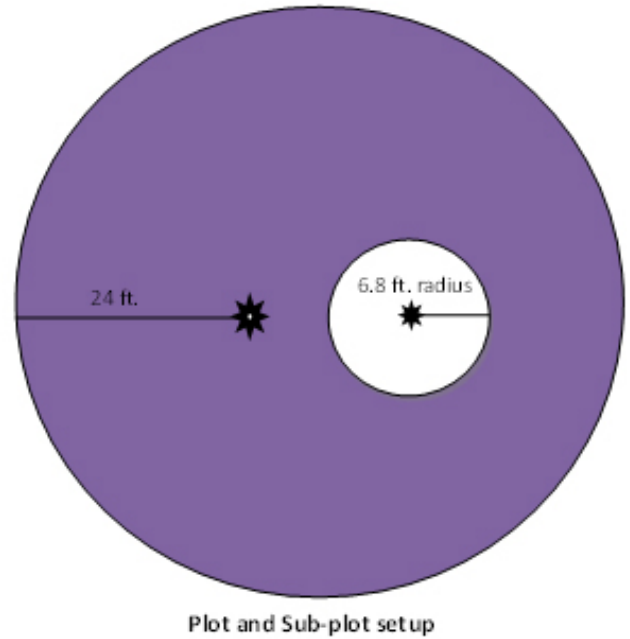


Figure 4. Example of terrestrial monitoring protocol, with directions for setting up plots within PAN sites.



PAN Design Study) that incorporated ecosystem connectivity, and built on these institutional achievements:

- Increased awareness and education on conservation and biodiversity.
- New or improved management capacity for states and communities to manage their resources, including through improved enforcement
- Establishment of common venues for collaboration, cooperation, and learning across all levels.
- Improved national economic position and created jobs, based on sustainable, non-extractive resources.
- Institutional support for management efforts by states and communities.
- New and expanded partnerships at all levels.
- Reinforced and revived community based/traditional management practices and input.
- Increased national government support to States
- Legal framework for management of biodiversity at the national level.
- Advanced Palau's international commitments and gained Palau international recognition.

Since completion of the Nationwide PAN plan, it has been used to guide the update of PAN Site Management plans so that they utilize an Ecosystem-Based Management (EBM) approach to ensure ridge-to-reef connectivity, integrate measures to address IAS, SFM, and Climate Change. Four updated site plans (for Ngardmau, Ngaraard, Ngarchelong and Kayangel) are expected to be completed by the end of 2019.

Outcome 1.4.1: All 16 of Palau’s states were engaged with the PAN in early 2019. 15 States were members, with the 16th in negotiations to become a member by June 2019. Of the 15 States with active PAN sites, only 4 have up-to-date and adopted management plans, 8 States need revised and updated plans and 3 States have draft plans that need to be formally adopted.

Outcome 1.5.1: This is the one indicator for this Target where Palau most lags. Although there have been numerous training and capacity building training sessions (ranging from tactical education to monitoring to results-based management to management), there is no single integrated management coordination and capacity building program. A 2018 assessment (WildAid Report) determine that lack of leadership and management skills was a major gap in the PAN. The PAN Office has just initiated efforts to work with partners to develop a comprehensive capacity building program for managers.

Outcome 1.6.1 and 1.6.2: The PAN Office has a communication plan and has hired a dedicated communication officer to support the Network and implement the Plan. Both the Communications Plan and the PAN System wide Strategic Plan include activities to engage communities and monitor the PAN. Monitoring programs include socioeconomic surveys implemented at the site level (see Outcomes 1.2.1 and Outcome 1.2.2) as well as Protected Areas Management Effectiveness (PAME) monitoring implemented by the PAN Office (PAN Status Report 2003-2015).

In 2016, the following indicated achievement of these outcomes, particularly the 92% of survey respondents who were aware of PAN and the 69% who participated in some way in outreach (2017 State of the Environment):

- 92% aware of PAN (See footnote)
- 92% aware of State PAs
- 86% aware of Bul
- 70% aware of PA restrictions
- 69% have seen/read/participated in PA outreach
- 43% aware of Micronesia Challenge (All above from Koshiba et al. 2016 a-e, see Footnote)
- 55% PAN Sites have socio-economic monitoring (2015 PAN Status Report)
- 78% PAN sites have Adequate to Good Stakeholder Engagement (2015 PAN Status Report)

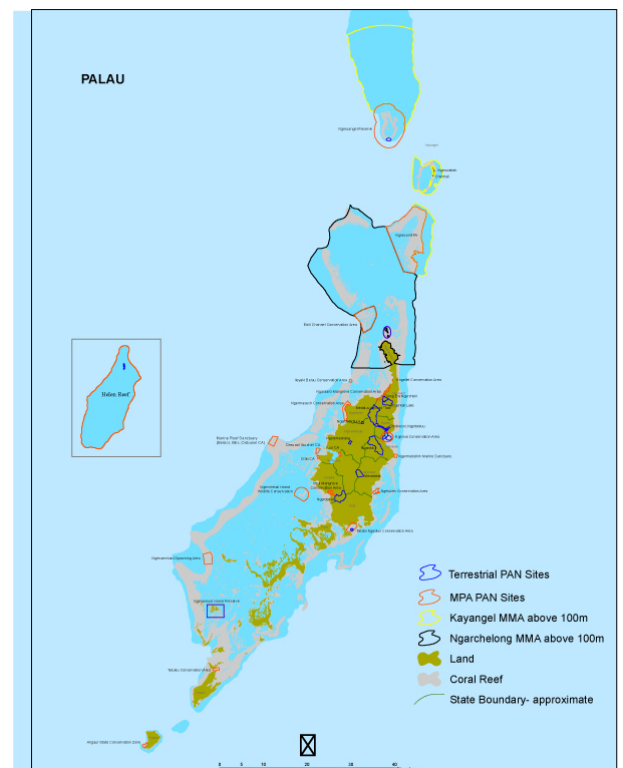
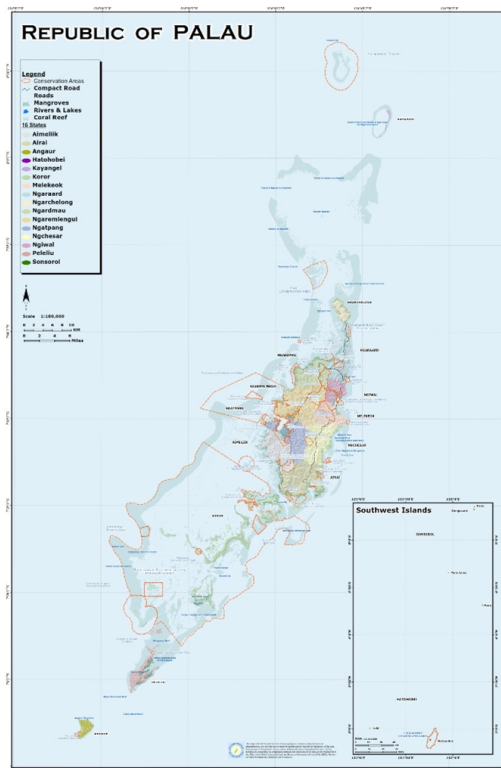
Outcomes 1.7.1 to 1.7.4: The process to review the PAN Sustainable Financing Plan began in 2018 and is still ongoing. The review and update process will enhance the existing monitoring and reporting program (which PAN Sites and States and the national PAN Office and PAN Fund already use).

Outcome 1.8.1: In 2019, 68% of Palau’s nearshore marine area was protected (Figure 5) (42% of nearshore marine areas were in the PAN (Figure 6)), far exceeding the Micronesia Challenge goal of protecting 30% of nearshore marine areas. In 2019, 23% of terrestrial area was protected (10% of terrestrial area was in the PAN), exceeding the MC goal of protecting 20% of terrestrial area).

(left): Figure 5. Map of protected nearshore marine and terrestrial areas in Palau.

(right): Figure 6. PAN Sites

Footnote: Averaged from 5 individual reports (Koshiba et al. 2016 on <http://picrc.org/picrcpage/technicalreports/>) with results of socio-economic surveys from Peleliu, Ngwal, Kayangel, Ngchesar, and Ngaraard.



Indicator(s) used in this assessment	Status
Impact Indicators	
1. Percentage of PAN sites that meet or exceed funding goals	13%
2. Total land and sea area of PAN sites that achieve satisfactory or better management assessment scores	100% of those assessed achieve at least 1 "Good or Effective" Score (678.34 sq. km); 40% achieve at least 4 "Good or Effective" Scores (195.43 sq. km)
3. Total land and sea area of PAN sites, including number and type of ecosystems/habitats represented in each site	Total area in PAN (1259.20); Total habitats (21).
Outcome Indicators	
Outcome 1.1.1 Guided by a combination of scientific and traditional knowledge, a comprehensive inventory of candidate areas in need of protection will be developed by January 2017	Almost complete - Information available but final synthesis needed.
Outcome 1.1.2. At least 75% of PAN sites are managed in accordance with state (when available) or national biodiversity conservation and resource management policies and plans by January 2018 (new protected areas expected to meet this objective within one year of formal recognition)	100%
Outcome 1.2.1. Socio-economic, natural resource and other key data needed to improve protected area management decision making process are identified by January 2017	Completed.
Outcome 1.2.2. Socio-economic, natural resource, and other key data monitoring, evaluation and reporting protocols for protected areas are established by January 2018	Completed, but with some gaps remaining to be filled.
Outcome 1.3.1. A comprehensive National PAN Management Strategy and Action Plan that integrates and complements elements of the National Sustainable Land Management Policy is developed by January 2017	Completed.
Outcome 1.3.2. National PAN Management Strategy and Action Plan is implemented by January 2018	Completed.
Outcome 1.4.1 All 16 states are engaged in PAN by June 2019	15 out of 16; on track to achieve.
Outcome 1.5.1. PAN management coordination and capacity development program is developed and implemented by January 2017	Behind, not on track to achieve.
Outcome 1.6.1. A communication strategy for building awareness and promoting engagement in PAN is developed by January 2017 and implemented by 2018	Completed.
Outcome 1.6.2. Develop strategy to engage communities in management and monitoring of PAN (drawing upon data collected in Activity 7.1.1a), including methods to track community participation	Completed.
Outcome 1.7.1. By 2017, PAN sustainable financing plan is reviewed and updated, including expected distribution of funds to support PAN programs	Ongoing, on track.
Outcome 1.7.2. A monitoring program for the PAN sustainable financing plan is designed and incorporated into the sustainable financing plan by January 2017	Ongoing, on track.
Outcome 1.7.3. The monitoring and reporting program for the PAN sustainable financing plan is implemented by January 2018	Ongoing, on track.
Outcome 1.7.4. By 2019, an assessment report evaluating the updated PAN Sustainable Financing Plan is created	Ongoing, on track.
Outcome 1.8.1. Micronesia Challenge goals (20% of terrestrial area and 30% of marine area are part of effectively managed PA's) are achieved by 2020	100% achieved for extent by square area; Increasing scores for Effectiveness; on track.

Any other tools or means used for assessing progress

Key tools used here include the PAME (Protected Areas Management Effectiveness) Assessment Protocols, the PAN/Micronesia Challenge Monitoring tools (Marine, Terrestrial, and Socio-economic), and GIS Data tracked by PALARIS. Published and unpublished studies used to make the assessment are listed below.

Level of confidence of the above assessment

Based on comprehensive indicator information

This target is monitored by a number of local, regional, and international organizations with strong scientific expertise. As one of Palau's priority conservation initiatives, significant funding is available to support monitoring. The majority of reports used to support the assessment have been peer reviewed and/or published.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

There is biophysical and socioeconomic monitoring for marine and terrestrial protected areas as well as birds and select species. Specific protocols dictate methods and frequency.



Palau's 6th National Report to the Convention on Biological Diversity, December 2019

TARGET 2:

Maintain healthy populations of key species and their habitats

Rate of progresses toward the implementation of the selected target



May 1, 2019:

Progress towards target but at an insufficient rate

Summary of the assessment of progresses toward the implementation of the selected target

Palau recognized a gap in species management more than a decade ago and has made significant progress in addressing specific species needs when compared to that baseline. Plants have been well studied, with endemism and range now better understood. Fish and Birds are well studied and understood. Knowledge increases daily for other vertebrates and invertebrates.

However, much more progress is needed to stabilize and protect species populations, both inside and outside protected areas. Palau is making good progress in assessing species, and will exceed its goal to update its Endangered Species Act (ESA) List. This is a key achievement in order to enable policy change. However, many species are declining and are without species-specific action plans.

Narrative description by indicator

Section 1: Impact Indicators

Impact Indicator 1: Key biodiversity indicator species have not been well defined, except for birds. Birds are an indicator for terrestrial and shoreline health, with specific indicator species selected for forest (Micronesian Imperial Pigeon, Palau Fruit Dove) and seagrass/shoreline habitats (Rufous Night Heron). Other species or groups of animals are monitored regularly within Protected Areas because of their importance economically, ecologically, and socially (e.g. coral, jellyfish, trochus, sea cucumbers, giant clams, forests), or because they are known species of concern (dugong, sea turtles, bats, Micronesian Megapodes, Palau Ground Doves).

Monitoring programs vary in their frequency; most marine species are monitored regularly, but many are only studied opportunistically. The following information is from the 2019 State of the Environment (2019 SOE) Report:

- Coral species appear to be healthy and diverse in most locations, except for Palau's East Coast where reefs

are still recovering from typhoons in 2012 and 2013. STABLE or IMPROVED.

- Jellyfish in Ongeim'l Tketau are recovering, with approximately 1,000,000 medusae at the end of 2018. STABLE and IMPROVED
- Bird Diversity is STABLE. (Figure 1). (State of Bird Reports, 2011-2017)
- There is no clear trend for Micronesian Imperial Pigeon, which may or may not have started to recover, but which certainly has a much smaller population than in the past. UNKNOWN. (Figure 2)
- Palau Fruit Dove and Micronesian Megapode (Figure 3) appear to have INCREASED.
- Rufous Night Heron and Palau Ground Dove appear to have DECREASED.
- Plants have been assessed recently, and many are now known to be threatened due to small range and small population size. STABLE OR DECREASED. 17 Plant species have been proposed for inclusion on the Palau Endangered Species Act (ESA) List.
- Commercially Important Fish Species have been stable in inner and patch reefs, but declining on outer reefs (through 2016). DECREASED. (Figure 4)
- Trochus declined on reefs through 2016. DECREASED.
- Giant Clams decreased on outer reefs and had low abundances everywhere else. DECREASED.
- Sea Cucumber stocks were low in most locations in 2012-2014. DECREASED.
- There is little information on Sea Turtles. Impacts from climate change suggest that populations may be declining and there is still known poaching. UNKNOWN.
- There is no known new population estimate for Dugong, but it is still very small (~200 individuals). UNKNOWN.
- There is no new information on bats. UNKNOWN.

Figure 1. Bird Diversity is stable (From 2019 SOE).

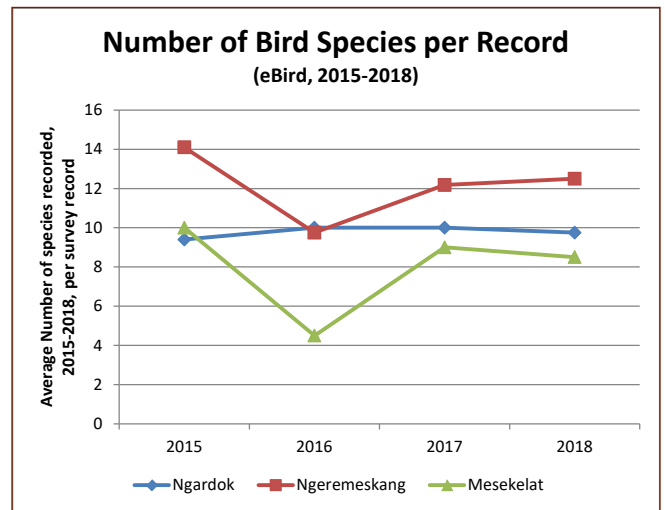


Figure 3. The Micronesian Megapode population appeared to increase (From 2019 SOE).

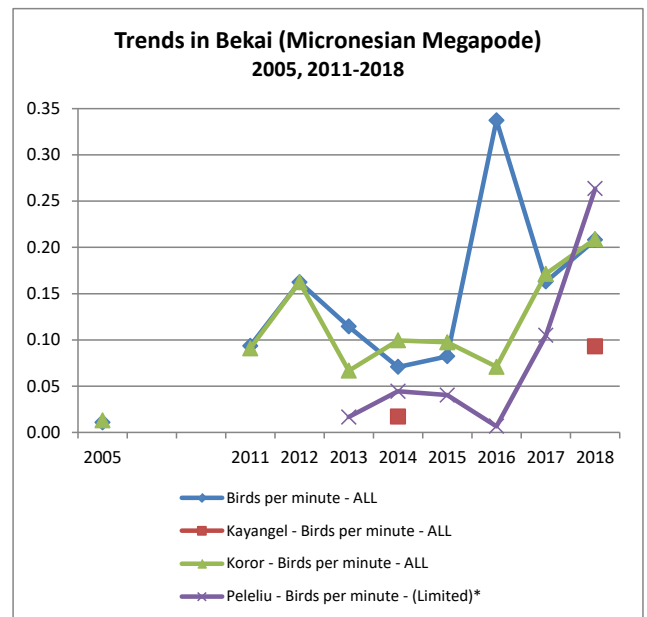


Figure 2. There is no clear trend for Micronesian Imperial Pigeon (From 2019 SOE).

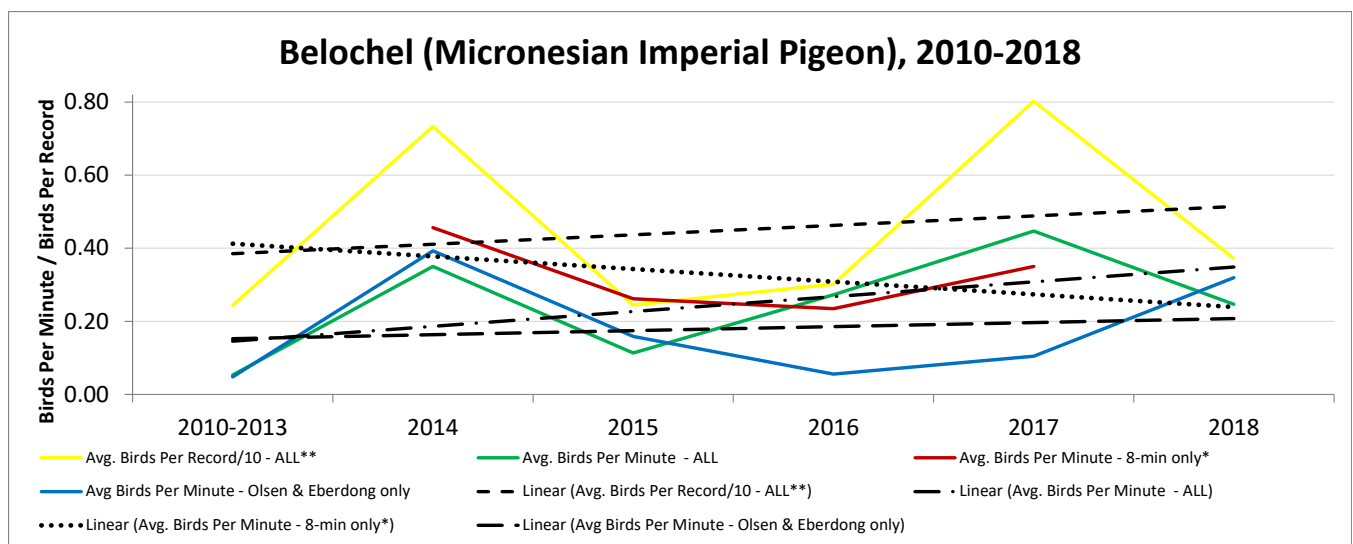
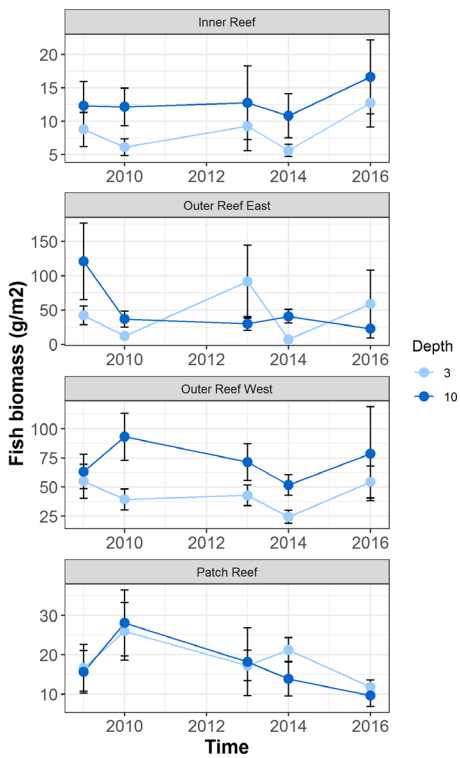
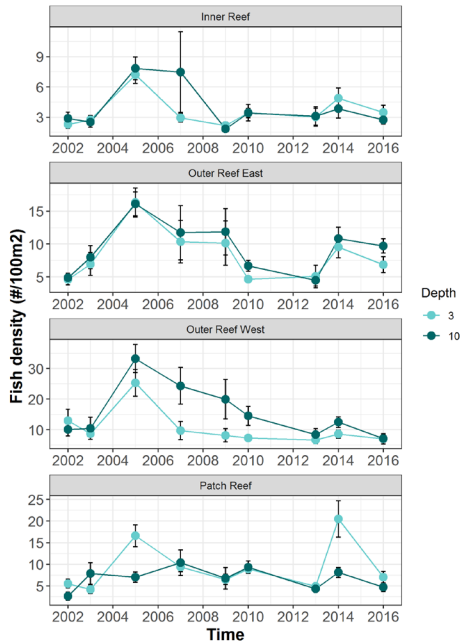


Figure 4. Some species of Commercially Important Fish in certain locations decreased in biomass and abundance. Data from PICRC, and is limited to a subset of specific commercially important fish in a limited set of locations. (From Gouezo et al., 2017).



