

Chuuk Biodiversity Strategy and Action Plan

The Federated States of Micronesia  
Chuuk Biodiversity Strategy and Action Plan

2018–2023

## Foreword

Chuuk State, which comprises sixteen high volcanic islands, one inhabited coral atoll in Chuuk Lagoon and twenty four inhabited outer islands, is the most populous state in the Federated States of Micronesia (FSM) with the highest population density, at 993 people per square mile, rising to 1,000 per square mile on the outer islands. Traditional culture plays an important role in Chuuk society and governance. The Islands Council of Chiefs is a stronghold of customs and traditions, and the members are the decision makers of such matters. Alongside the human population exists a rich and diverse natural world.

Chuuk is blessed with abundant nature, from the 612 species of fish in its waters, with the largest single lagoon in the FSM at approximately 820 sq. miles, to its high levels of species endemism. Chuuk is home to sixteen endemic plant species and three endemic bird species, and two endemic species of fruit bat, alongside dragon fly, fly and gecko species that are also known only to exist in Chuuk.

Conservation and sustainable management of the biodiversity in Chuuk are vital, and with most land and near-shore marine areas being privately owned in Chuuk, people and traditional governance are central to all matters of the environment and natural resources.

It must also be considered that the FSM is vulnerable to climate change, with Chuuk no exception to this with its many low-lying islands. The potential impact of climate change on Chuuk's biodiversity is also well understood, as is the potential role for biodiversity in climate change adaptation and mitigation.

Climate change is unfortunately not the only threat to Chuuk's biodiversity. The changing funding landscape has the potential to shape future conservation within the state, while other threats include environmental conversion and degradation, over-exploitation of resources, waste management and pollution, invasive and alien species, climate change, and infrastructure development are all recognised as threatening the natural resources of Chuuk.

Much work has been achieved in conserving biodiversity and natural resources within the state, with a number of nationwide initiatives having a significant impact. The Micronesia Challenge has supported the designation of many protected areas within Chuuk, while the ecoregional planning approach to biodiversity conservation has been adopted across the FSM has helped identify areas of biological significance. These will be further supported under the national Protected Area Network Framework and the Chuuk PAN law.

It is with all of these threads of knowledge and expertise about, and appreciation for the importance of, Chuuk's natural environment that this revised Chuuk Biodiversity Strategy and Action Plan (BSAP) has been developed.

### Vision for the Chuuk BSAP:

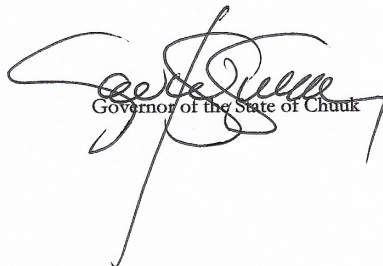
*The people of Chuuk will live in a clean and beautiful environment where biodiversity is resourceful and preserved, and where traditional knowledge and practices plus other modern knowledge and practices are utilized for the sake of sustainable development.*

### Goal of the Chuuk BSAP:

*The Chuuk State BSAP strives for successful actions to conserve, protect, preserve, and sustain Chuuk State biodiversity for the benefit of the people of Chuuk today and in the future.*

The Chuuk BSAP focuses on people, assistance, management and control as a way to consider the actions to be taken over the coming 5 years, with a summary of progress-to-date provided for each of these areas. It is clear from this revised Chuuk BSAP that extensive work has been achieved to date to conserve Chuuk's biodiversity and support its sustainable management. Yet there remains much to be done, and this BSAP provides a clear approach for protecting the biodiversity and natural resources of Chuuk, and enabling their sustainable use, for Chuuk's future generations.