Impact Indicator 2: There is little information on species range, per se. Instead, habitats and environmental conditions are monitored as a proxy. Habitats for many key species (not officially defined, but see Impact Indicator 1 for species of interest) have improved, with the exception of seagrass. However, no clear study has examined the extent of range for species. However, little of the habitat expansion has been due to active management, but rather due to natural growth.

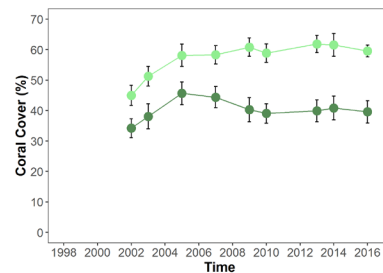
- Live Coral Cover INCREASED through 2016. (Figure 5)
- Upland Forest extent INCREASED on Babeldaob through 2005 (Figure 6), and possibly through 2015. However, forest decreased elsewhere (Koror, Kayangel, Peleliu, and Angaur), at least through 2005.
- The amount of barren land and disturbed forest (including damaged trees) INCREASED.
- Mangrove extent appeared to INCREASE (low confidence; there is significant concern over possible declines in recent years and the spatial data on mangroves has many inconsistencies).
- Seagrass habitats DECREASED in 2012 and 2013, and had not yet recovered by 2015. (Figure 7).

Section II. Outcome Indicators

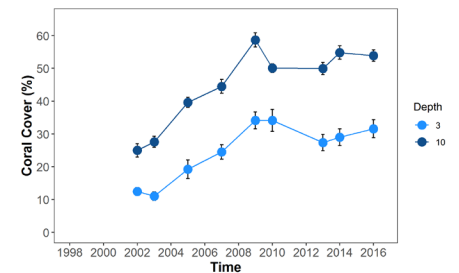
Outcomes 2.1.1 and 2.2.1: An updated (draft) Endangered Species Act (ESA) List includes the best available information on species status, based on data or expert opinion. There have been many species inventory efforts, but that work is neither taxonomically comprehensive nor spatially extensive. Marine species (fish, corals, invertebrates) have been inventoried (Colin 2009, CRRF website) and new discoveries are shared (PICRC 2016, Olsen 2009 Reef Ant). Plant inventories have progressed well (e.g. Checklist of Vascular Species; Native Trees (Kitalong et al. 2008)) and high priority species have been mapped and assessed for endemism and threat (Costion and Kitalong 2010; Costion 2011; Costion

Figure 5. Live Coral Cover over time, by location and depth (3 m and 10 m). Coral Cover increased everywhere except the East Coast. (From Gouezo et al., 2017).

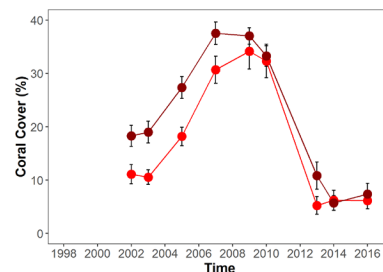
Inner Bay Reefs



Western Outer Reefs



Eastern Outer Reefs



Patch Reefs

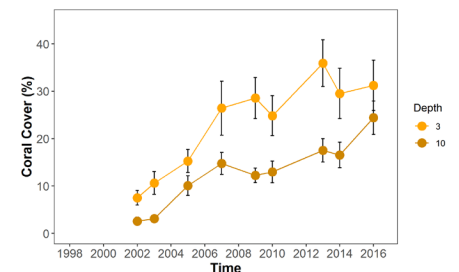
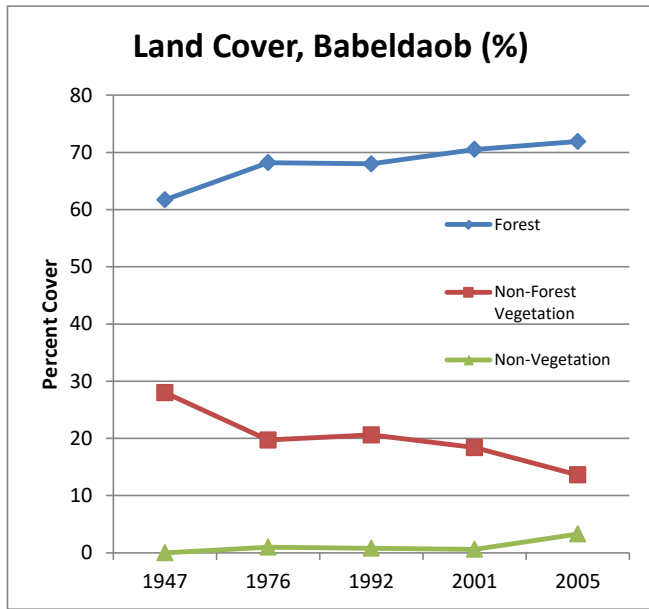


Figure 6. Forest cover increased on Babeldaob, with high confidence through 2005. (Data from Collins et al., 2015)



2013). The conservation status (e.g. area or population under management or in protected areas) is known for the rarest plants (Costion 2013). Birds have been well inventoried and there is an authority on Palau Bird Checklist (Palau Bird Records Committee, PBRC) which has published an authoritative list of birds (Otobed et al. 2018 in Western Birds). Birds are monitored regularly, but data is not adequate for determining population. Conservation Status is not well known for most birds (except megapodes (Olsen et al 2016 - Megapode)). Outside of the ESA List, conservation priority has not been well defined. Some species are notable gaps, including bats, terrestrial invertebrates and small vertebrates (reptiles), and marine species outside of coral reefs. The 2019 State of the Environment Report compiled

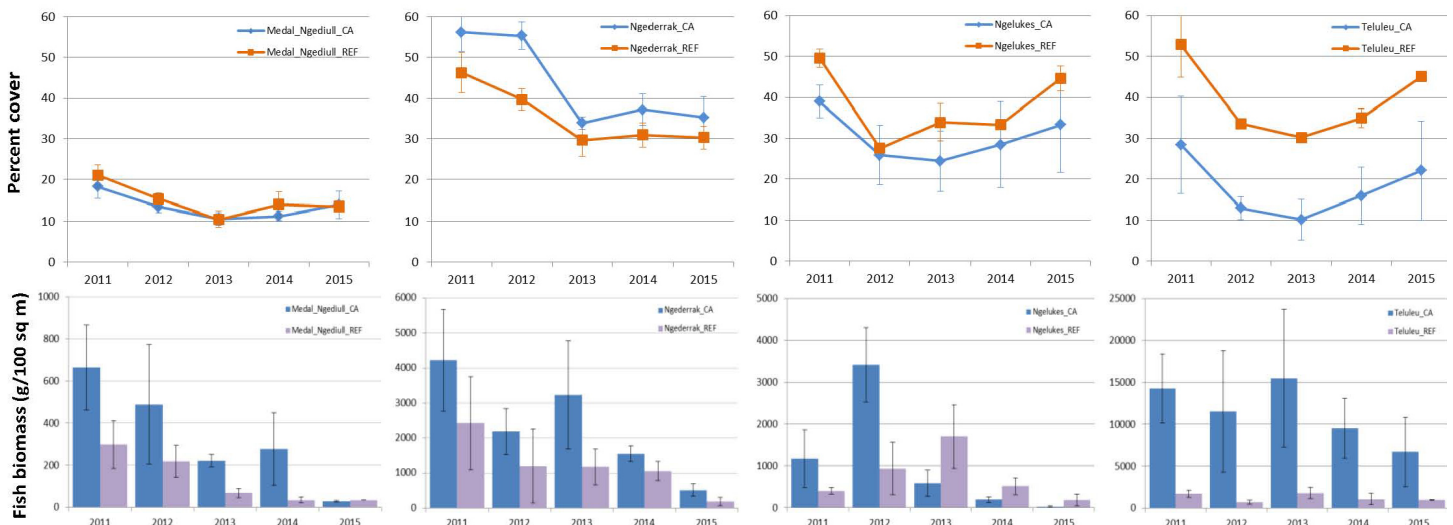
as much species information as possible and where possible determined Condition (e.g. population status), Trend, and Grade (human response). The report addressed nearly all of the known high priority species (Corals (as a group), fish (certain commercially important species), edible macroinvertebrates, birds, plants (general forest health). Bats were not assessed. Habitat diversity has been catalogued (Colin 2009, Olsen Encyclopedia of Palau).

Conservation needs in terms of protected areas have been assessed for many species. Important Bird Areas have been identified and updated (BirdLife Website, State of Birds 2016). Significant effort has been put into identifying needs for shorebirds, plus advocating for the protection of those areas (Legacy of the Northern Peleliu Lkes). Minimum thresholds for habitat stability, with some attention to needs of specific species have been proposed and updated (TNC ERA 2007 and Warner PAN Design) using a Marxan Framework.

Outcome 2.3.1: There is no National strategy and action plan addressing multiple species needs. There are some individual species plans (e.g. Micronesian Megapodes), although these are not managed at the National Level. There is National Legislation that protects species, such as the Protected Land Life Act which protects most birds, a strict Dugong Law that prohibits all takings, and Moratoria on harvesting Hawksbill Sea Turtles, Napoleon Wrasses, and Bumphead Parrotfish.

Outcome 2.3.2: Palau is behind on developing appropriate and specific management strategies that emphasize ecosystem based conservation, and those plans that do exist are based on habitats or ecosystems and are not species-driven. Certain Protected Areas have focused on larger areas with ecosystem connectivity, including the Northern Reefs.

Figure 7. Seagrass cover decreased (with recovery in only some locations) (From Mereb et al. 2016).



CASE STUDY:

Shorebirds and the Northern Peleliu Lkes Important Bird Area

The Northern Peleliu Lkes is an Important Bird Area (IBA) that is an intertidal zone whose size, natural features and biodiversity render it a highly productive, sensitive and rare habitat. This habitat and the number and assemblages of birds associated with it, is unique in Palau and the Micronesia region. As a wintering and stop-over site, the Northern Peleliu Lkes is vitally important to the life cycle of migratory shorebirds in the East Asian Australasian Flyway (EAAF). Monitoring data from the Lkes IBA documents 3,700 shorebirds comprising 26 different species, 4 of which are globally endangered (IUCN 2015), 5 globally Near-Threatened species, and an additional 4 from subspecies populations prioritized for conservation by the East Asian-Australasian Flyway Partnership (EAAFP). The Lkes IBA is a site that is critical in ensuring the survival of a large number of migratory shorebirds that utilize the EAAF. Because of its ecological value the Lkes IBA is ideally suited for inclusion into the Palau Protected Areas Network (PAN). To date it is not a member of the Palau PAN.



In the Northern Reefs, the ecosystem approach includes efforts to set up a system of open and closed area, manage the location, times, and extent of fishing pressures, put limits on fish size, and encourage responsible fishing (SPC Northern Reef Fisheries; Bigue & Rosario WildAid Assessment). Koror State's Rock Island Southern Lagoon is similarly managed from an ecosystem perspective to protect habitats, species, cultural resources, and functionality (RISL World Heritage Dossier). Several Terrestrial Protected Areas were established with an ecosystem perspective, both to protect water resources at their source, but also to maintain biodiversity from ridge to reef. The Belau Watershed Alliance (BWA) Action Plan 2018-2022 also take an ecosystem approach to watershed management, but is not species-driven. An extensive Ridge to Reef educational program that reaches all 5th graders in the country focuses explicitly on ecosystem-based conservation approaches (R2R Student and Teacher Books).

Any other tools or means used for assessing progress.

Expert opinion has played a key role in determining species trends, both for the ESA List and for the 2019 State of the Environment Report. Given that Palau is such a small country (geographically), expert opinion can be wide-ranging and is a good stand in when monitoring or research data is not available.

The Palau Conservation Consortium is a group of Natural Resource Managers from the government, nonprofit, and business sectors who meet to discuss pressing conservation issues, coordinate responses, identify problems and solutions, and agree on desired outcomes. Although not a policy body, it does influence the respective actions of individual's agencies. The Consortium discussed this outcome and identified the appropriate level of progress.

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

For some species there is excellent data (e.g. marine, jellyfish, marine habitats) and for others there is good data and expert opinion. Scientific capabilities in Palau are high and both citizen scientists and full-time scientists are training in monitoring methods. The State of the Environment Report (with species status) was widely reviewed.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

Birds are monitored via the National Program for Monitoring Forest and Coastal Birds (PBRC Briefing, Olsen-Eberdong 2009 Ngeremeskang) using key indicator species (Olsen-Eberdong 2014 Rufous) and in key locations (Horii reports). Marine habitats are monitored using a rigorous and repeated protocol by PICRC, following PAN and Micronesia Challenge protocols (and more). Forest monitoring follows the United States Forest Service Forest Inventory and Analysis (FIA).

Indicator(s) used in this assessment	Status
Impact Indicators	
1. Populations of key biodiversity indicator species show stable or improving trends relative to current (baseline) conditions in existing ranges.	Key Biodiversity Indicator Species not yet defined, although significant progress being made. New Endangered Species Act List has been proposed. Of those groups of species or species that were discussed, 4 were increasing or stable, 6 were decreasing, and 4 had inadequate information.
2. Ranges of key biodiversity indicator species remain stable or expand relative to current (baseline) conditions.	There is not enough information to address range. Of the habitats discussed here, 4 had increased in extent, 1 had declined.
Outcome Indicators	
Outcome 2.1.1. A comprehensive inventory of Palau's biodiversity including species conservation status and conservation priority is developed by January 2017.	Behind, but significant work has been completed and many species groups have been inventoried.
Outcome 2.2.1. Status of high priority species (ie. Corals, fish, edible macroinvertebrates, bats, birds, plants, etc.) and key habitats are assessed by January 2018.	Behind. Status of species in particular is behind, but status of habitats is progressing well. New ESA List addresses species and is progressing.
Outcome 2.3.1. A national strategy and action plan for protecting and conserving vulnerable and endangered species emphasizing ecosystem based conservation approaches (ie Ridge to Reef, IWRM, Ecosystem Approach to Fisheries, etc.) is created by 2017.	Behind, with no National species-based plans. There is some National Legislation that applies, but few species Action Plans.
Outcome 2.3.2. Appropriate and specific management strategies emphasizing ecosystem based conservation approaches (ie Ridge to Reef, IWRM, Ecosystem Approach to Fisheries, etc.) are developed for at least 50% of high priority species by January 2018.	Behind. There are many ecosystem-based plans and approaches, but few are species-driven. Certain Protected Areas emphasize ecosystem connectivity.

TARGET 3: Protect Palau's biological diversity from negative impacts of invasive species and Living Modified Organisms (LMOs) through prevention, mitigation, and management

Rate of progresses toward the implementation of the selected target



May 9, 2019:
Progress towards target but at an insufficient rate

Summary of the assessment of progresses toward the implementation of the selected target

Although there are still gaps and the risks from Invasive Alien Species (IAS) are high, Palau appears to be holding that level of threat steady through improved IAS management.

Narrative description by indicator

Section I. Impact Indicators

Impact Indicator 1: There is no official list of IAS, but experts are aware of Introduced and Invasive Species in Palau and their level of risk (Paradise of Nature Chapters 9 & 10). Thus it is not possible to track the number of targeted invasive species that have been eradicated, controlled, or otherwise effectively managed. In the marine environment there are at least 22 known marine invasive species (Colin 2009), many of which have become established and cannot be eliminated. Other than Tilapia fish, which are thought to have been eradicated in the early 2000s, there have not been targeted efforts to control the spread of marine invasives. On land, priority IAS are known, but their geographical extent is not known. Priority species include: mammals (Macaques, Rats), birds (Cockatoos, parrots, sparrows), many invertebrates (Coconut rhinoceros beetles, hornworms, fruit flies, African snails, Croton caterpillars), and many plants (vines and grasses), plus frogs and microorganisms. Some species are controlled to specific locations (Cogon grass is being limited to areas near the airport; Macaques are being limited to Angaur). Asian Cycad Scale appears to be well controlled. Other plants, such as Mikania and Merremia vines, are the subject of ongoing removal efforts; these efforts cannot keep up with the rate of spread. In certain locations, IAS have been eradicated,

such as rats on outer atolls and in small islands in the Rock Islands, and are being monitored to prevent reintroductions. As part of its GEF6-funded National Project (2018-2026), Palau is implementing extensive actions to map, identify pathways, control, prevent, and eradicate IAS. Given the language of the indicator, in early 2019 there were 3 targeted IAS that were eradicated, controlled, or otherwise effectively managed nationwide (Tilapia, Asian Cycad Scale, Cogon Grass).

Impact Indicator 2: A National Biosecurity Act governs borders, imports, exports, quarantine, and spread at the National Level. Palau's Biosecurity Office and Bureau of Agriculture follow Best Practices for IAS management. However, zero (0) other agencies have adopted specific mechanisms to prevent or control IAS and LMOs as distinct agency policy (with LMOs being a distinct gap). This is part of a biodiversity mainstreaming effort being implemented as part of the GEF6 National Project.

Section II. Outcome Indicators

Outcome 3.1.1: Palau is making good progress in developing a framework for IAS management, with passage of a National Biosecurity Act in 2016 and completion of a new National Invasive Species Strategy and Action Plan (NISSAP) in 2018 (it has not yet been adopted). Palau has a Biosecurity Office and a National Invasive Species Committee (NISC website). The NISC has a Coordinator (paid with grant money) and under GEF6 Palau will support the NISC Committee to an office. The NISC coordinates IAS management among various conservation entities. There is infrastructure and policies and practices are in place to control

the limited entry and exit points (via the Airport and Port inspection and quarantine facilities) although there are still gaps. Capacity to catch an introduction improves on a regular basis. The GEF6 Project will enable the installation of significantly more infrastructure (e.g. scanners and X-ray machines). A Regional Biosecurity Plan for Hawaii and Micronesia also applies and is implemented to some extent. Although capacity development in addressed minimally in the NISSAP, there is no specific strategy for capacity development at any level (e.g. Coordinator, Biosecurity Officers, Community, etc.). Biosecurity Officers have been targeted for training opportunistically.

Outcome 3.2.1: Resources to support the NISSAP and NISC were secured in 2018 via the GEF6 Project. Funding from the project will act as a catalyst to secure additional resources (both financial and technical) via capacity development and by creation of a Cost Recovery System. Fully funding the NISSAP over the next five years is estimated to cost at least \$4.5 million (with an additional \$5 million if macaques are to be eradicated). The amount secured through GEF6 as a catalyst specifically for IAS is around \$1.2 million (given numerous shared personnel resources). A Coordinator for the GEF6 has been hired and an office created. In addition, the Regional Invasive Species Coordinator is also sited in Palau (but addresses Micronesia-wide IAS issues) but is a technical resource.

Outcome 3.2.2: The NISSAP has not yet been adopted, but is already being implemented.

Outcome 3.2.3: Given that Palau has not yet inventoried its IAS and LMOs and their extent and spread, it is thus

Figure 1. Significant community-based volunteer effort goes into IAS plant removal.



Figure 2. Community-based efforts to remove *Merremia Peltata*.



Figure 3. Invasive plant removal area, in a location with biodiversity, cultural, and agricultural importance.



behind in developing mechanisms to prevent introduction, establishment, and spread of new IAS. The GEF6 Project will create an Early Detection and Rapid Response system, with effective communications and reporting channels. Mainstreaming efforts (combined with Policy Directives) will also seek to reduce introductions by focusing on native and non-invasive/low-risk plants and animals (e.g. in agriculture, imports, landscaping, construction, etc.). A Protocol for Detecting Invasive Plants in Palau's Terrestrial Areas has been developed and is being implemented in some locations. There is regular monitoring of locations where rats have been eradicated, and methods are in place to address a reinvasion.

Outcome 3.2.4: Palau's government and especially communities (Figure 1) have put in significant effort into IAS removal and control, and it appears that this is holding the threat of IAS steady (rather than allowing the threat to grow). Rats have been eradicated on some islands in Kayangel, the Southwest Islands, and the Rock Islands. In those places, it appears that agricultural production has increased and endangered Micronesian Megapode populations are either steady or increasing (Island Conservation video: <https://www.islandconservation.org/palau/>). A 2017-2018 Kebeas Control Project supported the removal of the vine in several states throughout Palau. Over 6 days in 2017, volunteers and employees removed at least 24.7 ha (0.24 km²) of Kebeas. This consisted of 8.9 ha in Ngche-

sar, 12 ha in Melekeok, and 3.8 ha in Airai. A section in Ngaraard was also cleared. The level of effort (for Ngchesar, Melekeok, and Airai) was 73 person-days (~0.33 ha/person/day). In 2018 another 0.16 ha was cleared in Ngkeklau (Ngaraard) and 13.5 ha in Ngardmau. Additional areas on Babeldaob and Koror are targeted for 2019. In some cases the removal of the invasive vine opened up taro patches and agro-forest areas for renewed cultivation.

Outcome Indicator 3.3.1: There has been no action on establishing a national framework to manage LMOs in accordance with the Cartagena Protocol.

Outcome Indicator 3.4.1: Palau is on track to ensuring cross-sector support and compliance with IAS management and practices. This is apparent from communities all the way through to National Government. At the community level, Protected Areas in the Palau Protected Areas Network (PAN) are redesigning Management Plans to include IAS; this requires strong community agreement and support for field activities (Figure 3). With the hiring of the IAS coordinator and operationalizing of the NISC Office, an active National Environmental Protection Council (comprised of Government Heads), and sites and agencies integrating IAS strategies into their program of work, Palau has the pieces in place to collaborate across state and national agencies in a coordinated fashion.

Indicator(s) used in this assessment	Status
Impact Indicators	
1. Number of target invasive species determined to be eradicated, controlled, or otherwise effectively managed.	Unclear, possibly 3.
2. Number of government agencies that have adopted mechanisms to prevent introductions or release of alien species or LMOs.	Unclear, possibly 2. Zero for addressing LMOs.
Outcome Indicators	
Outcome 3.1.1. A framework and capacity development strategy for the management and prevention of colonization by invasive species is developed by January 2017.	Behind, but progressing. Most pieces of Framework are in place, less for capacity development strategy.
Outcome 3.2.1. Resources to support Palau's National Invasive Species Strategic Action Plan (NISSAP) are secured by January 2018.	Catalyst funds secured.
Outcome 3.2.2. NISSAP is implemented by January 2019.	On track.
Outcome 3.2.3. Mechanisms to prevent introduction and establishment of new invasive species are established by January 2019.	Behind, GEF6 will address many of these issues.
Outcome 3.2.4. Impacts of existing invasive species are reduced by 2020.	Significant effort has led to some clear reduced negative impacts in limited locations.
Outcome 3.3.1. A national framework to manage LMOs in accordance with the Cartagena Protocol is established by January 2019.	Behind, no progress on LMOs.
Outcome 3.4.1. Cross-sectoral support of and compliance with the appropriate management of invasive species is improved by 2020.	On track and progressing well.

Any other tools or means used for assessing progress.

The GEF6 Project began in October 2018. This Target will be addressed more fully when the GEF6 Project is more operational. The GEF6 Project Document has a full Results Framework with baselines and indicators, and those indicators will be used to judge the effectiveness of IAS activities through 2024. Baselines established there included Capacity Scores for Biosecurity and level of integration into protected areas.

Level of confidence of the above assessment

Based on expert opinion

Impact Indicators have little quantitative information available. Process indicators are best understood by the experts implementing the relevant projects.

Adequacy of monitoring information to support assessment

No monitoring system in place

TARGET 4:

Integrate biodiversity conservation and ecosystem services into Palau's sustainable development goals

Rate of progresses toward the implementation of the selected target



May 9, 2019:

On track to achieve target

Summary of the assessment of progresses toward the implementation of the selected target

Environmental considerations are integrated into new policies, laws, regulations, and plans. There is need for an overarching framework to ensure that the environment and biodiversity is mainstreamed and consistent.

Narrative description by indicator

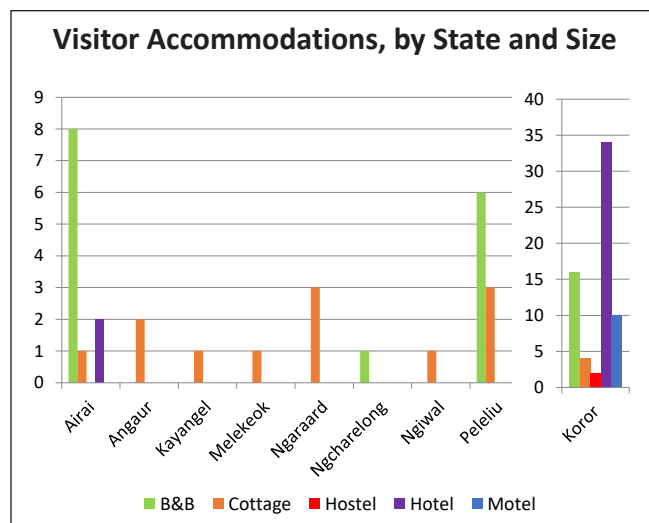
Section I. Impact Indicators

Indicator 1: At the National Policy level, Palau has consistently integrated biodiversity, environmental protection, and maintenance of ecosystem services to principles and values, across sectors. While there is no single National Sustainable Development Plan that pulls all of the various

policies together; the existence of cross-sector coordination bodies and structures (e.g. the National Environmental Protection Council, the Conservation Consortium) and Palau’s dedication to participatory and consensus decision making while drafting National Policies has led to the general alignment between policies. Inconsistencies between policies and practices (e.g. import laws, and foreign investment permits are not aligned with biosecurity policies yet), the 2018-2024 GEF6 Project will review and align policies and legislation and mainstream common goals.

Of particular importance is the adoption of the Palau Responsible Tourism Policy Framework, which outlines goals for growth in the tourism sector that is compatible with conservation of natural resources and maintains and enhances cultural and societal benefits. Given that tourism is Palau’s number one industry, the Responsible Tourism Framework has far-reaching impacts on all aspects of Sustainable Development. The majority of hotel accommodation growth, for instance, in recent years has been smaller/niche properties that are more in line with the low-impact goals of the Responsible Tourism Framework (Figure 1). Palau’s 2015 “Food Policy” (Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure) was drafted with the explicit cornerstone of “Natural capital: healthy ecosystems and functional ecosystem services.” Palau’ 2015 Climate Change Policy, which applies broadly across all sectors (economic, infrastructure, education, society, health, services) that uses as a guiding principle the protection and maintenance of Palau’s primary carbon sinks (coral reefs, marine resources, and forests). Other national policies that have been recently developed and reviewed include the 2012 Sustainable Land Management (SLM) Policy and the proposed 2018 Sustainable Forest Management (SFM) Policy, all of which include policy directives to maintain natural resources and ecosystem services. Palau 2010 Energy Policy Vision includes “Maximizing cost-effective energy efficiency and renewable energy resources and conservation of energy while safeguarding our environment” and the 2012 National Water Policy includes the explicit principle that “Palau’s water resources should be managed in ways that incorporate environmental...sustainability. This means that Palau’s waters are managed in ways that will continue to support healthy ecosystems.” National Laws mandate many of these policies and principles: The Biosecurity Act seeks to maintain Palau’s biodiversity and functioning ecosystems, and the Palau National Marine Sanctuary (PNMS) Act seeks to maintain offshore and nearshore fishery resources, both for food and for biodiversity. The Palau 2020 Master Plan has not yet been updated.

Figure 1. Hotel growth since 2012, where the majority of hotel growth outside of Koror has been smaller or niche properties with lower negative cultural and environmental impact (than large-scale resorts) (From 2019 SOE)



Indicator 2: This information is presented as a Baseline. The Palau GEF6 Project will improve mainstreaming across National Policies. According to a 2006 National Assessment Report, the 2020 Palau Master Plan Development Plan (prepared in 1996) Goals include 2 of 6 goals that addressed conservation of biodiversity or protection of sustainable ecosystems in some way (#1 and #5; thus 40%):

1. Increased economic growth per capita on a sustainable basis;
2. Sharing the benefit of economic growth on an equitable basis to all different economic sectors,
3. Establishing a planning framework for future expenditures;
4. Cooperating with foreign interests to establish genuine stakeholder development, and
5. Incorporating Palauan development priorities within the global environment to enhance the national environment.

Both in Palau and on the international stage, almost every statement made by top leadership on development or global impact in Palau makes reference to environmental protection.

Indicator 3: There is not enough information to determine what the current level of economic incentives (or disincentives such as fees and fines) are for conserving biodiversity. However, progress on the Indicator is occurring. In 2013 Palau amended its “Dugong Protection Act RPPL 8-57” to make the penalty for killing or causing injury to a dugong or possessing or selling any dugong parts or products as high as \$25,000. A similar 2017 law to prohibit takings of

Hawksbill Sea Turtles provided for fines up to \$10,000. Voluntary Programs such as participation by dive operators in the Green Fins Program (Figure 2) and participation of Fishers in the Northern Reef Fishing Cooperative and the Ebiil Society's REAL Fisherman Sustainable Fishing/Restaurant Program (Ebiil Society website) enable fair pricing and come with positive promotions and advertising as eco-friendly ventures. More work is needed to examine pricing, fees, fines, taxes, and other financial and permitting instruments; GEF6 will touch on some of this.

Section II. Outcome Indicators

Outcome 4.1.1: Palau ratified the Nagoya on Access and Benefit Sharing (ABS) on June 13, 2018. Palau also passed a National "ABS" Law to create a national framework for ABS in August 2018. Development of ABS regulations is underway, and is in stakeholder consultations.

Outcomes 4.2.1 and 4.2.2: There have been a number of studies on decision-making that lay the foundation for improving decision-making via access to tools and scientific information (Carlisle and Gruby Fisheries Governance; ANU Stakeholder Report). These studies provided written evidence for what is commonly known: that decision-makers have a complex web of interrelationships in which they make semi-autonomous and consensual decisions. Thus, for these outcomes to be sufficient, information must be presented in such a way that it supports community and paths to consensus or relationships, offers multiple options for compromise and coordination, and are linked to credible people (culturally and scientifically) who were practical experts. Thus these outcomes focus on both provision of information but also the process by which decisions are made. For instance, tools recently introduced into the decision-

Figure 2. Green Fins Palau is a voluntary program that builds greater awareness and adoption of Responsible tourism principles and behaviors in the tourism industry and the community; with active Palau Green Fins members practicing environmental standards to minimize their impacts to the marine environment.



making matrix includes more objective State of the Environment Reports (SOE 2017 and 2019) in conjunction with a community-based National Environment Symposium (2016 Symposium Report). A Lesson learned from successive iterations of these reports is to highlight the human factor (both the people behind the data and the societal implications). Many tools provided to decision-makers also are visual (PAN Fund Report). National research bodies such as PICRC and CRRF have strategies to inform Palau's leadership and communities regarding scientific findings from their internal research; these often include an in-person element (like presentations). Environmental Assessments and Environmental Impact Statements are also distributed and public comment periods allow for feedback. There is growth in use of digital resources, such as emailed newsletters and Social Media. If anything there is now an oversaturation of availability of tools. Because there is so much information for environmental assessment made available, the National Government's State of the Environment Reporting process is seeking to be collaborative, presenting the findings of multiple government and nongovernment agencies in a central location.

There are similarly a number of systematic procedures made available to decision-makers to provide access to environmental assessments. Teams working together to make environmental decisions are often facilitated through a set of Best Practice-based Process Tools that include Conservation Action Planning (CAP), Management Planning recommendations for Planning, and Results-Based Management training for projects. These follow systematic procedures for information input and decision outputs and adhere to principles of community and consensus. Significant effort is put into maintaining partnerships between agencies (e.g. through cross-sector fundraising, joint projects and outputs, and regular meetings) to enable decision-makers to have access to scientific data and spatial tools, no matter their entry point (e.g. decision-makers entering the decision space via a nonprofit versus the government still have access to PALARIS). Significant efforts is also put into training and capacity building to ensure long-lasting good governance.

New procedures are always being tested and refined. For instance, the Northern Reef Management plan used bio-economic modeling as well as enforcement chain analysis. (The term ‘bioeconomic modelling’ is typically used by economists to describe models that have both economic and biophysical components. Given that socio-economic analyses should be a basic part of integrated environmental assessment, it is useful to compare bioeconomic modelling and integrated environmental modelling. Traditionally, bioeconomic models are used to analyse human uses of ecosystems for production and consumption. As such, the analysis focuses on changes in a limited set of environmental indicators that matter (directly) to human beings).

Palau’s research permitting process is being refined as part of the work to draft ABS Regulations. It is through this mechanism that Palau will be ensured a systematic process of having access to scientific information from outside researchers.

Outcome 4.3.1: New laws and policies have generally been aligned in terms of protection of the environment. New legislation has also filled gaps (ABS Law, Biosecurity Law, Palau National Marine Sanctuary). Efforts are also underway to fill remaining gaps (review and update of the En-

dangered Species Act List and efforts in GEF6 to identify and fix legislative and policy gaps, inconsistencies, and redundancies).

Outcome 4.3.2: See Impact Indicator #1. Policies are being updated to include environmental language.

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

This indicator is largely a process indicator, thus through stakeholder consultations, a thorough and accurate picture of the progress towards this indicator has been achieved.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

Process indicators are monitored regularly via grant reports and applications, reports to Ministers, Congress, the President, and the Public, via the Bureau of Budget and Planning's annual budget process, via regular meetings of the NEPC and the Conservation Consortium, and other transparent decision-making venues.

Indicator(s) used in this assessment	Status
Impact Indicators	
1. Palau’s sustainable development goals are reviewed and updated to address conservation of biodiversity and protection/restoration of ecosystem services.	Progressing well. Most new Policies address conservation of biodiversity and protection of ecosystem services. There is no National overarching policy that ties different sector policies together (but this will be completed via GEF6 before 2024).
2. The percentage of Palau’s sustainable development goals that address conservation of biodiversity and/or protection/restoration of ecosystem services increases compared to current (baseline) goals.	Baseline: in 1996 National Master Plan, 40% of National Goals mention environment. Progressing.
3. Economic incentives for conserving and restoring biodiversity and ecosystem services increase compared to current (baseline) conditions (such as increased fines for undersized or out of season catch or hunting).	Inadequate information to assess indicator. Progress is being made to increase disincentives (penalties) and create/expand programs with direct and indirect financial incentives.
Outcome Indicators	
Outcome 4.1.1. A national access and benefits sharing framework for biological resource research and use is developed, adopted, and implemented by January 2018.	On track. Nagoya Protocol ratified 2018; ABS Law passed; regulations in development.
Outcome 4.2.1. Environmental assessment tools and other scientific information resources are made available to decision-makers by 2017.	Exceeding targets: Many printed, in person, digital, audio-visual tools provided.
Outcome 4.2.2. Systematic procedures to provide decision-makers with access to environmental assessment tools and scientific information in the decision-making process are established by 2017.	On track: Systematic procedures provided and followed, particularly within planning.
Outcome 4.3.1. New and existing biodiversity policies, laws and regulations aligned to reduce management gaps by January 2017.	On track, many new laws passed to fill gaps, work ongoing.
Outcome 4.3.2. Palau's development objectives updated to include conservation and sustainable use of biodiversity and ecosystem services by January 2018.	See Impact Indicator #1 for Baseline. On track, progressing.

TARGET 5:

Establish an enabling framework to support sustainable biodiversity use and biodiversity-based livelihoods

Rate of progresses toward the implementation of the selected target



May 10, 2019:

Progress towards target but at an insufficient rate

Summary of the assessment of progresses toward the implementation of the selected target

Many of the sub-indicators are on track, but fisheries are progressing in the wrong direction and there is an inadequate framework in place to ensure sustainable use of nearshore fishery resources. Thus this Indicator is rated at "Insufficient." In other areas - tourism, aquaculture, agriculture, and forestry - Palau has made progress in updating laws, regulations, procedures, and other guidelines and standards. The Impact Indicators are not well monitored.

Narrative description by indicator

Section I. Impact Indicators

Impact Indicator 1: These numbers are established here as baseline. In 2017 there were 9 active members in Green Fins, and an additional 4 interested potential members (Green Fins Report). Green Fins is a partnership program with dive and snorkeling centers (Green Fins website). Other programs certified businesses as being Turtle Friendly or partnerships with the Ebiil Society's Real Fishermen program. In 2019 there were 95 hotels/motels, up from 45 hotels/motels in 2012; 7 of those were large/resort hotels. 100% of tourists coming into Palau must now sign the Palau Pledge vowing to protect the environment.

Impact Indicator 2: There is not enough information to develop a baseline for the number of commercial aquaculture, agriculture, and forestry operations using best practices or meeting sustainability guidelines. In 2016 there were 19 commercial agricultural farms, and an additional 173 (mostly family) farms that produced some food for the market and some for subsistence (SOE 2019). In 2016 there were an estimated 64 aquaculture operations (60 clams and 4 milkfish) (Gillet 2016). In 2010 there were over 60 noni and mahogany plantations and around 560 hectares of coconut plantation (Palau SWARS). There is not yet any criteria by which to judge if they are following Best Practices and meeting Sustainability criteria.

Impact Indicator 3: There is not enough information to develop a baseline for the number of hunters, harvesters, fishers, marketers, or livelihood workers using best practices or meeting sustainability guidelines. In 2015 (Palau Census) there were 390 skilled workers in agriculture, forestry, and fisheries (including hunters and gatherers); 42 skilled workers in handicrafts, and 121 skilled workers in food processing, woodworking, garment manufacturing, and other crafts. There were also 863 unskilled labourers in agriculture, forestry, and fisheries. Guidelines have not been set.