Endorsed this 10<sup>th</sup> day of January

  
Governor of the State of Chuuk

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## Acknowledgements

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The Chuuk State Biodiversity Strategy and Action Plan (BSAP) 2018–2023 would not have been possible without the great efforts of a large number of people from a number of government agencies, non-governmental organizations, community-based organizations and communities, who gave freely of their time, their experience and invaluable expertise. This has enabled this revised plan to reflect not only the priorities of the Chuuk today, but also the considerable ongoing efforts being made to conserve biodiversity and support sustainable development across the State.

The development of this plan was made possible through the generous financial support of the United Nations Development Programme.

The Chuuk BSAP revision process was coordinated and facilitated by the Micronesia Conservation Trust, with many people from a great number of organizations, both governmental and non-governmental, and communities contributing to the consultation and validation workshops, and providing essential additional information. It is these people that have made the development of this Chuuk BSAP possible:

Nancy Aizawa, Tina Berdon, Ricky Carl, Sere Cho, Beverlyn Danis Fred, Esme Eis, Clarice Etop, Sincera Fritz, Curtis Graham, Tamara Greenstone Alefaio, Iain Hall, Kriskitina Kanemoto Marar, Kind Kanto, William Kostka, Brad Mori, Mary Rose Nakayama, Wisney Nakayama, Puruten Phillip, Lolita N. Ragus, Enjoy Rain, Sanchez Salle, Saramita Salle, Anderson Soram, Christina Stinnett, and Joakim Wasan.

Those involved represented the following organizations:

National Oceanic and Atmospheric Administration, Weather Service Office Chuuk, Chuuk Environmental Protection Agency, The Nature Conservancy, Chuuk State Agriculture, Chuuk Conservation Society, Chuuk State Department of Marine Resources, Chuuk State Environmental Health and Sanitation, Chuuk State Legislature, Micronesia Red Cross Society, College of Micronesia-FSM/CRE, and Chuuk Women's Council.

The Chuuk BSAP document was prepared by Iain Hall, with invaluable input from William Kostka, Tamara Greenstone Alefaio and many of those listed above.

## Executive Summary

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The revised Chuuk Biodiversity Strategy and Action Plan (BSAP) has been developed through a consultative process involving members of various governmental agencies at both state and municipal levels, non-governmental organizations (NGOs), community-based organizations, scientists and educators. In so doing, it harnesses a wealth of experience and expertise across these fields.

The development of this Chuuk BSAP began by revisiting the initial Chuuk BSAP, which was implemented in 2004. The areas of focus in that initial Plan remain highly relevant today, and so the revised Chuuk BSAP focuses on the same four objectives:

- People Related
  - Focusing on the establishment and development of activities to engage the people of Chuuk in biodiversity-related education, along with the ongoing identification of marine and terrestrial areas to be protected
- Assistance Related
  - This objective is centred around securing new and existing funding streams for conservation programs and identifying sources of technical assistance
- Management Related
  - The demarcation and registration of areas of biodiversity significance and protected area form the basis of this objective, alongside ongoing inventorying of Chuuk's biodiversity
- Control Related
  - The purpose of this objective is to establish ways to ensure alien species are prevented from entering Chuuk, and controlled when they do arise.

This revised BSAP provides a brief overview of the richness of biodiversity in Chuuk, and identifies the main threats to that biodiversity. It also summarises the degree of progress-to-date is provided under each objective, which demonstrates just how much has been achieved over the past 14 years, but also how much remains to be achieved in the future. With each objective containing a number of specific actions, a clear way forward has been outlined for biodiversity conservation in Chuuk over the next 5 years.

The landscape of biodiversity conservation in Chuuk has changed dramatically since the implementation of the initial Chuuk BSAP, with the growth of a network of protected areas, both terrestrial and marine, the establishment of various conservation-focused NGOs, and significant levels of community engagement and commitment to the protection and sustainable management of natural resources within the State. This BSAP places the people of Chuuk at its core, with the recognition that it is they that hold the key to the success of the many and varied actions detailed here.