Section II. Outcome Indicators

Outcome 5.1.1: Palau is making good progress with developing guidelines and standards for sustainable tourism. Palau adopted its Responsible Tourism Policy Framework and the Bureau of Tourism (BOT) drafted an aligned draft 2019-2023 Strategic Plan to support it. The Pristine Paradise Palau branding effort is nationwide. Several programs are in place (Koror State's Tour Guide Training and mandated Certification program, Green Fins voluntary marine tourism guidelines, Turtle Friendly partnerships) to support sustainable tourism actions by businesses, and new ones are in development (Green Boots, GEF6's pilot Green Certification Program). The BOT is developing regulations for the industry to ensure that Palau's brand "Pristine Paradise Palau" is consistently delivered to the visitor and that communities continue to benefit from the industry, and thereby mainstreaming guidelines. Through the GEF6, guidelines and standards will be refined and aligned and then tested and piloted on Babeldaob and in the Southern Lagoon (Koror and Peleliu).

Outcome 5.2.1: Palau is progressing with development of guidelines and standards for aquaculture, agriculture, and forestry. Palau is currently drafting its Aquaculture strategy via support from the FAO. A first draft is slated to be finished in June 2019, amendments were last made in 2005 (BMR 2005 and 2019 Amendments). Palau's extensive history with clam aquaculture has determined best practices for culturing giant clams (GCF Pre-Feasibility), and Palau's private businesses and academic institutions have developed innovative and environmentally friendly to culture coral, mangrove crab, grouper (Gillet 2016), shrimp (BBP 2017-Statistical Yearbook). Palau-based company Biota successfully cultures ornamental marine aquarium fishes for export, and has successfully aquacultured Bumphead Parrotfish from the egg (a world first) as well as snappers and other food fishes. They released large numbers of rabbitfish as well.

An extensive suite of Best Practices for Agriculture have been developed over many years through partnerships

Indicator(s) used in this assessment	Status
Impact Indicators	
1. Number of tourism--based businesses (tour operators, hotels, etc.) regularly using best practices or otherwise determined to be meeting guidelines for sustainable tourism.	Inadequate information. Some baselines established: 9 members in Green Fins.
2. Number (and land/sea area, where appropriate) of commercial aquaculture, agriculture and forestry operations regularly using best practices or otherwise determined to be meeting sustainability guidelines.	No information to set a baseline, no criteria to compare.
3. Number of hunters, harvesters, marketers or similar livelihood workers using best practices or otherwise determined to be meeting sustainability guidelines for the use of terrestrial wildlife and plants.	No information to set a baseline, no criteria to compare.
Outcome Indicators	
Outcome 5.1.1. Guidelines and standards for sustainable tourism actions are established at national and state levels by January 2017.	On track.
Outcome 5.2.1. Guidelines and standards for sustainable development and management of aquaculture, agriculture and forestry are established by January 2017.	On track (but insufficiently utilized industries).
Outcome 5.3.1. Sustainable fisheries management frameworks are established at local and national levels by January 2017.	Moving away from target. Insufficient framework for nearshore fisheries.
Outcome 5.4.1. Guidelines for the sustainable utilization of terrestrial wildlife and plants (hunting, harvesting, marketing, etc.) are established by January 2017.	Insufficient framework for sustainable management (but highly underutilized resource).

with the USDA NRCS, Taiwan Technical Mission, Bureau of Agriculture, Bureau of Forestry, R2R, and recently have been compiled by MNRET through the Palau GEF5 Project (Best Practices from Annex 4 in GEF6). However, Palau's "Food Policy": Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure has not been officially adopted.

Palau has a draft Sustainable Forest Management (SFM) Policy and the 2010 Statewide Assessment of Forest Resources and Resource Strategy (SWARS). However, forestry is a under-utilized resource and industry, thus there are fewer specific Best Practice guidelines available.

Outcome 5.3.1: Palau's nearshore fisheries are in decline (2019 State of the Environment Report, Packard Review), and the framework needed to improve their management has numerous gaps in knowledge and regulations. Gear restrictions apply to all species in the fishery, some species are banned from harvest (seasonally or permanently), and there are size restrictions for a few species (Domestic Fishing Laws 2012). BMR has few applicable regulations to manage fisheries, most notably a lack of any regulations having to do with total harvest, quota, or limits to where fishing can occur (BMR 2018 Regulations). Fisheries efforts have largely be targeted by establishment of Marine Protected Areas; in the Northern Reefs a more comprehensive framework for fisheries management has been adopted (Northern Reefs Plan).

Much more attention has been paid to developing a sustainable fisheries management framework for offshore/

tuna fisheries via the Palau National Marine Sanctuary (PNMS), including the PNMS Act, a Tuna Fisheries Strategic Plan, and Monitoring and Surveillance Plan.

Outcome 5.4.1: The forthcoming ABS Regulations will address sustainable utilization of terrestrial wildlife and plants. Otherwise there is very little in terms of a framework for their sustainable use. Traditional Knowledge is key to sustainable use of terrestrial resources. Uses of plants have been catalogued (Paradise of Nature Chapter 40) but there are currently little in terms of guidelines or limits to sustainable use.

Any other tools used for assessing progress.

This is a process indicator. Progress has been determined through case studies, desk studies, expert opinions, and stakeholder consultations.

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Impact indicators have little information. There is extensive information on the process (outcome) indicators.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

Monitoring of outcomes is project-based.

TARGET 6:

To conserve and sustainably manage Palau's agro-biodiversity for the benefit of present and future generations

Rate of progresses toward the implementation of the selected target



May 10, 2019:

Progress towards target but at an insufficient rate

Summary of the assessment of progresses toward the implementation of the selected target

Issues of agro-biodiversity will be addressed through development of Access and Benefit Sharing regulations. There has been community-based investment in restoring and maintaining agro-biodiversity, including traditional agricultural landscapes, but there is little information or direct action.

Narrative description by indicator

Section I. Impact Indicators

Impact Indicator 1: There is insufficient knowledge to identify the number of agricultural species preserved through seed banks or other measures. Seeds are preserved through SPC (16 varieties of salt-resistant taro), the US National Tropical Botanical Garden, the Millennium Seed Bank, and at the Palau National Museum.

Impact Indicator 2: There is insufficient knowledge to identify how many traditional agricultural practices have been recorded or preserved or to determine the number of training events; however, these numbers have been rising through dedicated efforts to preserve and re-cultivate traditional agricultural practices. Traditional taro farming practices have been recorded via meetings and conferences and in print (Ngarchelong Mesei and Paradise of Nature).

Section II. Outcome Indicators

Outcome 6.1.1: While there has not yet been a comprehensive inventory of agro-biodiversity, there has been significant effort placed into documenting farming practices. All farms were mapped spatially in 2016 (Figure 1), including traditional taro farms that can be restored. There has been a strong push to restore traditional taro patches (Ngarchelong Mesei) and revive taro practices (Figure 2), in particular the wetland's ecosystem links (Koshiba - Taro Fields; also see Case Study below). Manuals have been produced on farming the different varieties of taro (Taro Production and Taro Production and Value added) as well as fruit and vegetables (Crop Production) and plants

CASE STUDIES:

Agricultural Diversity

There is significant agricultural biodiversity in Palau – Palauans cultivate at least 75 varieties of taro, 17 varieties of sweet potato and many varieties of cassava, as well as bananas and other fruits for food. Over 44 species of trees are used for timber and firewood, and over 82 plants have medicinal healing powers. The fruits and flowers of over 100 plants are food for bats and wildlife. Taro varieties from Palau with tolerance/resistance to the taro leaf blight disease were vital in getting taro back into the fields in Samoa after taro leaf blight wiped out all the local Samoan varieties.

Traditional Agricultural Landscapes

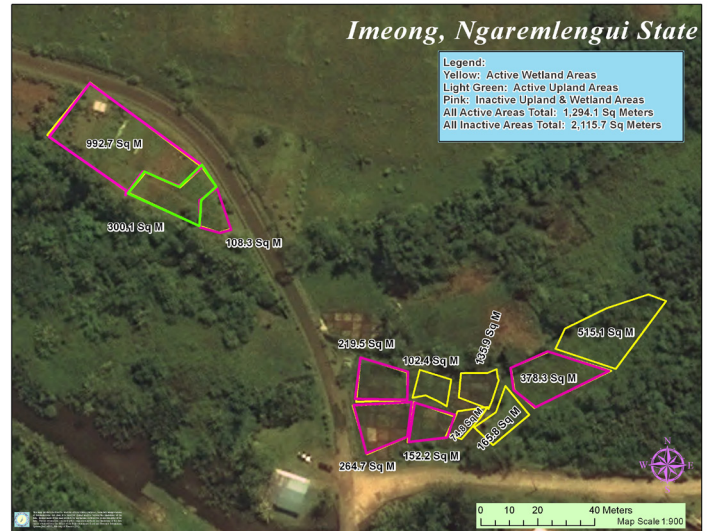
Palau's traditional agriculture landscapes provide important habitats for waterbirds (native and migratory species) Palauans have converted fresh water marshes into taro fields that have been farmed for hundreds of years and as such have become part of Palau's wetland ecosystems. These taro fields are utilized by both humans and many bird species. Because taro fields or patches are part of a production landscape that includes both wetland crop and agro-forestry cultivation many native and migratory bird species can be found in these fields. Wetland birds utilize the irrigation ditches in the taro fields for feed purposes and native forest birds feed in the foliage provided by the agro-forest around the taro fields. The Palau islands are in the East Asian/Australasian flyway, and many species using this flyway have been recorded in Palau during the migratory season. Migratory birds that routinely utilize taro patches for feeding include the Glossy ibis, ducks and black wing stilts.

Figure 1. Example of mapped farms (From PALARIS).



used for food, toys, building materials, medicinal value, or cultural purposes (Paradise of Nature Chapter 40) or medicinal herbs (Paradise of Nature Chapter 41). Inventories have been also done for tapioca and sweet potato (through the Palau Community College Cooperative Research and Extension).

Figure 2. Example of taro areas that are active or in need of restoration (From PCS).



Outcome 6.2.1: Palau is currently drafting an agro-ecological strategy that is designed to be readily adopted by the states for implementation. The strategy seeks to ensure agriculture production, soil conservation and mitigation of land degradation.

Any other tools or means used for assessing progress.

Case studies and expert opinions were used to assess this indicator.

Level of confidence of the above assessment

Based on expert opinion

There is no quantitative information on the Indicator.

Adequacy of monitoring information to support assessment

No monitoring system in place

Indicator(s) used in this assessment	Status
Impact Indicators	
1. Number of agricultural species preserved through seed banks, test plots, or other measures.	Insufficient data available.
2. Traditional agricultural practices recorded and preserved, and number of training events conducted to promote sharing of traditional knowledge, technology and practices.	Insufficient data available.
Outcome Indicators	
Outcome 6.1.1: A comprehensive inventory of Palau's agro--biodiversity, including species and varietal conservation status and conservation priority is developed by January 2017.	On track, many species have been inventoried and catalogued. In need of comprehensive overview.
Outcome 6.2.1: A sustainable management and conservation strategy and plan for agro-biodiversity is developed and implemented by January 2018.	Behind but in progress.

TARGET 7: Biodiversity conservation and sustainable resource use is integrated into all aspects of government and community planning, development and operations

Rate of progresses toward the implementation of the selected target



May 11, 2019:
On track to achieve target

Summary of the assessment of progresses toward the implementation of the selected target

Palau excels at sharing information with the public, and has robust participatory planning processes.

Narrative description by indicator

Section I. Impact Indicators

Impact Indicator 1: All of the new local, state, and national strategic plans being drafted now include some sort of environmental component. Older plans, when reviewed, are updated to include biodiversity conservation and/or sustainable resource use or sustainable development; climate adaptation is also being integrated into all plans. The high level of awareness and the presence of strong environmental champions at the local, state, and national levels is one of the greatest achievements of the environmental sector.

Impact Indicator 2: While awareness is high, this indicator is difficult to measure because there is no baseline. This indicator addresses two separate audiences: the general public, and more targeted stakeholders. Based on socio-economic surveys of a wide range of community members in State, awareness of protected areas and local moratoria (Bul) was high in 2015 to 2019, ranging from 78 to 92% (Socioeconomic Studies by PICRC); and has been high since at least 2013, when 88% of survey takers were aware of protected areas (PICRC Micronesia Challenge Socioeconomic Pilot Study). Awareness of regulations and rules pertaining to protected areas was lower, ranging from 55 to 70%. 47-69% of households recalled participating in some sort of environmental outreach activities. Palau is making good progress in raising the capacity of targeted stakeholders in specific issues of sustainable use and sustainable development. The Environment Sector has grown

significantly since the Protected Areas Network (PAN), and specifically the Green Fee, became operational in 2008. Most, if not all, new individuals receive a variety of trainings and partnership building efforts. In 2017-2019, 32% of all PAN Officers or PAN Staff participated in field training, 27% took Results-Based Management Training, and 44% of K-12 teachers received training in biodiversity or sustainable development (Ridge to Reef Student and Teacher Numbers). In 2018, the Palau International Coral Reef Center (PICRC Outreach Information) held over 40 outreach events reaching over 3000 people. Nearly 100% of 5th graders receive a Ridge-to-Reef curriculum, and in 2016 86% of 4th and 5th graders participated in field activities as part of the Ridge-to-Reef national program. In 2018 nearly 90 individuals participated in a National Dialogue on Environmental Issues (National Dialogue Report) (Figure 1), this represents a 1:3 ratio compared to the total number of individuals employed in the environment sector. These numbers are a significant achievement in a country of only 20,000 people. These are just some examples of the hundreds of other outreach and awareness events that are offered on a regular basis to the public and stakeholders.

Figure 1: Participants at a 2018 National Dialogue on environment issues in Palau: Strengthening collaboration and coordination of community based projects and national government initiatives and programs



Section II. Outcome Indicators

Outcome 7.1.1: It is difficult to measure if public awareness has increased by 30%, because there is no baseline and because awareness is high. Thus, this reports sets a new baseline: the number of individuals accessing biodiversity information via new media (e.g. online). In 2018, radio talk shows by the Palau Conservation Society (PCS) were viewed online an average of 700 times, with around 70% of those views coming from individuals present on the islands (Environmental Talk Show Videos). On days when the Palau Wave Radio station offered environmental programming, online viewership ranged from 300 to 1200 views, plus 150 to 900 off-island views (Palau Wave Radio Reach). At its highest, the program reached nearly 6% of the on-island population. Additional Public Awareness indicators include:

Public Awareness Indicators (Source data elaborated in 2019 SOE)

Community awareness of (PICRC Socioeconomic Surveys, 2017-2019):	Status
Aware of PAN	78%
Aware of Bul	81%
Aware of their State's Conservation Area(s)	87%
Aware (at all, even if low) of regulations pertaining to their State's Conservation Area(s)	55%
Aware of the Micronesia Challenge	46%

Outcome 7.1.2: Information on public participation in the environmental decision making process is included as Baseline:

Public engagement in decision making processes (Source data elaborated in 2019 SOE)

Community who have:	Status
I or someone in my household participate in most/all of the activities related to the Conservation Area(s) in my State	11%
Average number of participants participating in hearings for proposed development projects	43
Number and Percent of Dive Shops participating in Green Fins Initiative (e.g. sustainable industry guidelines)	9 (47% of dive shops; 29% of tour operators)
Ratio of Number of participants in the 2018 National Dialogue on environment issues in Palau to Number of employees in the NGO and non-profit sector	89:239 (1:3)
Average number of participants in State Protected Area/Conservation Planning Teams	13
Ratio of Number of members of the Palau Conservation Society to Number of adults/workforce (16+) in Palau	543:13,823 (1:25)

Outcome 7.1.3: A website on national biodiversity and the NBSAP is still in development.

Outcome 7.2.1: Biodiversity education is integrated into multiple grades of elementary school and high school, and at the Palau Community College. A Ridge-to-Reef curriculum was adopted and institutionalized into the 5th grade curriculum, with a textbook and Teacher's Guide (R2R Student Textbook, Teacher Guide). The Palau International Coral Reef Center (PICRC) has a High School and College Internship Program. In 2018 102 educators participated in the Rock Islands Science Teacher Field Trips focused on raising awareness about biodiversity, the Palau Pledge, Palau National Marine Sanctuary and Responsible Tourism, representing approximately 44% of Palau's total number of K-12 teachers (2016 Educational Statistical Yearbook).

Outcome 7.3.1: The growth of PAN and adoption of the Sustainable Tourism Framework are two examples of how the environment sector has truly become more community-based, with hundreds of new participants. Through the Responsible Tourism Framework several types of sustainable industry cooperatives/partnerships have been established. For instance, the Green Fins Partnership involves 9 Dive shops who follow a Code of Conduct in an effort to reduce the negative impacts of marine adventure tourism on Palau's marine environments (Green Fins website). Partnerships have also been established among fishers, including the Northern Reefs Fishing Cooperative (TNC Fishing Coop Website) and a partnership between fishers, restaurants, and stores called Real Fishermen (Real Fisherman Booklet; Real Fisherman Talk Show). Partnerships through the Palau National Marine Sanctuary (PNMS) and local stores are also leading to increased marketing and sales of more sustainably

caught tuna over reef fish (#ChoosePelagics campaign). In addition, the Belau Tourism Association and the Palau Chamber of Commerce are active with many environmental initiatives and partners on the new GEF6 National Project.

Outcome 7.4.1: Fewer than 75% of agencies and organizations in the environment sector have completed organizational capacity reviews. Some of this work is happening through the National Environmental Protection Council (NEPC), which is developing a 2019 Strategic Action Plan that streamlines actions on priority issues (Palau CB2 Project Report 2018).

Outcome 7.4.2: Strategic actions to improve agency capacity include filling gaps in certain fields: Project Planning (e.g. RBM), Terrestrial Monitoring, Surveillance, Sustainable Financing (SGP), and Agriculture. The biennial National Environmental Symposium and National Dialogues are key strategic elements designed to build the capacity of resource managers and communities. These

events expose audiences to new research, training opportunities, and global and regional conventions and efforts to participate in biodiversity conservation. Building the capacity of new environmental agency employees, volunteers, and community members introduced new challenges that are only now being addressed. A significant push in the last two years has been to build management and planning skills within PAN and communities, with an emphasis on Results Based Management (RBM) (Figure 2). Pre-surveys show that capacity in Project Management is low, thus presenting an good opportunity to build capacity via RBM (RBM Pre-Training Survey Results and RBM Outreach Report). In 2016-2017, there were 93 Teaching Staff, Graduates, and Enrollment at the Palau Community College in Environment Programs (Agricultural Science, Environmental/Marine Science, or STEM) (Figure 3). 89 individuals participated in a National Dialogue on Environmental Issues, the dialogue was attended by community members as well as Environment sector employees. In 2018 8 individuals from 2 states were trained in Forest Monitoring. In 2018 22 individuals from 5 States were trained in Surveillance Monitoring (via PCS). An additional 33 students, public and private sector employees and retirees participated in a workshop to strengthen Community Based Organization’s (CBO) capacity to engage in the Palau Small Grants Program (SGP) (Figure 4). Additional Baseline information is:

Training Indicators (Source data elaborated in 2019 SOE)

<i>Participation in trainings or dialogues</i>	<i>Status</i>
Percent of PAN Officers or PAN Staff who took part in field training	32%
Percent of PAN Officers who participated in Results Based Management (RBM) training, Number of Trainings	27% 8 Trainings
Ratio of Number of participants in dialogues/trainings on RBM to Number of employees in the NGO and non-profit sector	59:239 (1:4)
National Dialogue on environmental issues (89 participants) also included training module on RBM	89 Dialogue participants

Figure 2. Participants in a RBM Training Workshop, to build understanding of the RBM approach which is fundamental to effective site and project management. Aside from achieving its goal, workshop participants walked away with knowledge and skills to design, implement and monitor projects to deliver desired impacts. This enables the linking of project outcomes to Palau’s environmental programs and frameworks.



Outcome 7.4.3: Natural resource agencies already function as sources of information, although there are gaps and overlaps. The State of the Environment Reporting process (SOE 2019) is being designed to synthesize available data. Another GEF5-funded Project (CB2 Project Report) is also building a national database to store information; in the meantime, Palau is making better use of the Inform Data Portals through the South Pacific Regional Environment Programme (SPREP) to better store and catalog available information (Palau Environment Data Portal). Efforts to align and review agency mandates, through the NEPC, GEF6, and by the Bureau of Budget and Planning through the country SDG Review, will provide the public with a better sense of where to go to receive advisory services.

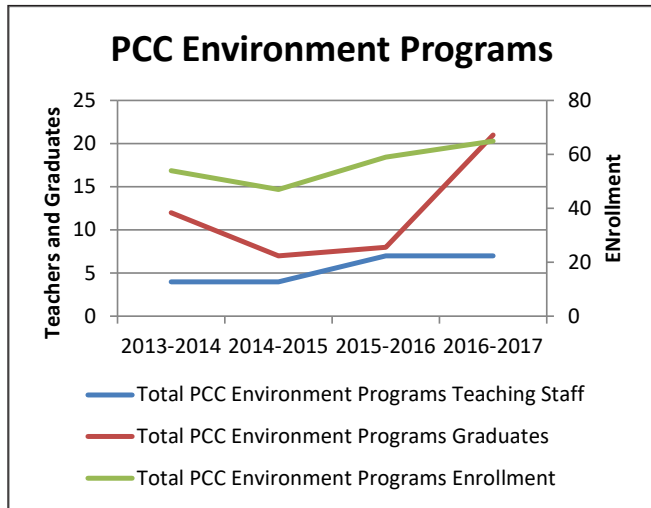
Outcome 7.5.1: Government and nonprofits work together to improve monitoring of biological resources, although this is not always coordinated. PICRC has clear responsibility over marine monitoring for the PAN, although other organizations and businesses (e.g. Coral Reef Research Foundation, The Environment Inc) fill in specific gaps (jellyfish, rabbitfish). The Belau National Museum has responsibility for bird monitoring. The Palau Conservation Society is working with the Palau Forestry Division to improve forest monitoring. There is still need to better align, coordinate, and cooperate on research.

Any other tools used for assessing progress.

This section was drafted through consultations, expert assessment, and data analysis.

Indicator(s) used in this assessment	Status
Impact Indicators	
1. Percentage of new local, state and national strategic plans that include components addressing biodiversity conservation and/or sustainable resource use/sustainable development.	Meeting target for new plans, on track with reviewing and updating older plans.
2. Improved public awareness of biodiversity conservation and sustainable use issues compared to current (baseline) conditions.	On track, very high public awareness and growing stakeholder awareness and public participation.
Outcome Indicators	
Outcome 7.1.1: Public awareness of biodiversity issues is increased by 30% from baseline by 2018. On track.	Baseline set here.
Outcome 7.1.2: Public participation in environmental decision making process is increased by 20% from baseline by 2020.	On track. Baseline.
Outcome 7.1.3: By 2018, create a national biodiversity/NBSAP website including a mechanism such as a Biodiversity Clearinghouse for sharing reports and other relevant biodiversity information between implementing partners, stakeholders, and the public.	Behind, progressing.
Outcome 7.2.1: Biodiversity education is integrated into all levels of school curriculum by the start of the 2017--2018 school year.	On track, biodiversity integrated into elementary, high school, and college levels.
Outcome 7.3.1: Sustainable industry cooperatives/associations for individuals and businesses engaged in use of biological resources are established by 2017.	Behind, some partnerships established.
Outcome 7.4.1: On an annual basis, at least 75% of government agencies and civil society organizations involved in conservation work complete organizational capacity reviews, including evaluation of progress in meeting strategic objectives, human resources, capacity for data collection, storage, and review, program monitoring, evaluation, and reporting, regulatory compliance and enforcement (including mandate relevant permit systems), financial sustainability, and review of agency mandate vs. actual agency scope of function.	Behind, only some agencies doing a review. Progress through NEPC and CB2.
Outcome 7.4.2: Strategic actions to improve agency capacity are designed and implemented on an ongoing basis beginning within one year of completion of first annual self--evaluation by at least 75% of organizations that completed evaluations.	On track, significant capacity built in key areas. Behind in terms of self-evaluation.
Outcome 7.4.3: By 2017, natural resource management and conservation stakeholder agencies function as central sources for information and advisory services to support sustainable development, management, and conservation of Palau's natural resources and biodiversity.	Behind, but progressing (especially through CB2).
Outcome 7.5.1: A strategy for promoting improved monitoring of biological resources and cooperative research between agencies within Palau and universities or other research institutions abroad is developed and implemented by 2017.	Behind, monitoring is being conducted and gaps filled, but room for more cross-agency coordination and cooperative research.

Figure 3. Trends in PCC teaching, graduates, and enrollment. Environment Programs compiled from Agricultural Science (AgSci), Environmental/Marine Science (Env/MarSci), and STEM (From 2019 SOE).



Level of confidence of the above assessment
Based on partial indicator information and expert opinion

Where comprehensive quantitative data is available it was analyzed. Many of these indicators are process indicators, thus expert opinion is needed to track progress.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

Some outcome are monitored (e.g. awareness) via different means (PICRC socioeconomic surveys, website hits, etc.), whereas others track progress opportunistically.

Figure 4. Participants in a workshop designed to strengthen Community-Based Organizations (CBOs).



SECTION IV.

DESCRIPTION OF NATIONAL CONTRIBUTIONS TO THE ACHIEVEMENT OF EACH GLOBAL AICHI BIODIVERSITY TARGET

Introduction

The Convention on Biological Diversity (CBD) operates under a 2011-2020 Strategic Plan. The rationale for the plan is that “biological diversity underpins ecosystem functioning and the provision of ecosystem services essential for human well-being. It provides for food security, human health, the provision of clean air and water; it contributes to local livelihoods, and economic development, and is essential for the achievement of the Millennium Development Goals, including poverty reduction.” The CBD Strategic

Plan includes five Strategic Goals, measured by twenty (20) Aichi Biodiversity Targets.

Assessment of Progress

The Palau National Biodiversity Strategy and Action Plan (NBSAP) localized the CBD Goals and Targets. The prior section (Section III) reported on Palau’s National Targets. This section summarizes the findings of Section III and reorganizes information to report directly against relevant Aichi Biodiversity Targets.

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society



By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.



By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.



By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.



By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use



By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.



By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.



By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.



By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.



By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.



By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.



By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems



TARGET 1. Awareness of biodiversity values

Biodiversity awareness is very high. Based on socioeconomic surveys as part of protected areas management, awareness of protected areas and local moratoria (Bul) ranged from 78 to 92%; awareness of regulations and rules pertaining to protected areas ranged from 55 to 70%; and 47-69% of households recalled participating in some sort of environmental outreach activities. In 2017-2019, 32% of all PAN Officers or PAN Staff participated in field training, 27% took Results-Based Management Training, and 44% of K-12 teachers received training in biodiversity or sustainable development (Ridge to Reef Student and Teach-

er Numbers). In 2018, the Palau International Coral Reef Center held over 40 outreach events reaching over 3000 people. Nearly 100% of 5th graders receive a Ridge-to-Reef curriculum, and in 2016 86% of 4th and 5th graders participated in field activities as part of the Ridge-to-Reef national program. In 2018 nearly 90 individuals participated in a National Dialogue on Environmental Issues; this represents a 1:3 ratio compared to the total number of individuals employed in the environment sector. These numbers are a significant achievement in a country of only 20,000 people. The one group that has not been targeted well (and this is improving) are non-Palauan resident workers. This group is heavily involved with natural resource use and there is growing awareness to include them as a more targeted stakeholder group. Every visitor to Palau is aware of the need to protect biodiversity. As of March 2019, 195,297 people have signed the Palau Pledge.

of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.



By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.



By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.



By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.



By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.



By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building



By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.



By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.



By 2020, knowledge, the science base and technologies relating to biodiversity, its values functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.



By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan 2011-2020 from all sources and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties.

Source: <https://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf>



TARGET 2. Integration of biodiversity values

Palau has taken steps to assess economic value of many natural resources, including coral reefs, sharks, tuna fisheries, nearshore fisheries, carbon stocks (in forests and mangroves), but these have been piecemeal studies. Palau's Pristine Paradise Environmental Fee is partially based on sustainable financing plans for achieving biodiversity conservation success in protected areas. Some Environmental Impact Statement's (EIS) and Environmental Assessments (EA) use the economic value of Potential Ecosystem Services (see Case Study below). However, economic values of biodiversity have not yet been well integrated fully into planning and permitting processes. Palau has developed a System of Environmental-Economic Accounting and is just beginning to integrate national budgets to this accounting. In 2019 the first step will be to tie national government agency budgets to the Sustainable Development Goals.

Non-economic values of biodiversity have been well integrated into all new National and most State Policies and plans, and older plans and policies are being updated to mainstream biodiversity and environmental issues. Palau's

CASE STUDY:

Ngesaol road and housing project

The potential value of this site if it was reforested and or maintained as mangroves and wetlands rather than developed over the next 99 years can be estimated using a value of wetlands at \$25,681/ha/yr; mangroves at \$193,843/ha/yr and urban area at \$6,661/ha/yr (Costanza et al., 2017). If these values coincide with approximately 1.8ha of wetland and 2.7ha of mangroves present on the site, the estimated ecosystem service value per year would be: \$569,600/year versus the value of homes in new fill area of \$30,000/year (in ecosystem value of urban areas). If we start evaluating based upon potential ecosystem services, then we see that Palau's communities are losing the long term benefits of these systems for the short term gain of development and the value per square meter that the lease rate is going for. Commercial lease value is small compared to the potential ecosystem value of these systems (from The Environment, Inc.).

economy is reliant on the environment, and this implicit understanding underlies most decisions, even if the economic values are not presented.



TARGET 3. Incentives

The domestication of the tuna fishing industry via the Palau National Marine Sanctuary (PNMS) is one effort to recalibrate unfair fishery pricing systems, such that high value tuna resources are not exported out of the country at low value. Nearshore fisheries are similarly underpriced, but incentives in the form of low costs to develop tourism products still exist. Many are slated for review as part of the GEF6 National Project. There are still many disincentives that need to be reformed; for instance, small businesses find it difficult to compete with larger businesses due to a cumbersome business and regulatory environment, even though their impact on biodiversity is much lower. Waste generation continues to increase, and there are no disincentives to stop this due to few taxes on imports. A ban on Charter Flights from China also removed an incentive that supported low-cost high-impact tourism. Incentives have been created, such as a Beverage Container Redemption Fee. The Protected Areas Network (PAN) is tied to the Pristine Paradise Environmental Impact Fee and provides sustainable financing for community-based biodiversity efforts, and is an important incentive for continued biodiversity protection.



TARGET 4. Use of natural resources

The Palau National Marine Sanctuary is a key step in reforming the tuna fishing industry to reduce overfishing. The number of foreign fishing vessels has steadily declined, while lower-impact local fishing vessels is just now starting to increase. However, in the Nearshore Fishery sector many species are being overfished (locally or nationally) and there has been little to reduce this impact. Agriculture and aquaculture are under-utilized sectors and thus have little production impact. Nevertheless, effort has gone into identifying and promoting Best Practices so that as they grow, they do so sustainably. Consumption of imported goods continues to increase in line with GDP, and solid waste production is currently outpacing the capacity to recycle. There are many recycling programs, including some innovative ones to turn plastic into fuel, but these are not enough to reduce solid waste. Certain endangered species are still harvested (Sea Turtles, Dugong, Micronesian Imperial Pigeons) but there are improved efforts to halt this (e.g. with national moratoria).



TARGET 5. Loss of habitats

Forest extent and mangrove extent have increased. Live coral cover is also near maximum levels in most locations, except where it was highly damaged by typhoons. However, mangroves face ongoing threat of development and seagrass has declined. Some of this positive news comes from implementation of the Responsible Tourism Framework, which has encouraged niche tourism and the growth of smaller, low-impact facilities. However, some is just because development on Babeldaob is progressing slowly; more protections are needed.



TARGET 6. Sustainable fisheries

Most nearshore fish and invertebrate species have declined and many are at risk of population crash. Seagrass has also declined. Pressures on tuna are being reduced, and climate factors have favored a slight rebound for some stocks. Fishing techniques are somewhat regulated, but there are no limits on harvest and Palau has an open access system. Lack of knowledge on reproductive potential and Size at Maturity means that size regulations may be outdated (and only apply to a few species). Only a few species have been targeted for management (Napoleon Wrasse and Bumphead Parrotfish) via complete closure; some invertebrates are also managed with closed seasons. Protected Areas are the main form of management for most aquatic species. Under the PNMS, all tuna boats should have an observer, but most boats do not so there is little information on non-target fishing. Palau does enforce its Shark Sanctuary (for foreign fishing boats) to protect sharks.

Although many nearshore fish species are in decline, Palau has made significant contributions to sustainable fisheries science (e.g. through the Northern Reefs Managed Area and associated fishing cooperatives).

The coral reefs of Palau are home to some of the most incredible, pristine spawning aggregations in the world. Studying spawning fish at these sights provides us with a baseline understanding of how these fish behave in the absence of fishing pressure. As a result, we can compare the spawning behavior of fish spawning at these sites to heavily fished areas elsewhere to assess the impacts of fishing on the health and productivity of fish populations and coral reefs.



TARGET 7. Areas under sustainable management

Agriculture, aquaculture, and forestry are underutilized industries, thus their impact is relatively small on biodiversity. Nevertheless they have been the subject of intense education and capacity building to ensure sustainable growth. Best Practices for Agriculture have been developed and are being disseminated. Palau has led the world in innovative techniques for sustainable aquaculture (e.g. clams, rabbitfish) and new Biosecurity provisions will reduce the potential impact from IAS. There is very little forestry, most of which is done using traditional knowledge (e.g. agro-forestry).



TARGET 8. Pollution

Palau Environmental Quality Protection Board (EQPB) regulates pollution. Pesticide use requires a permit and all applicators must be trained. So far there has not been significant chemical pollution from pesticides. Contamination of drinking water sources and marine water with coliform has decreased as a problem with investments in sewer and water main infrastructure, and improvement of sewerage treatment, to reduce leaks of polluted water and remove contaminants from effluents. Palau's solid waste disposal site, although over capacity, has been reformed with the help of the Japanese Government to reduce runoff. A new landfill will further reduce pollution from solid waste. Remaining pollution comes from sedimentation, and this is a growing problem with development and climate change. Some efforts include making development regulations more stringent, but the largest emphasis has been on land use planning and protection of buffers. This is progressing very slowly. Solid waste (litter) also poses a problem, partly due to increasing consumption and waste generation, and due to marine litter arriving from elsewhere. Palau has good waste collection programs and recycling programs (the national Government has banned itself from using single use water bottles), but they cannot keep up with waste generation. Fires (of waste and brush) are regulated and illegal in the urban area, and response time has been increasing, thus keeping air quality generally clean. Growth in the number of cars may be negatively impacting air quality in the urban center; there are no activities to regulate this beyond community-based efforts to advocate for walkable communities.



TARGET 9. Invasive Alien Species

Palau has put significant effort into controlling IAS, and it seems to be paying off in that the threat of invasive species has not increased in recent years. In some cases, invasive species have been eradicated or controlled to the point that endangered birds can recover and farms become operational. There are still many unknowns and the threat of invasion is high. There are quarantine facilities at the airport and docks, but capacity to monitor and respond is still limited. This will change significantly by 2024 through the GEF6 National Project.



TARGET 10. Vulnerable ecosystems

Research has identified many resilient areas and some of the more vulnerable coral reefs and marine habitats. The primary response to climate change is the establishment of protected areas, both on land and in the water. The Palau PAN now requires Management Plans to include strategies that address climate. Preventing fires on land, through outreach and rapid response, is a key response on land. Palau's new Sustainable Forest Management (SFM) draft policy addresses climate change and the resiliency of the Palauan people who rely on forests and freshwater. To model its commitment to reducing climate impacts, Palau is slowly increasing generation of renewable energy.



TARGET 11. Protected areas

Palau has invested significantly in protected areas. All protected areas are managed by States and communities, with significant support from government, nonprofit, academic, and business technical partners. Areas that are still underrepresented in the Palau PAN or as protected sites include: Beach strand, Raised coralline atoll, Swamp forest, and Bird aggregation sites on land; and channels, back reefs, and reef flats in the marine environment. Management effectiveness ranges from Good to Fair (environmental impacts are good, socioeconomic ones are fair).

Type of Marine Protected Area	km ²	Total nation-wide	%	# sites
Total nearshore marine managed area (above 100m)	1,959 km ²	2,868 km ²	68%	47
Nearshore marine managed area (non-mangrove)	1,943 km ²	2,822 km ²	69%	
Managed mangrove area	16.5 km ²	49.9 km ²	33%	16
Total No-Take Marine Protected Area	413 km ²	2,868 km ²	14%	27
No-Take Nearshore MPA (non-mangrove)	409 km ²	2,822 km ²	14%	
No-Take Mangrove MPA	3.9 km ²	49.9 km ²	8%	9
No-Take Coral Reef (Indicator 15)	393 km ²	2,009 km ²	19%	23
Total nearshore area in PAN (above 100m)	1,217 km ²	2,868 km ²	42%	25
Nearshore area in PAN (non-mangrove)	1,214 km ²	2,822 km ²	43%	
No-Take Nearshore MPA in PAN	362 km ²		13%	
Mangrove area in PAN	3.8 km ²	49.9 km ²	7.6%	10
No-Take Mangrove area in PAN	3.3 km ²		6.6%	6

Type of Terrestrial Protected Area	km ²	Total land	%	# sites
Total Terrestrial Managed Area	102.6 km ²	410 km ²	25%	20
Total Terrestrial Managed Area, Babeldaob	42.7 km ²	362 km ²	12%	13
Total No-Take ² Terrestrial Area	41.59 km ²	410 km ²	10%	14
No-Take Terrestrial Area, Babeldaob	27.24 km ²	362 km ²	8%	9
Total Terrestrial area in PAN	40.68 km ²	410 km ²	10%	16
Terrestrial area in PAN, Babeldaob	33.76 km ²	362 km ²	9%	12
Important Bird Areas (IBA), managed	85.34 km ²	243 km ²	35%	10



TARGET 12. Preventing extinctions

No native species have gone extinct. 23 marine mammals are known from Palau; of these 3 are threatened (13%). The number of endangered fish and invertebrates relative to the total number present in Palau is low, but not fully known. Several of the globally endangered species in Palau are also declining locally. The majority of these species has some sort of local protection, in the form of laws, regulations, or MPAs; although many are declining and need additional enforcement or updated protections (e.g. updated laws or regulations). There are few known marine endemic marine species.

Both of Palau's two native terrestrial mammals (both bats), are now on the Red List (100%). Of 46 known reptiles and amphibians, one is on the Red List (2%), although most have not been assessed. 1 endemic amphibian and 40 native freshwater fish have not been assessed, thus none are on the Red List. The number of Native Resident birds on the Red List has been steadily increasing, up from 4 in 2005 to 6 in 2019; with 2 now listed as Endangered. Thus, 12% of native birds are now on the Red List. An estimated 8% of plants in Palau are threatened. The number of endangered

invertebrates relative to the total number present in Palau is likely low, but most have not been assessed.

Efforts are underway to improve the status of threatened species. These include eradication of rodents on islands with the Micronesian Medapode, and strong advocacy for protection of the Northern Peleliu Lkes Important Bird Area, home to many endangered migratory birds. Palau has made good progress on updating its Endangered Species Act List.