It is vital that this BSAP remains visible and relevant over the coming 5 years. To help achieve this, an annual quick assessment process has been developed to allow progress on each of the actions within the plan to be evaluated, and new actions to be added as needed. After 5 years, the plan will undergo a full, consultative review, to ensure that it continues to accurately reflect the status and needs of Chuuk's biodiversity over time.

The cost of implementing this BSAP to its fullest cannot be estimated at present, but funding for biodiversity conservation and sustainable development remains a priority issue in Chuuk. This, more than anything, will help shape the extent to which Chuuk's biodiversity can be protected for the future.

## Introduction

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Chuuk State is located at 07° 30' N, 150° 50' E. It is made up of sixteen high volcanic islands, one inhabited coral atoll in Chuuk Lagoon and twenty four inhabited outer islands. Chuuk State consists forty municipalities across the five congressional districts of Northern Namoneas, Southern Namoneas, Faichuk, Mortlocks and Northwest Islands.

Chuuk is the most populous state in the Federated States of Micronesia (FSM). The 2010 census estimated the population at that time as being 48,654 (not including those living overseas), a little under half of the entire FSM population. (FSM Office of Statistics, Budget, Overseas Development Assistance and Compact Management, n.d.). While the population experienced negative growth between 2000 and 2010, with a land area of 49 square miles the population density of Chuuk remains the highest in the FSM at 993 per square mile, rising to 1,000 per square mile on the outer islands (FSM Office of Statistics, Budget, Overseas Development Assistance and Compact Management, n.d.). 43.5% of households in Chuuk have immediate family members residing abroad (FSM Office of Statistics, Budget, Overseas Development Assistance and Compact Management, n.d.).

Average annual household income for wage jobs in Chuuk is below the national average of \$11,386 at \$9,578 (FSM Office of Statistics, Budget, Overseas Development Assistance and Compact Management, 2014). Approximately 66% of households are engaged in at least one subsistence activity (agriculture and forestry, handicrafts and home production, livestock and aquaculture, or fishing, hunting and gathering), which is a below the national average of 77% (FSM Office of Statistics, Budget, Overseas Development Assistance and Compact Management, 2014).

The FSM is a constitutional democracy, operating at national, state, municipal and traditional levels, with most power delegated to the four states by the national constitution. Chuuk State has a bicameral legislature, i.e. a Senate and a House of Representatives. There are ten members of the Senate, two representing each of the five regions, and 28 members of the House of Representatives, elected by their respective districts. There are thirteen districts, with the number of representatives for each based upon district size. The state government holds jurisdiction over coastal waters up to 12 nautical miles from land. Beyond this, the National government has jurisdiction over the remainder of the EEZ, i.e. from 12 nautical miles to 200 nautical miles from land.

Traditional culture and systems play an important role in the governance of the FSM. In Chuuk State, each habitable island has a Traditional Leader known as “Soupun” and/or “Makal”, equivalent to Chief of an island, who make up the Chuuk State council of traditional leaders. This council is a stronghold of customs and traditions and are the decision makers of such matters. Traditional governance is extremely important in relation to environmental matters, largely owing to the nature of land rights and ownership that govern the usage of natural resources. Systems of land ownership and tenure differ across the four states of the FSM. Land ownership in the FSM is limited to citizens of the FSM only, with land lease terms varying by state (US Department of State, 2017). In Chuuk, most land and near-shore marine areas are privately owned, with ownership being predominantly inherited or gifted. Purchase of land in Chuuk has become a possibility more recently.

The FSM experiences a tropical climate, with consistently warm weather driven by the north-east trade winds. The average annual temperature in Chuuk in 2017 was 83.5°F (NOAA NCEI, 2018). There is little variation throughout the year, with the high islands being generally hot and humid. Rainfall across the FSM is generally plentiful, with Chuuk receiving approximately 137 inches in 2017. (NOAA NCEI, 2018).