Threatened Marine Species					
Class	Common name	ESA ¹ (Palau)	Red List ² (IUCN)	Global Trend ² (IUCN)	Palau laws/regulations
Mammal	Dugong ³	EN	VU	Decreasing	Complete closure
	Blue Whale ³		EN	Increasing	Marine Mammal Sanctuary (Complete closure)
	Sperm Whale ³		VU	Unknown	
	Dolphins, Porpoises, Whales ^{3, 4}		Varies	Varies	
Marine Reptiles	Hawksbill Turtle ³	TH	CR	Decreasing	10-year moratorium
	Green Turtle ³	TH	EN	Decreasing	Title 24 (regulated by size, season, nesting)
	Leatherback Turtle ³	EN	VU	Decreasing	
	Loggerhead Turtle ³	EN	VU	Decreasing	
	Olive Ridley ³	EN	VU	Decreasing	
	Kemp's Ridley ³		CR	Unknown	
	Saltwater Crocodile ³			Unknown	No restrictions
Marine Fishes ⁶ (See also Indicator 36)	Bigeye Tuna		VU	Decreasing	Regulated by PNMS
	Kemedukl (Bumphead Parrotfish)		VU	Decreasing	Complete Closure
	Maml (Napoleon Wrasse) ⁴		EN	Decreasing	Complete Closure
	Square-tail Coral Grouper		VU	Decreasing	Size, season; local ban
	Bower's Parrotfish		NT	Unknown	No add. restrictions
	Thorny Seahorse		VU	Unknown	Aquarium spp. regs.
	Several species of Sharks, Rays, Mantas ⁴		Varies	Varies	Shark Sanctuary
Invertebrates ⁷	Giant Clam (<i>T. gigas</i> , <i>T. derasa</i>) ⁴	TH	VU	Unknown	Export ban; exception enables poaching ⁸
	Giant Clam (<i>Tridacna crocea</i>)			Unknown	
	<i>Tridacna squamosa</i> , <i>H. hippopus</i>	TH	NT	Unknown	
	Nautilus ⁴			Unknown	CITES
	<i>Charonia tritonis</i> , <i>Cassis cornuta</i> ⁹	EN			
	Several species of <i>Acropora</i> coral		NT	Decreasing	Export ban
	Corals: Black, Blue, Stony, Lace ⁴				Export ban
	Mussels (<i>Lithophaga lithophaga</i>) ⁴				No restrictions
Sea Cucumbers		Varies	Varies	Export restrictions	

¹ ESA = Palau Endangered Species Act, List of Threatened Species. By order of threat: EN = Endangered, TH = Threatened.

² Global IUCN Red List Status as of March 2019. www.redlist.org. By order of threat: CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened.

³ CITES Appendix I = Species threatened with extinction. CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), as of March 2019. Palau has many species reservations.

⁴ CITES Appendix II = Species not necessarily threatened with extinction, but for which trade must be controlled in order to avoid utilization in-

compatible with their survival.

⁵ Not regulated; population may have increased (SOE 2017).

⁶ A 2015 assessment of species in Palau (SPREP 2016) identified at least 15 threatened fishes. There are more that have not yet been assessed.

⁷ A 2015 assessment of species in Palau (SPREP 2016) identified at least 40 molluscs and 106 other invertebrates that were threatened. There are more species that have not yet been assessed.

⁸ Law allows export of cultured clams; wild clams have been exported; enforcement is needed. Clams are declining or very low in abundance (Indicator 20). *T. gigas* are particularly rare.

Threatened Terrestrial Species					
Class	Common name	Red List ¹ (IUCN)	Global Trend ¹ (IUCN)	ESA ² (Palau)	Palau laws/ regulations
Mammal	Pacific sheath tailed Bat	EN	Decreasing		No restrictions
	Palau Fruit Bat (CITES I)	NT	Stable	TH	Export ban
Reptiles	Pandanus Skink	NT	Stable		No restrictions
Birds - Native Resident (Year-round, Breeding)	Micronesian Megapode (Bekai)	EN	Decreasing	EN	Protected Land Life Act (PLL)
	Palau Ground Dove	EN	Decreasing	VU	
	Nicobar Pigeon	NT	Decreasing	VU	
	Micronesian Imperial Pigeon	NT	Decreasing	EN VU	
	Giant White Eye	NT	Decreasing	NT	
	Palau Nightjar	NT	Stable		
	Palau Kingfisher (Cherosech)	NT	Stable	NT	
	White-breasted Woodswallow			CR	
	Common Moorhen, Greater Crested Tern			VU	
	Australasian Swamphen (Wek)			VU	
Birds - Migrants (Regular visitors, wintering)	Japanese Night Heron	EN	Decreasing		Protected Land Life Act
	Far Eastern Curlew (Delerrak); Great Knot	EN	Decreasing	CR	
	Providence Petrel, Matsudaira's Storm Petrel, Common Pochard	VU	Varies		
	Bar-tailed Godwit	NT	Decreasing	CR	
	Black-tailed Godwit, Eurasian Curlew, Red Knot, Streaked Shearwater	NT	Decreasing		
	Curlew Sandpiper	NT	Decreasing	CR	
	Red-necked Stint	NT	Decreasing	NT	
	Lesser Sand Plover, Greater Sand Plover			VU	
	Red & Gray Plovers, Whimbrel, Ruddy Turnstone, Gray-tailed Tattler			NT	
	Invertebrates	Great, White Palau Tree Snails	CR	Unknown	
Palau Pandanus Tree Snail		EN	Unknown		
Plants	<i>Aglaia mariannensis</i> (Mesecheues)	VU	Unknown		No restrictions; Some in PAs
	<i>Cycas micronesica</i>	EN	Decreasing		
	<i>Pericopsis mooniana</i> (Nandu wood Amansis)	VU	Unknown	TH	
	<i>Horsfieldia palauensis</i> (Chersachel)	NT	Unknown		Central pop. in PA
	<i>Parkia parvifoliola</i> (Kmekumer)	VU	Unknown	EN	
	Palau Palm (<i>Ponapea palauensis</i>) (Esebuah); Rock Island Palm (<i>Hydriastele palauensis</i>) (Bochelauchererak); <i>Timonius salsedoi</i>			EN	
	<i>Cinnamomum carolinense</i> , <i>C. pedatinervium</i> (Ochod); <i>Xylocarpus moluccensis</i> (Demedemkur); <i>Garcinia matsudai</i> (Tilol); <i>Terminalia samoensis</i> ; <i>T. crassipes</i> (Chesemiich); <i>Rhizophora x lamarckii</i> ; <i>Ceriops tagal</i> (Biut); <i>Avicennia marina</i>			TH	

¹ Global IUCN Red List Status as of March 2019. www.redlist.org. Trend as determined by the IUCN Red List as of March 2019. By order of threat: CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT =

Near Threatened.

² ESA = Palau Endangered Species Act, List of Threatened Species.



TARGET 13. Agricultural biodiversity

The recent passage of the Access and Benefit Sharing (ABS) legislation will provide protection for genetic resources, as will implementation of Biosecurity (especially when expanded to LMOs). Many seeds from Palau are stored in seed banks and agricultural diversity is being documented.

CASE STUDY: Plant Genetic Resources for Food and Agriculture

Palau is a member of the Pacific Agricultural Plant Genetic Resources Network (PAPGRen). As such some of Palau's taro genetic resources which are currently in Samoa and were used in their breeding program are also held in the in vitro taro germplasm collection of the Center for Pacific Crops and Trees (CePaCT). Through the PAPGRen, we also get new taro germplasm from other Pacific and Asian countries and evaluate them for their adaptability to Palau's environment.

Root crops are a staple food in Palau which include taro (*Colocasia esculenta*), giant swamp taro (*Cyrtosperma chamissionis*), cassava (*Manihot esculenta*) and sweet potato (*Ipomea batatas*). Inventory and survey of these crops reveal extensive diversity of the major crops. There are 78 varieties of taro (*Colocasia esculenta*), 22 varieties of giant swamp taro (*Cyrtosperma chamissionis*), 30 varieties of cassava (*Manihot esculenta*) and 17 varieties of sweet potato (*Ipomea batatas*). The diversity of landraces and farmer's varieties of these root crops has remained the same for the past decade. Survey of and inventory of minor crops, underutilized species, and wild food plants have not been undertaken. Factors influencing the state of plant genetic resources in Palau Genetic erosion of plant genetic resources of the different root crops are occurring primarily due to urbanization and negative attitude towards agriculture and farming. Other factors include environmental effects such as recurrent drought, and climate change and pests and diseases. From: Country Report on the State of Plant Genetic Resources for Food and Agriculture (<http://www.fao.org/3/i1500e/Palau.pdf>).



TARGET 14. Essential ecosystem services

Palau's environment is widely recognized as the basis for the economy, and many efforts are underway to provide for sustainable livelihoods. The Responsible Tourism Policy Framework is tied directly to livelihoods via protecting the environment that tourists come to see, and by expanding the viability of the cultural environment as a tourist destination. The PAN is linked with sustainable financing, so that eco-friendly jobs protect biodiversity. The Small Grants Programme's 6th Operation Phase Strategy has money dedicated to livelihood provision through sustainable agriculture. Watershed are protected specifically for water. The Sustainable Forest Management Policy manages forests as an economic resource and a source of climate resilience, in addition to biodiversity. MPAs protect fishery resources so that they can be harvested elsewhere.

Ecosystem services are largely intact, although in some areas (e.g. Airai Bay), the increase of sedimentation has led to lower water quality, loss of seagrass, and reduced fisheries. Areas where ecosystem services are not functional are small pockets. Overharvesting in marine environments, sedimentation from development, and loss of habitat from climate change are the primary pressures on ecosystem services.



TARGET 15. Ecosystem resilience

Resilient marine areas have been well studied (this continues) and many are protected. Resilience work on land is still far behind. Efforts to protect resilient areas include protection MPAs and Terrestrial Protected Areas, and by reducing impact with lower-pressure activities, either through permitting conditions or by land use planning. This presents a gap. There are many degraded lands and few have been restored. Eradications of rodents on small islands have restored plants and animals (Kayangel and Koror). Removal of invasive vines on Babeldaob also restores small areas at a time. Some burned areas have been slowly restored by replanting forest, and research has gone into determining effective method to restore forests on Babeldaob's thin soils (e.g. rates of fertilization). A comprehensive effort in Palau's Northern Reefs is seeking to remake the fishing pressure regime, allowing overfished areas to rebound.



TARGET 16. Nagoya Protocol on ABS

Palau ratified the Nagoya Protocol in 2018 and passed National ABS legislation. Development of regulations is underway.



TARGET 17. NBSAPs

Palau NBSAP has been updated, adopted, implemented, and is current (NBSAP 2015-2025). The NBSAP, which was developed through a participatory and consultative process with a wide range of communities and resource managers, was an important foundation in the development of the Responsible Tourism Policy Framework and subsequent policies (Sustainable Forest Management Policy). Palau's Bureau of Tourism's Strategic Plan 2019-2023 integrates activities from the NBSAP (such as development of Best Practices, creation of economic partnerships like Green Fins, and advocacy of standards and Codes of Conduct). The NBSAP informed the development of indicators for the 2017 and 2019 State of the Environment Reports.



18. Traditional knowledge

A key step in protecting traditional knowledge has been the passage of the Access and Benefit Sharing legislation in 2018. Regulations will further protect traditional knowledge. Traditional Knowledge has been institutionalized in certain processes, such as Management Planning for PAN Sites, the creation of the biennial National Environmental Symposium (which sources information from community research and knowledge), and as a specific funding target by the Small Grants Programme (6th Operation Phase (OP6) Strategic Plan). Informally, the cataloguing and transfer of Traditional Knowledge has increased, with government and NGOs supporting documentation and skills transfer (e.g. PICRC's Paradise of Nature Book, the Ebiil Society's Camp Ebiil program, Palau Visitor's Authority promotion of cultural experiences, and through the mandate of Ministry of Cultural and Community Affairs). The Earthmoving Permitting process includes a provision for Historical Clearance, and cultural artifacts must be documented. The Bureau of Agriculture supports community-based efforts to implement traditional knowledge-based farming and agro-forestry, and there have been numerous efforts to revive traditional taro practices, many supported through environmental and biodiversity initiatives.



19. Biodiversity knowledge

The availability of biodiversity information is excellent, with many resources. In some cases there is information overload, and now efforts are going into Knowledge Management, where Palau is lagging. The ability to search and find environmental information is improving, but there are still frustrating gaps given the wide range of participants in the sector. On island sharing of information has improved greatly, both among government and nongovernment, but a major gap exists when foreign researchers are involved. The ABS regulations will improve this. A Database to catalog and store information is being developed, but it will be a primary stopgap, as the level of biodiversity information available is beyond the capacity of current libraries and cataloguing systems. Two linked national efforts include the State of the Environment Report, which reports on conditions and trends of key marine, terrestrial, and human/urban indicators; and the National Environmental Symposium, which allows for reporting on current research efforts and environmental activities. Biodiversity information is integrated into the educational system from elementary school all the way through Community College.



20. Resource mobilization

Palau has steadily increased financial resources mobilized internally. Sources of financing come from the Pristine Paradise Environmental Impact Fee (formally called Green Fee) which is used to support the PAN, water protection, and other environmental actions. PAN financing also comes from the Micronesia Challenge Endowment Fund. Individual States are also developing sustainable use plans that include resource mobilization via permitting (e.g. for eco-resorts or park permits). Many nonprofits have established more sustainable sources of funding, such as Endowment Funds and on-island partnerships with businesses. Palau has started to directly access its GEF Funds through National Projects (GEF5 and GEF6, with GEF7 in preparation). The National Government also appropriates funds from taxes and fees to support biodiversity efforts (via funding of Ministries). A Sustainable Financing Plan was developed for the Micronesia Challenge Endowment/PAN, the Sustainable Land Management (SLM) Policy, and the Climate Change Policy (with a 5-year cost of \$500 million). However, Sustainable Financing is not tracked in a comprehensive manner. In 2010 the Palau Conservation Society estimated that the (much smaller then) environment sector brought in around \$6 million dollars a year in mostly grants from foreign entities; this was prior to the NGO securing its first million-dollar grant and before Palau accessed its GEF money directly.

IMPLEMENTATION OF THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT AND THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)

The progress described here supports the following SDG Goals:

SDG6: Reducing freshwater stress through watershed protection via protected areas and the PAN and through integrated freshwater management.

SDG12: Promoting and supporting Sustainable Consumption and Production within the agricultural and fishery sectors.

SDG13: Increasing climate resilience through protected areas, maintenance of ecosystem services, and knowledge management.

SDG14: Significantly contributing to sustainable use of life under water, through protection, sustainable use, monitoring, research, compliance and enforcement, and governance. Directly contributes to Indicator 14.5.1 - Coverage of protected areas in relation to marine areas; 14.b.1 - Proportion of national fishery production that are catches by small-medium fishery businesses or Progress by countries in adopting and implementing a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries

SDG15: Significantly contributing to sustainable use of life on land, through protection, sustainable use, monitoring, research, compliance and enforcement, and governance. Directly contributes to:

- Indicator 15.1.2 - Proportion of important sites for freshwater biodiversity that are covered by protected areas;
- 15.3.1 - Proportion of land that is degraded over total land area;
- 15.2.1 - Progress towards sustainable forest management;
- 15.6.1 - Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits;
- 15.7.1 - Proportion of traded wildlife that was poached or illicitly trafficked;
- 15.8.1 - Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species



SECTION V.

DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF THE TARGETS OF THE GLOBAL STRATEGY FOR PLANT CONSERVATION (GSPC)

Introduction

The Global Strategy for Plant Conservation (GSPC) aims to halt the loss of plant diversity, contribute to poverty reduction and sustainable development, and promote the sharing of the benefits arising from the use of plant genetic resources. The GSPC facilitates cooperation at all levels—local, national, regional and global—to understand, conserve and to sustainably use the world’s immense wealth of plant diversity while promoting awareness and building the necessary tools for its implementation.

Assessment of Progress

While Palau contributes to the GSPC, it is not mandated to do so under the CBD. Thus, Palau does not have national targets related to the GSPC. Here, Palau reports on relevant GSPC Targets.

TARGET 1. An online flora of all known plants

Category of progress towards the target at the national level

Progress towards target but at an insufficient rate

I

Objective I: Plant diversity is well understood, documented and recognized

Target 1: An online Flora of all known plants

Target 2: An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action

Target 3: Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared

II

Objective II: Plant diversity is urgently and effectively conserved

Target 4: At least 15 per cent of each ecological region or vegetation type secured through effective management and/or restoration

Target 5: At least 75 per cent of the most important areas for plant diversity of each ecological region protected, with effective management in place for conserving plants and their genetic diversity

Target 6: At least 75 per cent of production lands in each sector managed sustainably, consistent with the conservation of plant diversity

Target 7: At least 75 per cent of known threatened plant species conserved *in situ*

Target 8: At least 75 per cent of threatened plant species in *ex situ* collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration programmes

Target 9: 70 per cent of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local knowledge

Target 10: Effective management plans in place to prevent new biological invasions and to manage important areas for plant diversity that are invaded

III

Objective III: Plant diversity is used in a sustainable and equitable manner

Target 11: No species of wild flora endangered by international trade

Target 12: All wild-harvested plant-based products sourced sustainably

Target 13: Indigenous and local knowledge, innovations and practices associated with plant resources, maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care

IV

Objective IV: Education and awareness about plant diversity, its role in sustainable livelihoods and importance to all life on earth is promoted

Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes

V

Objective V: The capacities and public engagement necessary to implement the Strategy have been developed

Target 15: The number of trained people working with appropriate facilities sufficient according to national needs, to achieve the targets of this Strategy

Target 16: Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and international levels to achieve the targets of this Strategy

Source: https://www.plants2020.net/files/Plants2020/popular_guide/englishguide.pdf

Explanation on category of progress

A 2010-2012 project on Threatened Endemic Plants of Palau included the following objective:

- Objective 5. A national database of all historic plant collection records from Palau is updated to enable species distribution mapping and prioritization of poorly collected localities.

A CEPF-published report (2013) discussed results:

“Prior to conducting the field work for this project we were contacted by Michael Thomas from the University of Hawaii, who informed us of his NSF funded project to database and scan all herbarium specimens held in herbariums across the Pacific. ... Michael visited the Belau National Museum during our fieldwork and he completed scanning half of the BNM collection. We ... support[ed] the labor to get these specimens databased and processed and then re-organised and curated in the herbarium to better facilitate completion on his next visit. When this project is complete, all of Palau’s herbarium specimens will be publically available through the website www.pacificherbaria.org. All the data entry is standardized and will enable efficient and accurate mapping of all collection records per species. We also trained BNM staff in the use of free GIS programs for mapping species from point locality data. A total of 214 collections were made throughout the course of the fieldwork and at least one duplicate of each was accessed by BNM. Duplicates were also sent to the National Tropical Botanic Gardens, Kauai, The New York Botanic Garden, The Royal Botanic Gardens Kew, Tulane University, The University of Hawaii, and the Australian Tropical Herbarium. Many of the collections made were previously absent from the BNM collection. These collections and ongoing collecting activities provide valuable data on the distribution of Palau’s species.”

From: <https://www.cepf.net/resources/documents/threatened-endemic-plants-palau>

TARGET 2.

An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action

Category of progress towards the target

Progress towards target but at an insufficient rate

Explanation on category of progress

A 2010-2012 project on Threatened Endemic Plants of Palau included the following objectives:

- Objective 1. Achieve IUCN red-listing status for all sufficiently known endemic plant species (approximately 51 species).
- Objective 2. Reduce the data deficiency gap for Palau’s endemic plant species by approximately 10%.
- Objective 3. Population size and relative abundance for four threatened plant species with small, restricted ranges is clarified and documented.

A CEPF-published report (2013) discussed results:

Objective 1: “Our first IUCN submission attempt was rejected due to our methodology extending beyond the 100-year time frame for data on habitat/population decline. Instead of seeing this as a setback we saw it as an opportunity and published our findings in Biological Conservation (Costion et al. 2012) calling for the conservation community to consider long term declines of species not just declines in the short term. A second attempt of IUCN submission for Palau’s endemic flora, using data that only recently became available with the completion of project collaborator Akiko Iida’s thesis, is now in review. The data and methodology used in this second attempt is very rigorous and extensive and more importantly fits within IUCN’s 100-year time frame limitation so should get accepted. Two separate IUCN assessments have been submitted to IUCN for *Parkia parvifoliola* and *Ponapea palauensis* for threatened status using the results from the fieldwork from this project. These assessments are now in review.

Objective 2: “In 2009, 61% of Palau’s endemic plants were considered ‘DD’ data deficient (Costion et al. 2009) which is approximately 79 species. Thus to meet our target we needed to increase knowledge for 8 species. We aimed to do this through both targeted collections of poorly known taxa and through opportunistic findings while conducting the population inventories (Objective 3). If our second IUCN submission attempt is accepted then we over-achieved this aim by far. Regardless of IUCN recognition we can confidently report that knowledge on the distribution, abundance and/or species boundaries was increased for a total of 16 species. We thus increased knowledge on at least 20% of the data deficient species.

Objective 3: “This was achieved for *Ponapea palauensis*, *Parkia parvifoliola*, *Timonius salsedoi*, *Pandanus pellii-ensis*, *Maesa canfieldiae*.”

From: <https://www.cepf.net/resources/documents/threatened-endemic-plants-palau>

SECTION VI. DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF THE TARGETS OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES

Palau is fortunate that its original indigenous people have maintained our independence and culture, despite decades of colonization and foreign influence. Palauans are the original indigenous people, and thus all contributions to the NBSAP are done by indigenous people. Each Target included community-based activities. In most cases, every

activity has a National Government-NGO-Community-based partnership. All activities are participatory, and decisions are made by consensus using traditional practices. All resources on land and nearshore waters are owned by municipal governments (not the National Government), who find compromise among villages and communities.

SECTION VII. UPDATED BIODIVERSITY COUNTRY PROFILE

Biodiversity facts : Status and trends of biodiversity, including benefits from biodiversity and ecosystem services and functions:

The Republic of Palau is an archipelago in the Pacific Ocean, located approximately 800 km north of Papua New Guinea and 800 km east of the Philippines. The country has an exclusive economic zone (EEZ) of 3,120,000 km², and a total land area of 488 km². The land area is comprised of over 700 islands, stretching more than 650 km from the atoll of Kayangel in the north to the islet of Helen Reef and Hatohobei in the south. A mini-census conducted in 2012 found the resident population of Palau to be less than 19,000 people, of which approximately 1/3 were resident foreigners. In total, only twelve islands are continuously inhabited, while other islands, particularly in the Rock Islands Southern Lagoon, include some amenities to support picnicking and camping.

Four distinct island types are found in Palau: atoll islands, high limestone islands (the Rock Islands), low platform islands, and volcanic islands. Terrain varies from low coral islands fringed by large barrier reefs to the high mountainous main island of Babeldaob, which has rivers, wetlands, and 10 watersheds. Babeldaob is the largest island in Palau, and, after Guam, the second largest island in Micronesia. Distributed across the hundreds of islands that make up Palau are numerous habitats harboring a wealth of biodiversity. Habitats include:

- Forests—upland forests, swamp forests, limestone forests, atoll forests, and mangrove
- 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, sandy beaches; and,
- Coral reefs—barrier reefs, patch reefs, and fringing reefs.

At one time all of Palau was likely covered by forests, but a 2007 forest cover analysis estimated forest cover to be 82%, including agroforestry. It has the greatest area of continuous native forest in Micronesia. With more than 1,200 species of plants, of which over 860 are native, its forests are the most species-diverse in Micronesia. A wide range of plant and animal species rely on these native forests for their survival. In addition, the forests provide vital ecosystem services that maintain the quality and ecological integrity of all of the terrestrial and marine ecosystems, such as sediment trapping, temperature stabilization, soil production and conservation, and providing nursery areas for reef fish. Palau's forests are highly valued as watershed areas, for preventing soil erosion, as sources of firewood, medicines, building materials, and as areas to forage and hunt for food. Urbanization has resulted in forest loss and other substantial changes to the environment in some areas, especially in and around Koror, the population and economic center of Palau. Near shore ecosystems are heavily influenced by land use decisions in nearby terrestrial areas. As a result, seagrass beds, mudflats, mangroves and reefs located near development are experiencing increased environmental pressures resulting from activities on land.

Palau is home to many species and ecosystems that are endemic or rare. Palau's geographical and geological characteristics 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 the most

diverse terrestrial biodiversity in the Micronesia region, and one of the most biologically diverse underwater environments globally. Approximately 1,000 endemic species are found in Palau, primarily in terrestrial habitats. Endemic species included nearly 200 plant species, including 60 species of orchids, 300 terrestrial gastropods, 500 insects, 12 amphibians and reptiles, 4 freshwater fishes, and 2 bat species. As is the case with many small, isolated Pacific islands, Palau's native diversity of terrestrial mammals is limited to bats. The richest diversity is found in the Class Hexapoda (insects) which is notably the most diverse group of animals on the face of the earth. Over 1,200 species of insects and closely related arthropods, with an endemism rate of around 25%, have been documented; however a recent study suggests the number of terrestrial arthropods may approach 10,000 species. At least 95% of land snail species are endemic. Also, recent survey work has increased the number of ant species from an original estimate of 16 species to 80 or more species, and established the presence of functional groups of ants that can be used as bioindicators for monitoring the health of Palau's forest ecosystems. As such, ants provide an example of the urgent need for further study of terrestrial arthropods. Very little is known about the native (indigenous) freshwater fishes of Palau however at least 40 species are thought to occur in Palau's rivers (the most diverse group is the gobies, which include four or more endemic species). Palau has 44 species of reptiles and two species of amphibians. The Palauan frog, *Platymantis pelewensis*, is the only endemic amphibian in Palau and is unusual in that very few endemic frogs are known from small island countries. A total of 171 bird species from Palau have been reported, highlighted by 21 endemics including 11 endemic species, 6 endemic subspecies and 2 endemic genera.

Palau is on the northeastern margin of the Coral Triangle, a region which has the highest diversity of shallow-water marine species in the world. Although Palau has slightly fewer species than found in the Coral Triangle, the diversity of marine habitats found within the relatively small area of the Palauan archipelago is probably as great as could be found anywhere in the world. Palau has the highest levels of marine and terrestrial biodiversity within Micronesia. Palau has the richest fish fauna in Micronesia (95% of Micronesian fish species are found in Palau). Palau supports more than 350 species of hard coral, 200 species of soft coral, over 300 species of sponges and more than 1,300 species of reef fish. Its waters are also home to endangered and vulnerable species such as the dugong, saltwater crocodile, hawksbill and green turtles, and giant clams. Palau also has more than 60 marine lakes, of which five are home to stingless jellyfish that have evolved in these unique ecosystems.

While there are hundreds of known endemic marine and terrestrial species in Palau, it is likely that there are more species that have yet to be described by science. In 2011 a new species of marine eel, *Protanguilla palau*, was discovered in the Rock Islands. The eel species was found in a cave near Ngemelis island, a popular tourist destination. *Protanguilla palau* is a living fossil, representing a previously unknown family of eels and demonstrating characteristics of early eel evolution. Such discoveries underscore the need for further study and conservation of Palau's biological resources.

However, the El Niño event in 1998 led to significant ecosystem damage in both marine and terrestrial environments. Elevated seawater temperatures contributed to massive coral bleaching and decline of sea life in near shore areas. Reefs on Palau's East Coasts have yet to recover fully from the event. At the peak of the El Niño event in March 1998, Palau received the lowest amount of rainfall in over 100 years of records. The resulting drought led to depletion of water supplies, crop failures, and uncontrolled wildfires on some islands. Rising sea levels due to climate change as well as the increased frequency and intensity of tropical typhoons also due to climate change are the most urgent threats to Palau's bird diversity. The Palau Megapode is critically endangered by climate change and hunting. Recent typhoons have destroyed approximately 15% of the Megapode nesting grounds in Palau.

On average, marine tourism accounts for 50% of Palau's GDP. Significant additional income is generated by offshore fisheries.

As discussed in Target 2 and ABT 12, biodiversity is stable and no native species have gone extinct in the near past. Many species are on the Red List and Palau's Endangered Species List. As discussed in Targets 4, 5, and 7, Biodiversity and Ecosystem Services are widely recognized as important to the economy and to subsistence livelihoods. Palau is highly reliant on its natural environment for income, food, and identity.

Main pressures on and drivers of change to biodiversity (direct and indirect)

Palau has put considerable effort into improving natural resource management at all levels of society, from national legislation to community-driven initiatives. Taking into consideration the limited resources available, these actions have typically been designed to address multiple issues at once. Palau is facing a number of developmental and environmental challenges that are likely to impact biodiversity. The causes of and relationships between these issues are complex, but can generally be grouped into several primary issues:

1. Climate Change
2. Economic Development
3. Population Growth and Urbanization
4. Water Quality and Quantity
5. Conservation and Protection
6. Sustainable Use
7. Cultural Preservation
8. Data Gaps

Palauan culture is closely linked with the environment, with biodiversity playing an important role in all facets of traditional Palauan life. Historically, plants and animals provided the natural resources needed for food, shelter, medicine and all other aspects of Klechibelau, or “Palauanness.” Traditional management practices, including institution of bul (moratoriums on the harvesting of targeted species), enabled Palauans to create a sustainable balance between conservation and development. Since Palauan communities have traditionally relied on fishing and other near shore activities as a major source of food and economic opportunity, nature conservation efforts have historically focused on managing threats to coastal marine environments. While fishing and other uses of near shore environments continue to be important, changing development trends and the growth of new industries, particularly tourism, are driving shifts in the Palauan way of life. As a result, not only have pressures on the environment increased, the nature and scope of these pressures has changed as well.

Modern development trends and the demands of globalization have outpaced traditional management practices. As a result, current management practices need to be improved in order to effectively support development into the future. As the society changes from a traditional subsistence--based economy to a westernized commercial economy, and from a village--based management system to one centered in the national government, the culture of care Palauans once had for their natural heritage is being eroded. The loss of traditional knowledge and practices, internal population movement and a growing number of visitors to the country are increasing the demands on a fragile environment.

Construction of the 52-mile long Compact Road around Babeldaob has opened the island up to development and enabled internal population movement. Previously inaccessible areas of relatively undisturbed forest are now at risk of being developed for commercial, agricultural and residential purposes, placing associated ecosystems and biodiversity at risk. Proposals for development have included major resort hotels, golf courses, casinos, a new port, and a free trade zone. These land use activities will also impact adjacent coastal reef areas. Compounding

these immediate threats, Palau’s reefs suffered high levels of coral bleaching and mortality following the 1998 El Niño Southern Oscillation (ENSO) event. ENSO events are expected to increase in frequency and intensity in the future, posing a serious threat to the biodiversity of coral reefs in Palau.

Global Climate Change compounds local challenges through widespread impacts such as sea level rise, droughts and more frequent storms. Invasive alien species (IAS) brought both intentionally and unintentionally are serious threats to biodiversity. Environmental degradation caused by humans or other factors such as fires or the impacts of Climate Change leave ecosystems open to colonization by invasive species. That Palau’s environment is facing both local and global pressures means that protection of the country’s biological resources will require substantial coordination and cooperation across all sectors.

Its rich biodiversity and unique environmental features grant global significance to conservation and sustainability efforts in Palau. At the same time, Palau’s relatively high standard of living and strong economy in comparison to other small island developing states (SIDS) make conservation and sustainability activities taken here regionally significant. Palau has the capacity to not only adopt policy, but to test its implementation as well. As a result, lessons learned here may be valuable to other SIDS facing similar issues, allowing them to choose proven policies and implementation strategies that are relevant to island settings to address their conservation needs. At a local level, improving knowledge sharing has the potential to promote informed decision making, reduce redundancy and associated resource consumption, and fill information gaps that can interfere with planning processes. Improving data collection, evaluation, reporting, information accessibility, public outreach and participation in international conferences, research and other opportunities for knowledge exchange are elements of improving biodiversity conservation.

Implementation of the NBSAP

Palau completed its first NBSAP in 2005 which was developed around 8 thematic areas: Protected/Managed Areas; Species Protection; Biosecurity - Invasive Species and Biosafety; Sharing of Benefits of Genetic Resources; Sustainable Economic Development; Prevention or Minimization of Waste; Agricultural Biodiversity; Mainstreaming of Biodiversity Conservation. Over the last 10 years, biodiversity conservation in general and community-based conservation activities in particular have grown considerably in Palau. Local communities have designated protected areas throughout the country in order to protect species and sites important to them. The number of these protected

areas in Palau has more than doubled in the past 10 years. Implementation of the current NBSAP has been underway since 2015, and it has influenced development of National Policies (Sustainable Forest Management, Responsible Tourism) and has been implemented via GEF-funded projects. All 7 of the NBSAP's goals/CBD Targets are being implemented; 3 are on track to be achieved and 4 are progressing but with challenges. Palau remains committed to its NBSAP.

Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020

Palau's actions contribute directly to the five strategic goals of the 2011-2010 Plan. Under Strategic Goal A, both National and State Governments have mainstreaming biodiversity into policies and laws. All new policies explicitly speak to environmental protection, and there is wide recognition that biodiversity and ecosystem services are essential to the economy and livelihoods. Aligning these national and local level policies to action on the ground remains a priority. Under Strategic Goal B, Palau has taken several steps to reduce direct pressures on biodiversity. Notable examples include the establishment of a wide range of Protected areas on land and in the sea, with restrictions on harvest; National and Traditional Laws that prohibit harvesting of certain species; species recovery actions such as Invasive species control and eradication; extensive education and outreach on sustainable use; and implementation of Best Practices in agriculture, aquaculture, and forestry. Promoting sustainable use in nearshore fisheries remains a challenge, although efforts to promote sustainable use of offshore fisheries are hoping to divert some unsustainable uses. Under Strategic Goal C, many Protected Areas on land and water are designed to safeguard ecosystems and ecosystem services, notably water protection; improvements in Biosecurity and Mainstreaming are removing threats from Invasive Species and over-use; and recent legislation on Access and Benefit Sharing will move Palau forward in protecting genetic diversity. Under Strategic Goal D, much of Palau's biodiversity and ecosystem services already provide maximum benefits, so the majority of effort goes into maintaining those benefits, often via Protected Areas, implementation of regulations; or promotion of Best Practices. Some degraded areas have been targeted for restoration (e.g. burned areas on land, removal of invasive species). Under Strategic Goal E, Palau is a leader in participatory, community-based planning and partnerships. Support for environmental protection is strong throughout society. There are a wide and large body of Capacity Building opportunities, targeting many diverse groups. Information produced is accessible and used; Knowledge Management remains a challenge.

Support mechanisms for national implementation

The 2015-2025 NBSAP was drafted through a participatory, community-based consultative effort by a respected NGO, and was subsequently adopted by National Government Policymakers. The NBSAP is executed by the Ministry of Natural Resources, Environment and Tourism (MNRET) in partnership with other organizations (e.g. the Palau Conservation Society), via collaborative means such as the National Environmental Protection Council and the Palau Conservation Consortium. There is very strong support for maintaining biodiversity and implementing the NBSAP. The NBSAP was aligned with other initiatives in country (such as the Protected Areas Network (PAN)) and Biosecurity Efforts, so elements of the NBSAP have been funded by large-scale National Projects. Palau National GEF5 Project implemented aspects of Target 1 (PAN), Target 4 (Sustainable Use), and Target 7 (Awareness) and GEF6 will implement aspects of Target 2 (Species), Target 3 (Biosecurity), and Target 5 (Mainstreaming). Capacity building and Coordination are built into these projects. The participatory manner of project design is essential, given that ownership of natural resources is established in Article I, Section 2 of Palau's Constitution, stating that each state "has exclusive ownership of all living and nonliving resources, except highly migratory fish, from the land to twelve nautical miles seaward of the baseline." Land can be owned by individual Palauan citizens, clans, or by state and national governments, in which case lands are often administered by designated government agencies. Given that the National Government has little direct ownership, coordination, mainstreaming, and support from communities and local governments is essential.

Mechanisms for monitoring and reviewing implementation

Reviewing the NBSAP has been done by a participatory and consultative process, combined with expert opinions and data analysis. A Validation Workshop was held with multiple partners to review the CBD report. Because so much of the NBSAP is integrated into other projects (GEF5 and GEF6), monitoring and review falls under the M&E Plans for those projects, which are monitored regularly. Processes such as the State of the Environment Reports, National Environment Symposium, and National Dialogue include many mechanisms for reviewing the state of biodiversity. However, currently there is no institutionalized mechanism for monitoring and reviewing the NBSAP (unlike the SDGs, which are institutionalized under the government's budgetary process). This remains a gap. Palau's National Environmental Protection Council is developing a Strategy by which monitoring of National Policies is more formalized. The Ministry of Natural Resources, Environment and Tourism (MNRET) has clear authority over the NBSAP and Palau's commitments to the CBD.

SECTION VIII. DOCUMENTS AND DIGITAL RESOURCES UPLOADED TO PALAU'S ONLINE 6TH NATIONAL REPORT

Target 1: By 2020, the Palau Protected Areas Network is adequately funded, effectively managed and includes representative areas of all ecosystems and habitats in Palau

Rationale for Target

[Palau PAN Fund Website](#)

[WILDAID Palau PAN Assessment.pdf](#)

[FishNews144_02_Blanc.pdf](#)

[Final_Palau-Responsible-Tourism-Framework1.pdf](#)

[Climate Change - PalauCCPolicy_LowResolution.pdf](#)

[SLM_Land Management - SLM Policy Packet_Final_april17.pdf](#)

Progress on Target

[2017 Annual Report_PANFund_shortversion.pdf](#)

[PAN2015_StatusReport_Final_LowResolution-2\(1\).pdf](#)

[PAN2015_StatusReport_Appendix_LowResolution2\(1\).pdf](#)

[Friedlander et al: Size, age, and habitat determine effectiveness of Palau's Marine Protected Areas](#)

[Palau International Coral Reef Center website, with technical reports on individual MPAs. See: Marino et al. \(2018-Ngermedellim\);](#)

[Gouezo et al. \(2018-Teluleu\); Marino et al. \(2018-luaiu\); Gouezo et al. \(2018-Ngemai\); Mumby et al. \(2018\); Marino and Jona-](#)

[than \(2018-Angaur\); Marino and Jonathan \(2018-Melekeok\); Marino et al. \(2017-Ngatpang\); Marino et al. \(2017-Airai\); Koshi-](#)

[ba et al. \(2016-Kayangel\); Koshi-](#)

[ba et al. \(2016-Ngchesar\); Koshi-](#)

[ba et al. \(2016-Ngiwal\); Koshi-](#)

[ba et al. \(2016-Peleliu\); Koshi-](#)

[ba et al. \(2016-Ngaraard\)](#)

[Gouezo et al 2017: 15 years of coral reef monitoring demonstrates the resilience of Palau's coral reefs](#)

[Gouezo et al 2016: Ecological conditions of coral-reef and seagrass marine protected areas in Palau](#)

[ANU Stakeholder Study: Decision-making in the Palau Protected Areas Network](#)

[PICRC 14-05: Assessing Conservation Benefits of Protected Areas](#)

[Palau PAN 2020 strategic plan v.3.15.pdf](#)

[Warner report_Improving the Design of the Palau PAN - 2015.pdf](#)

[Micronesia_TNC_Mgmt_Effectiveness_Micronesia.pdf](#)

[Assessing Conservation Benefits of Protected Areas](#)

[MARINE BIODIVERSITY AND PROTECTED AREAS IN PALAU \(PICRC\)](#)

[2017 Palau SOE_FINAL_LowResolution.pdf](#)

[Management Planning Recommendations-Criteria-Contents - Palau PAN.pdf](#)

[State of Palau's Birds 2017](#)

[State of Palau's Birds 2016](#)

[MPA Monitoring_Protocol.pdf](#)

[MicronesiaChallenge_Socioeconomic_Monitoring_2017.pdf](#)

[Forest Dynamics Monitoring in Palau](#)

[Micronesia Challenge Monitoring Protocols Summary](#)

Target 2: Maintain healthy populations of key species and their habitats

Rationale for Target

[2015 aichi-12-country-data-dossier-reducing-risk-of-extinction-summary.pdf](#)