The FSM is strongly affected by the El Niño Southern Oscillation (ENSO), which has a particularly forceful influence on minimum air temperatures during the wet season (Australian Bureau of Meteorology and CSIRO, 2011). El Niño is also associated with reduced rainfall during the dry season. La Niña years are associated with extremely high tides in the FSM, which can lead to seawater inundation of crops and freshwater supplies (Fletcher & Richmond, 2010). The FSM is also vulnerable to extreme weather-related events, particularly typhoons, storm waves, flooding, landslides and drought.

Air and sea surface temperatures in the FSM are increasing, with waters around the FSM warming by approximately 0.11°C per decade in the eastern regions of the country and by 0.8°C per decade in the western regions since 1970 (Australian Bureau of Meteorology and CSIRO, 2011). Under a high emissions scenario, temperature increases greater than 2.5°C by 2090 are projected with high confidence for the FSM, with a similar temperature increase projected for the ocean surface (Australian Bureau of Meteorology and CSIRO, 2011).

Annual rainfall is also projected to increase, somewhere in the range of >5% and >15% by 2090 depending upon the model used and the specific location within the FSM (Australian Bureau of Meteorology and CSIRO, 2011). Increasingly intense rainfall events, particularly when following drought conditions, are increasing sedimentation run-off and coastal erosion, which in turn impacts essential marine ecosystems, such as seagrass meadows, and in turn marine productivity (Houk et al, 2013).

Of particular importance to the FSM, owing to reliance on near-shore coastal fisheries and the low-lying nature of many of its islands, are ocean acidification and sea level rise. In the case of ocean acidification, this is projected to rise throughout the 21<sup>st</sup> century resulting in reductions in the available form of calcium carbonate necessary for coral growth (Australian Bureau of Meteorology and CSIRO, 2011). As regards sea level, models suggest a rise of approximately 2–6 inches by 2030, and of approximately 8–24 inches by 2090 under

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a high emissions scenario (Australian Bureau of Meteorology and CSIRO, 2011). More than 80% of communities in the FSM are vulnerable to sea-level rise and flooding, given that most villages and settlements are situated in either coastal areas or in areas around rivers and streams (FSM, 2018). A 2010 study using the Coastal Module of the integrated Climate Framework for Uncertainty, Negotiation and Distribution assessment model suggested that a 1 meter sea-level rise by 2100 would incur damage costs in excess of 5% of GDP in the FSM (Anthoff et al, 2010).

A number of sectors within the FSM economy are recognized as being vulnerable to climate change, including fisheries, agriculture and tourism (FSM Department of Finance and Administration, 2018). These three sectors are also the focus of private sector investment, being considered as offering the greatest opportunities for short and long-term economic growth in the FSM (FSM, 2004), with all three dependent upon a healthy environment and thriving biodiversity, which are themselves also considered highly vulnerable to climate change (FSM Department of Finance and Administration, 2018).

Given the low-lying nature of many of the islands in Chuuk, and indeed the whole of the FSM, they are at great risk of the impacts of climate change. Part of that risk is the effect that a changing climate may have on the biodiversity found in all of the states, not least the reefs upon which the population so heavily relies.

### Chuuk State Vital Statistics

Geography	
Location	07° 30' N, 150° 50' E
Number of islands	16 high islands + 25 inhabited atolls
Land area	49.2 sq. miles (31,488 acres)
Forest (including agroforest)	28.3 sq. miles (18,134 acres)
Non-forest vegetation	2.3 sq. miles (1,455 acres)
Cropland	0.3 sq. miles (147 acres)
Urban (including urban cultivated)	2.0 sq. miles (1,301 acres)
Other (including water)	1.14 sq. miles (732 acres)
Lagoon area	823.2 sq. miles (526,829 acres)
Climate	
Annual average temperature (2017)	83.5°F
Rainfall (2017)	137 inches
Demographics	
Population	48,654
% of total FSM population	~47%
Population density	993 per square mile (1,000 per square mile on the outer islands)
Economics	
Average annual income (wages)	\$9,578
% households involved in subsistence activity	66%
% contribution to national total household income	27.5%

## Biodiversity in Chuuk

Biodiversity across the FSM is incredibly rich, and this is certainly reflected in Chuuk. The FSM is a recognized part of the globally important Polynesia-Micronesia biodiversity hotspot (CEPF, 2007).

The waters of the FSM are home to 1,221 species of fish, with 612 recorded in the waters of Chuuk (Allen, 2008). Of these, 1,070 are associated with the extensive reef system (Froese & Pauly, 2018). In fact, the wider Micronesia region is estimated to contain 4% of the world's coral reefs, with reefs a defining feature of the FSM. Chuuk is particularly blessed in this regard, having the largest single lagoon in the FSM at approximately 820 sq. miles (Namakin, 2008). The reefs in Chuuk Lagoon, throughout Chuuk State and across the FSM support an abundance of biodiversity, which is heavily relied upon by the population.

The basis of the reefs, the corals themselves, are incredibly diverse in the waters of the FSM, with both soft and hard/stony corals extensively represented. The International Union for Conservation of Nature (IUCN) Red List of Threatened Species lists 427 species of coral in the FSM's waters, 100 of which are considered to be vulnerable and three endangered (IUCN, 2018). Biological surveys of reefs across the FSM have assessed the percentage of reefs that can be considered to be above the 'effectively conserved' threshold in the context of the Micronesia Challenge, based upon a number of criteria contributing to an overall ecosystem condition score. In Chuuk 17% of outer reefs, 17% of patch reefs and 43% of inner reefs met the threshold. The data from these surveys also demonstrated that fishing pressure was a primary determinant of reef condition.

The FSM also supports approximately 36.3 sq. miles of mangrove forest across the islands, approximately 5.0 sq. miles of which are in Chuuk (Donnegan et al, 2011). Indeed, much of the FSM is covered with forests, and Chuuk is no exception. It is estimated that a little over 28 sq. miles of Chuuk is forested, equating to almost 60% of land (Donnegan et al, 2011). Of this, upland forest covers 6.5 sq. miles, palm forest covers 0.3 sq. miles and agroforest covers 16.6 sq. miles (Donnegan et al, 2011). Cropland accounts for only approximately 0.2 sq. miles of land in Chuuk. Areas classified as 'urban cultivated' account for 0.8 sq. miles acres in Chuuk (Donnegan et al, 2011).

Chuuk, as with the entire FSM, demonstrates high levels of species endemism, being home to sixteen endemic plant species and three endemic bird species, the latter comprising the Truk white-eye (*Rukia rukia*), the Truk monarch (*Metabolus rugensis*) and the oceanic fly catcher (*Myiagra oceanica*). Both the Truk white-eye and the Truk monarch are considered to be endangered (IUCN, 2018). In addition, Chuuk hosts two endemic fruit bat species as well as endemic fly, dragon fly and gecko species (IREI, DOA & CCS, n.d.).

From this briefest of snapshots it is clear that the biodiversity of Chuuk has a huge value, not only to the people of Chuuk and their way of life but to the whole world. However, it is also recognized that a number of threats to the biodiversity of Chuuk, and the entire FSM, exist. These threats, which have been identified at a national level but are also relevant to Chuuk State, comprise:

- Environmental conversion and degradation
- Over-exploitation of resources
- Waste management and pollution
  - Note: waste management in Chuuk is the responsibility of the Environmental Protection Agency, so is not emphasised within this BSAP
- Invasive and alien species
- Climate change
- Infrastructure development.

In addition to these threats, the changing funding landscape has the potential to shape future conservation within the state.

In light of these threats, since the development of the initial Chuuk Biodiversity Strategy and Action Plan (BSAP) in 2004, significant developments toward comprehensive biodiversity conservation in Chuuk and throughout the FSM have been undertaken. Over time a network of strong partnerships between the national and state governments, local governments and communities, partners such as the University of Guam who provide technical expertise, and various conservation organizations, such as The Nature Conservancy and the Micronesia Conservation Trust, amongst many others. Programs supported by the MCT focus on biodiversity conservation, climate change adaptation and sustainable development throughout the FSM and wider Micronesia region, with the MCT playing a vital role in conservation in Chuuk.

Perhaps the most significant conservation initiative to come about since the initial Chuuk BSAP was drafted is the establishment of the Micronesia Challenge in 2006. At that time, the FSM, along with the Republic of the Marshall Islands, the Republic of Palau, Guam, and the Commonwealth of the Northern Mariana Islands (CNMI), developed and committed to the Micronesia Challenge, which has the dual aims of conserving 30% of near-shore resources and at least 20% of forest resources across Micronesia by 2020 (Micronesia Challenge, n.d.).

The Micronesia Challenge has been a catalyst for creating a regional web of mutually reinforcing projects, programs, and peer-learning networks to improve the condition and management of essential ecosystems and natural resources. Reflecting the region's diverse resource tenure systems and traditional management practices, national and sub-national government agencies with policy, regulatory,



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and enforcement mandates are partnered with non-governmental organizations (NGOs) with conservation and community outreach and mobilization skills to work with communities and traditional leaders to manage resources, conserve biodiversity, and increase ecosystem and community resilience to climate change. International universities, institutes, and conservation organizations provide scientific knowledge and support, while regional peer-learning networks connect resource managers and NGOs from across Micronesia, functioning as capacity building and knowledge sharing platforms.

In working to achieve the Micronesia Challenge marine and terrestrial targets, government and non-government partners across the FSM have championed the creation of new terrestrial and marine protected areas. The FSM National and State governments and their numerous partners are also working towards sustainable financing for protected areas. This includes the FSM's Micronesia Challenge Endowment Fund sub-account that was established as a result of the FSM's commitment to the Micronesia Challenge, and which is administered by the MCT to support protected area management through contributions and investments. As of October 2017, this Endowment was valued at just over \$5.7M.

An ecoregional planning approach to biodiversity conservation has been adopted in the FSM. This approach, which prioritizes areas of conservation need to build a portfolio of conservation targets, allows for the development of a conservation plan for a nation containing myriad species of national and global importance for which the development and implementation of individual conservation and management plans would be impossible (The Nature Conservancy, 2003). One hundred and thirty areas of biodiversity significance (ABS) were identified across the FSM, fifty of which are in Chuuk. These comprise nine terrestrial sites totaling 16.72 square miles, ten marine sites totaling 79.83 square miles, twenty coastal marine sites totaling 297.55 square miles and eleven coastal freshwater sites totaling 3.62 square miles (The Nature Conservancy, 2003).

Various figures exist for the number of areas under protection in Chuuk, however, a 2009 nationwide gap analysis of protected areas suggested that at that time approximately 130 sq. miles of terrestrial and marine environments were under protection in the state (MCT, 2009). An additional 48.2 sq. miles are considered to be outside of protected areas but within ABS Action Sites, while a further 282.4 sq. miles are outside both protected areas and ABS Action Sites but are within ABS Standard Sites, thus representing good conservation features (MCT, 2009).

Biological surveys of marine protected areas (MPAs) in Chuuk Lagoon have been undertaken, with two of the three MPAs studied demonstrating significantly higher coral richness than their reference sites, and one site exhibiting significantly greater species richness, fish density and biomass than its reference site, though this was not replicated across all MPAs (Andrew et al, 2011).

## Background to the Revised Chuuk Biodiversity Strategy and Action Plan

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### Development Process for the Revised Chuuk BSAP

The first Chuuk BSAP was produced in 2004, following a series of community consultations and expert meetings. Oversight of the revision process was provided by the Micronesia Conservation Trust, and a process of research, consultation and validation was followed. The objectives and actions as defined in the initial Chuuk BSAP were taken out to consultation, and a multi-stakeholder group was engaged in a two-day workshop to review the BSAP for ongoing relevance, identifying what progress had been made, where additional efforts were needed under current objectives and actions, and where new actions were required. The group comprised government officials, regional, state and community NGO representatives, technical experts, scientists, researchers and educators involved in environmental education. The Micronesia Conservation Trust was accompanied by The Nature Conservancy during these consultations.

In addition to these consultations, a specific women's focus group was held to ensure that the different interactions with and observations of biodiversity experienced by women in Chuuk were understood and incorporated into the revised Chuuk BSAP.

Following this process, a revised document was developed and circulated to a select group from the original consultations, who then convened for a further two-day validation workshop.

This process was part of a wider set of consultations undertaken as part of the revision of the National Biodiversity Strategy and Action Plan (NBSAP). The revision of the NBSAP took account of each of the states' revised BSAPs, as well as being consulted upon separately. By following this process, it is intended that the NBSAP and individual state BSAPs are mutually supportive and reflect each other.

It is clear in Chuuk, owing to the unique land tenure system, that the people are the key to the success of biodiversity conservation efforts. Consent and participation from individuals and communities is essential for any biodiversity conservation projects to be established, implemented, and continued. The Chuuk State BSAP objectives and actions have been developed to appropriately reflect this situation.

## The Chuuk Biodiversity Strategy and Action Plan

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### Vision

The people of Chuuk will live in a clean and beautiful environment where biodiversity is resourceful and preserved, and where traditional knowledge and practices plus other modern knowledge and practices are utilized for the sake of sustainable development.

### Goal

The Chuuk State BSAP strives for successful actions to conserve, protect, preserve, and sustain Chuuk State biodiversity for the benefit of the people of Chuuk today and in the future.

### Strategy and Action Plan

The initial Chuuk BSAP focused on four objectives:

- People Related
  - The focus here was on the establishment of various activities to engage the people of Chuuk in biodiversity-related education and activities, and the identification of marine and terrestrial areas to be protected
- Assistance Related
  - The focus for this objective was on increasing government funding for conservation programs, identifying sources of technical assistance, improving sources of funding, and establishing a system of resource user's fee
- Management Related
  - This objective dealt with demarcation and registration of at least two areas of biodiversity significance, the creation of legislation to support traditional conservation practices and protect biodiversity, establishing marine and terrestrial protected areas, and updating an inventory of marine and terrestrial plants and animals present in Chuuk
- Control Related
  - The purpose of this objective was to establish strict control of alien species and to ensure specific requirements are met prior to initiating activities that may affect biodiversity.

These key objectives remain relevant, therefore, this revised Chuuk BSAP utilizes them as the areas of focus under which revised and updated actions are described.

## Objective 1

### People Related

The purpose of this objective is the establishment of various activities to engage the people of Chuuk in biodiversity-related education and activities. The actions included in the initial Chuuk BSAP were as follows:

- By 2006 at least one environmental NGO (non-governmental organization) will be established and operational
- By 2006 at least two environmental clubs will be fully established in the schools to promote awareness on biodiversity issues and active participation in conservation activities
- By 2007 (School year September 2006) a curriculum on biodiversity conservation will be produced and implemented in the private and public elementary schools
- By 2007 at least 3 communities will each designate surrounding marine areas to be protected
- By 2007 at least 2 communities will each designate surrounding terrestrial or land-based areas to be protected

### Progress to date

Progress under this objective has been good. The Chuuk Conservation Society has been established, while the Chuuk Women’s Council has been strengthened and is currently implementing conservation, climate adaptation and sustainable livelihoods projects. Other organizations of note that demonstrate an increase in societal awareness of biodiversity-related issues include the UFO Conservation Society, Island Pride, Brothers and Sisters of Parem, the ONEI Resource Management Committee (this committee has not yet been institutionalized, however, they are implementing resources management projects) and a number of community-based organizations such as Ateneki.

In terms of educational activities, while Xavier High School and Chuuk High School have in the past conducted environmental programs, Akoyikoyi elementary school has an established environmental club, delivering peer-to-peer environmental presentations as well as giving presentations to the Parent-Teacher Association and undertaking reef observations and recycling programs. The club received a Global Greegrants Fund (GGF) in March 2018 to support its activities. Environmental studies are now part of the school curriculum in Chuuk, although a biodiversity conservation curriculum has not been developed. Science, technology, engineering and mathematics subjects are supported via the College of Micronesia-FSM providing IT equipment. Island Pride has also planned a youth conference to discuss conservation issues.

The Association for Promotion of International Cooperation, Bill Raynor and Sophia University scholarship program is in place, though this has a national focus rather than being Chuuk-specific. However, recipients of the scholarships will one day return to Chuuk to work and contribute to the state’s conservation efforts. Under the Micronesia Challenge Young Champions (MCYC) Internship Program, interns have been recruited across the FSM (and the region) and mentored by resource management agencies across the region. Leadership skills development relevant to environmental management for potential conservation leaders facilitated through the MCYC Internship Program influences the choice of field of study and future career paths of the interns. The US Forest Service Professional Internships in Pacific [Terrestrial] Island Ecosystem Management (PIPTIEM) program is also available, with natural resources managers able to either attend school or targeted technical trainings while working in their states.

A number of marine and terrestrial protected areas have been established in Chuuk, with more in the planning phases. Related to this, the Chuuk Coastal Fisheries Management Act of 2016 was developed to provide better protection of the marine environment in Chuuk, and the Chuuk Protected Area Network Act was signed into law in 2017. The Department of Marine Resources has one certified Enforcement Officer who has successfully completed the Guam Community College conservation enforcement program, with training for more officers planned. The Enforcement Officer is also training other Chuuk-based personnel. In addition, the State-Wide Assessment and Resource Strategy has been developed as a tool for the identification of priorities for forest resource management.

#### Updated actions:

##### Community-based environmental activities

1. Support existing community-based environmental organizations and support the establishment of one new organization within 12 months, and then assess the need for more
  - Prioritize invasive species as an area of focus
2. Support the seedling project to ensure sustainability of this activity and to promote agrobiodiversity amongst an additional seven communities
3. Undertake assessments of available sources of sustainable finance for community-based environmental organizations with a view to amending existing policies and developing new policies

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4. Build capacity within existing community-based environmental organizations
5. Consult with existing community-based environmental organizations to identify priorities and align these with state and national plans; consider the Chuuk Environmental Conference 2019 as an opportunity to do this
6. Consult with four traditional and/or outer island communities and groups per year to identify what activities and work are being undertaken, and document these
7. Gain necessary national support to enable the registering of co-operatives at the state-level

### Education and educational activities

8. Work with the Department of Education to incorporate biodiversity conservation into elementary and high school curricula, ensuring that they reflect the local context
9. Support and improve the current environmentally-focused programs available to students to encourage the pursuit of environmentally focused careers
10. Increase the number of elementary school and high school environmental clubs by at least one per year
11. Share best practices and education about basic environmental concepts with resource owners to support the appropriate control of resources and biodiversity conservation
12. Improve current public awareness activities to ensure departments are coordinated and provide an integrated environmental campaign within one year

### Protected areas:

13. Continue to establish and support the community planning process for protected areas
14. Ensure current and future protected areas are officially designated under the Chuuk State Protected Area Network (PAN) Law
15. Establish a Chuuk State PAN Committee to enable access to the FSM Micronesia Challenge endowment to facilitate related ongoing activities
16. Institutionalize the State Protected Area Network