[Costion-2013-ci_cepfbiodiversity_conservation_lessons-19-palau-plants.pdf](#)

[Plant_Endemism_Rarity_and_Threat_in_Palau_Micrones.pdf](#)

[State of Palau's Birds 2010 \(with endemic species and endemic subspecies\)](#)

[Marine Environments of Palau by Dr. Patrick Colin \(habitat and species diversity\)](#)

[Paradise of Nature, PICRC \(overview of biodiversity at the species and ecosystem level\)](#)

[Palau 2017 State of the Environment Report \(Status of species\)](#)

Progress on Target

[Proposed Endangered Species List ESA 2018.xlsx](#)
[2019 SOE-FullDraft-May8.pdf](#)
[Colin 2009: Marine Environments of Palau](#)
[CRRF: Marine Species Diversity](#)
[PICRC 2016: Epizoanthus beriber](#)
[ChecklistPalau_VascularPlants.pdf](#)
[Costion_2011-Plants_PhDThesis.pdf](#)
[Costion-2013-ci_cepfbiodiversityconservationlessons-19-palau-plants.pdf](#)
[Plant Endemism Rarity and Threat in Palau Micrones.pdf](#)
[Palau Bird Records Committee - Overview and Organization.pdf](#)
[Bylaws PBRC.pdf](#)
[Otobed et al. List of Birds in Palau.pdf](#)
[Important Bird Areas in Palau](#)
[BNM 2017 - Legacy of the Northern Peleliu Lkes Important Bird Area Info and Cover.pdf](#)
[TNC ERA 2007: EcoRegional Planning](#)
[Warner report_Improving the Design of the Palau PAN - FINAL DRAFT 9 March 2015.pdf](#)
[Migratory shorebird conservation in Palau \(Video\)](#)
[1.FishNews144_02_Blanc.pdf](#)
[Bigue-Rosario-WildAid-2014 Palau Northern Reef Assessment.pdf](#)
[World Heritage site for Rock Islands Southern Lagoon](#)
[State of Palaus Birds 2013.pdf](#)
[State of Palaus Birds 2014.pdf](#)
[State of Palaus Birds 2015.pdf](#)
[State of Palau's Birds 2016](#)
[State of Palau's Birds 2017](#)
[Olsen et al 2016 - Megapode survey.pdf](#)
[Olsen 2009_reefant.pdf](#)
[Olsen - Encyclopedia of Islands-Palau.pdf](#)
[BWA Action Plan Draft.pdf](#)
[R2R - students_book FINAL 2016.pdf](#)
[R2R teacher_book FINAL 2016.pdf](#)
[State of Palaus Birds 2011.pdf](#)
[Native Trees of Palau Book \(Kitalong et al 2008\)](#)
[Palau BMR Annual Report_final.pdf](#)
[PBRC Briefing Monitoring Program.pdf](#)
[Olsen-Eberdong 2014 Rufous Night Heron.pdf](#)
[Olsen-Eberdong 2009 Micronesica 41\(1\) pp 59-69 Ngermeskang birds.pdf](#)
[Horii - 2018 Report of Bird monitoring in RISL no15 \(annual report\).pdf](#)
[Horii-Eberdong 2018 Report of First Saturday Birdwatch in 2018\[865\].pdf](#)
[Protocol for Monitoring Marine Protected Areas Protected Areas Network](#)
[Finalizing the Regional MPA Monitoring Protocol: Coral Reef Monitoring and 4th MC Measures Group Workshop](#)
[The Pacific Northwest Forest Inventory and Analysis \(PNW-FIA\) program](#)

Target 3: Protect Palau's biological diversity from negative impacts of invasive species and Living Modified Organisms (LMOs) through prevention, mitigation, and management

Rationale for Target

["Food Policy": Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau](#)
[Regional Biosecurity Plan for Micronesia and Hawaii](#)
[Palau National Invasive Species Committee website](#)
[Palau NISC Strategic Action Plan 2013-2017](#)
[Chapters 9 and 10, IAS, Paradise of Nature](#)
[Rppl-9-58-Biosecurity-act.pdf](#)
[NISSAP -FinalMay21_2018.pdf](#)

Progress on Target

[Island Conservation video: https://www.islandconservation.org/palau/](https://www.islandconservation.org/palau/).
[Palau National Invasive Species Committee website](#)
[rppl-9-58-biosecurity-act.pdf](#)
[NISSAP -FinalMay21_2018.pdf](#)
[Palau GEF6 National Project: Integrating Biodiversity Safeguards and Conservation into Planning and Development Protocol for Detection of Invasive Plants FINAL 20151123.pdf](#)
[Merremia-IAS-Removal Project 2017 to 2018.pdf](#)
[Merremia-IAS-Removal Project 2017-1.pdf](#)
[Paradise of Nature, Chapters 9 and 10 \(IAS and Macaques\)](#)

Target 4: Integrate biodiversity conservation and ecosystem services into Palau's sustainable development goals

Rationale for Target

[GEF6 National Project Document \(particularly assessment of policies and legislative gaps and baseline assessment of development challenges\)](#)
[Environment Statistics and System of Environment-Economic Accounting \(SEEA\) Assessment Report Quarterly Economic Indicators, Government of Palau](#)
[RPPL No. 10-28: To Create a National Framework on Access and Benefit Sharing Bureau of Tourism Strategic Plan.pdf](#)
[Sustainable Forest Management SFM Policy.pdf](#)

Progress on Target

[Final_Palau-Responsible-Tourism-Framework1.pdf](#)
[Food - Achieving Resilient Agriculture and Aquaculture.pdf](#)
[Climate Change Policy - PalauCCPolicy_LowResolution.pdf](#)
[SLM_Land Management - SLM Policy Packet_Final_april17.pdf](#)
[Sustainable Forest Management SFM Policy.pdf](#)
[Energy - Palau Energy Policy -Final_Signed.pdf](#)
[Water - NationalWaterPolicy_PresEndorsement.pdf](#)
[National Environmental Protection Council website](#)
[Palau GEF6 Project Document: Integrating Biodiversity Safeguards and Conservation into Planning and Development rppl-9-58-biosecurity-act.pdf](#)
[PNMS Quick Peek.pdf](#)
[Palau_NationalMasterDevelopmentPlan-2020_2010-06_Part1.pdf](#)
[National Assessment Report, Republic of Palau, May 2006](#)
[Dugong Protection Act](#)
[Palau Hawksbill Sea Turtle Moratorium and Sea Turtle Law](#)
[GreenFins Report.pdf](#)
[Palau ABS Law: To-Create-a-National-Framework-on-Access-and-Benefit-Sharing](#)
[Carlisle and Gruby 2018 - Fisheries governance.pdf](#)
[ANUStakeholder ReportLvK221215.pdf](#)
[2017 Palau SOE_FINAL_LowResolution.pdf](#)
[2016 Symposium Report - FinalDraftforReview.pdf](#)
[SOE-FullDraft-May8.pdf](#)
[Ebiil Society website - Real Fishermen](#)
[Bioeconomic modelling: Integrating economic and environmental systems?](#)
[PANFundReport.pdf](#)
[PICRC News, Presentations website](#)
[CRRF: Coral Reef Research Foundation website - Education](#)
[CAP: Conservation Action Planning](#)
[NEPC Link to Onboarding Package \(including National Policies\)](#)

Target 5: Establish an enabling framework to support sustainable biodiversity use and biodiversity-based livelihoods

Rationale for Target

[Summary of 2015 Fish Market Survey](#)
[Palau's reef fisheries: changes in size and spawning potential from past to present](#)
[GEF6 National Project Document \(list of Best Practices; Annex 4, Attachment 1\)](#)
[Palau Statewide Assessment of Forest Resources and Resource Strategy \(SWARS\)](#)
[Aquaculture - National Aquaculture Strategy - Final Draft - 2009.pdf](#)
[Palau Fisheries: 2015 Review](#)
[Palau_DomesticFishingLaws_2012.pdf](#)
[Food - Achieving Resilient Agriculture and Aquaculture.pdf](#)
[Title 27 PNCA - PNMS Act and Marine Protection Act of 1994.pdf](#)
[Environmental Quality Protection Act and Board \(laws, regulations, guides\)](#)

Progress on Target

[Green Fins Palau website](#)
[GreenFins Report.pdf](#)
[Palau Pledge Website, Pristine Paradise Palau](#)
[Palau SWARS: Forest Strategy](#)
[SOE-FullDraft-May8.pdf](#)
[Gillett 2016: Page 117 on Palau: Fisheries in the Economies of the Pacific Island Countries and Territories](#)
[Palau 2015 Census of Population, Housing, and Agriculture](#)
[Bureau of Tourism Strategic Plan.pdf](#)
[Koror State Tour Guide Training Program Manual](#)
[Green Boots program](#)
[2017-Statistical-Yearbook-Final.pdf](#)
[Biota Palau Aquaculture website](#)
[Example of skills transfer - Best Practices for Agriculture](#)
[Best Practices from GEF6 Annex 4.pdf](#)
[Palau GCF - Pre-Feasibility - Climate Impacts on Fisheries-Aquaculture-Agriculture.pdf](#)
[Sustainable Forest Management SFM Policy.pdf](#)
[Jan2005 Amendment to Regulations on the Reporting and Labeling of Exports of Marine Resources and Collection of Marine Resources for Aquaria and Research.pdf](#)
[New BMR Regulations for 2019.pdf](#)
[BMR Palau Regulations as of 2018.pdf](#)
[PALAUS NORTHERN REEF FISHERIES MANAGEMENT PLAN 2016-hfmay25.pdf](#)
[Title 27 PNCA - PNMS Act and Marine Protection Act of 1994.pdf](#)
[Palau_DomesticFishingLaws_2012.pdf](#)
[Palau-Fisheries-2015-Review.pdf](#)
[PALAU_TUNA_FISHERIES_STATÉGIC_PLAN_2017.pdf](#)
[palau_mcs_strategic_plan_final.pdf](#)
[Paradise of Nature Chapter 40: Our livelihood depends on nature, how plants are use](#)

Target 6: To conserve and sustainably manage Palau's agro-biodiversity for the benefit of present and future generations

Rationale for Target

[Taro Leaf Blight in Hawai'i](#)
[Paradise in Nature \(Chapters on Taro, Medicinal Herbs, and "our livelihood depends on nature"\)](#)
[RPPL No. 10-28: To Create a National Framework on Access and Benefit Sharing](#)
[State of Palau's Biodiversity for Food and Agriculture](#)
[Palau OP6 Small Grants Programme Strategy \(for involving civil society\)](#)

Progress on Target

[Belau National Museum collections](#)
[Island Conservation Hawaiian Seed Bank](#)
[National Tropical Botanical Garden website](#)
[SPC seed bank for salt-tolerant varieties of taro](#)
[Millenium Seed Bank article](#)
[THE STATE OF PALAU'S BIODIVERSITY FOR FOOD AND AGRICULTURE](#)
[Koshiha et al 2013 Palau taro fields.pdf](#)
[Manual-on-fruit-vegetable-Production-in-Palau_final-2015-optimized.pdf](#)
[Taro-Production_final-2015-optimized.pdf](#)
[TaroProduction-andValueAdding-Robert Bishop - Palau.pdf](#)
[03-1. Mesei Taro Field Landscapes in Palau.pdf](#)
[Ngarchelong Mesei - Missing pages.pdf](#)

Target 7: Biodiversity conservation and sustainable resource use is integrated into all aspects of government and community planning, development and operations

Rationale for Target

[Small Grants Programme Strategy](#)
[01-National Dialogue ReportFINAL.pdf](#)

Progress on Target

[PICRC Outreach information FY 2018.pdf](#)
[Micronesia Challenge Socio-economic Pilot Study,Palau](#)
[See Socioeconomic Surveys: Marino et al. \(2019-Koror\); Marino and Jonathan \(2018-Angaur\); Marino and Jonathan \(2018-Me-
lekeok\); Marino et al. \(2017-Ngatpang\); Marino et al. \(2017-Airai\)](#)
[National Dialogue Report FINAL.pdf](#)
[Ridge to Reef Student and Teacher Numbers 2016.PDF](#)
[Environmental Talk Show Videos \(PCS\) - Average.pdf](#)
[Palau Wave Radio Reach.pdf](#)
[R2R - students_book FINAL 2016.pdf](#)
[R2R teacher_book FINAL 2016.pdf](#)
[2016 Palau Education Statistical Yearbook.pdf](#)
[Green Fins website](#)
[TNC Fishing Co-op: Community Co-op is Saving its Fish](#)
[Real Fisherman Booklet](#)
[Real Fisherman Talk Show](#)
[PCS October 2018 Newsletter: Choose Pelagics](#)
[PCS January 2018 Newsletter: Choose Pelagics](#)
[PALAU CB2 Annual Project Report 2018 - UNDP](#)
[RBM Pre-Training Survey Results - Baseline.pdf](#)
[RBM Outreach report.pdf](#)
[Palau Environment Data Portal: Environmental Information for Decision Making](#)

Governance, Policy, and Legislative Framework

[Environmental Quality Protection Board \(EQPB\) Regulations](#)
[Environmental Quality Protection Act \(Chapter 1 of Title 24 of
Palau National Code\).](#)
[Title 27 PNCA - PNMS Act and Marine Protection Act of 1994.
pdf \(Palau National Marine Sanctuary Act\)](#)
[rppl-9-58-biosecurity-act.pdf \(Biosecurity Act\)](#)
[Link to National Environmental Policies](#)
[Protected Areas Network \(PAN\) Act](#)
[Future Policy Award website](#)



Training and Capacity Building

[Palau Capacity Building II \(CB2\) Project](#)
[PAN Capacity Building Scholarship Application](#)
[Palau Conservation Society: Demonstration of Agricultural Best Practices](#)
[PICRC: JICA Training on Coastal and Marine Conservation](#)

Communications, Outreach, and Awareness

[Farming Best Practices Handout.pdf](#)
[Taro Poster.pdf \(Taro Farming, Community, Family, Benefits, Culture, Environment\)](#)
[Watershed Poster.pdf \(Watershed, Water, Best Practices, Management, Ridge to Reef\)](#)
[Coral Reef Research Foundation Education website](#)
[Palau Conservation Society communications and outreach website](#)
[Video: Protecting Habitat and Fisheries: Preserving Palau's Reefs](#)
[Palau International Coral Reef Center website \(aquarium\)](#)
[Article on international arrivals and environmental outreach](#)

Data Collection, Research, Monitoring, and Knowledge Management

[PICRC Research and Capacity Building 2018.pdf \(Research, Training, PICRC, Palau International Coral Reef Center\)](#)
[Warner report_Improving the Design of the Palau PAN - 2015.pdf \(Warner - Nationwide PAN Design Study\)](#)
[Palau International Coral Reef Center: Research](#)
[Coral Reef Research Foundation: Research](#)
[Belau National Museum: Research Collections](#)
[Learning through fieldwork on Pacific coral reefs](#)
[Palau BMR Annual Report_final.pdf \(Bureau of Marine Resources \(BMR\) annual report, fisheries, tuna, export, CITES, permit\)](#)

Planning and Coordination

[Agenda - Aquaculture spatial planning and management in Palau Workshop 5 February 2019.pdf \(Planning, Aquaculture, Participatory, Community-based, Spatial\)](#)
[Management Planning Recommendations-Criteria-Contents - Palau PAN.pdf](#)
[Best Practices for planning.pdf](#)
[RBM_Project_Yr1_Progress_Report6292018.docx.pdf \(Results Based Management efforts\)](#)
[News article on National Dialogue.pdf \(News article on National Dialogue\)](#)

Field Activities

[Nekken Invasive Vine Clearing Map.pdf \(Field activities, IAS, Mikania, Merremia, Invasive, Plants, Community-Based\)](#)
[Melekeok Invasive Vine Clearing Map.pdf \(Field activities, IAS, Mikania, Merremia, Invasive, Plants, Community-Based\)](#)
[PAN - Monitoring and surveillance in Ngatpang](#)
[Kayangel eradication](#)
[Koror eradication](#)
[Taro restoration](#)

Resource Mobilization (Financial, Technical, Partnership-building)

[Legislation to create Pristine Paradise Environmental Fee](#)
[PAN Fund](#)

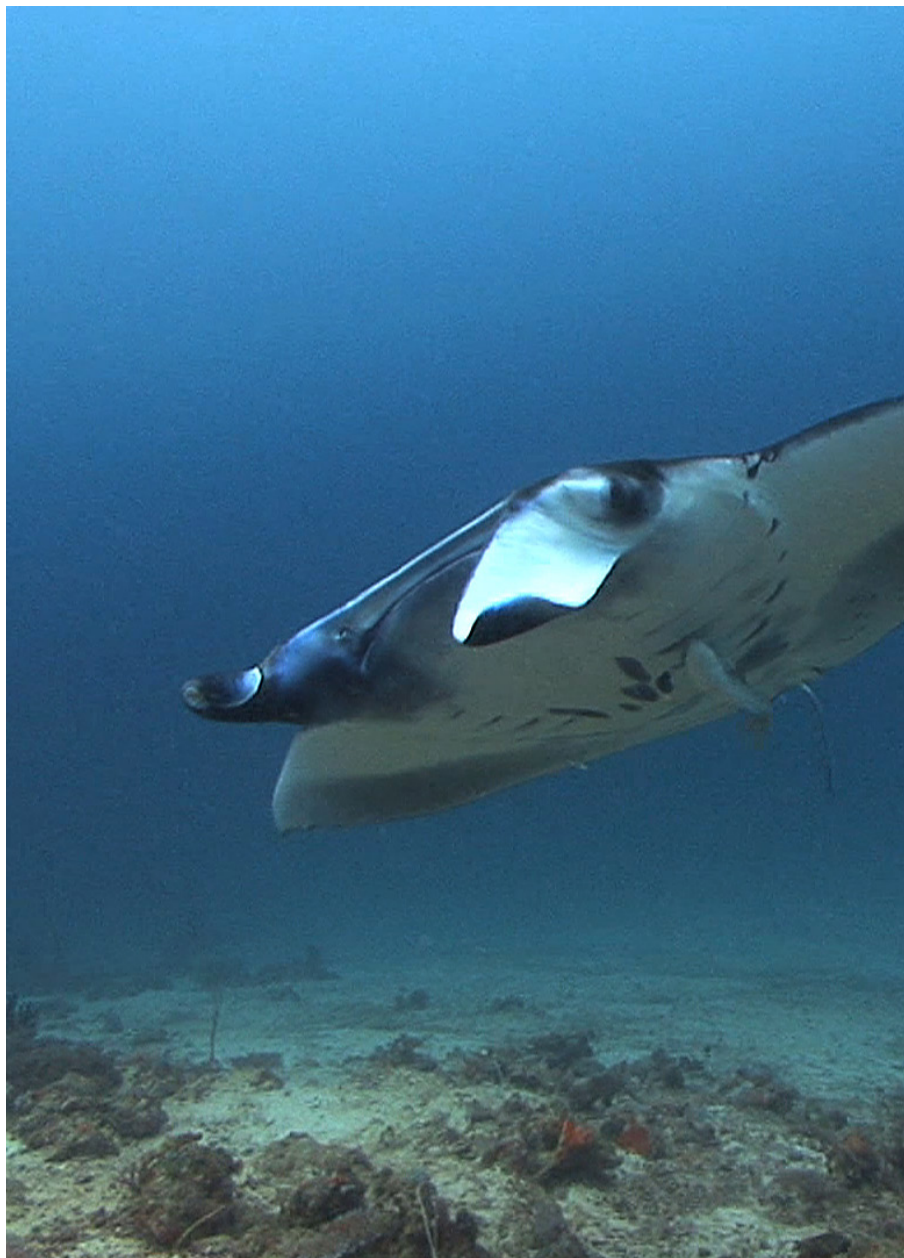
The Convention

[Text of the Convention](#)
[List of Parties](#)
[Programmes and Issues](#)
[Cooperation & Partnerships](#)





United Nations Decade on Biodiversity



Republic of Palau's 6th National Report to the Convention on Biological Diversity

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**Convention on
Biological Diversity**

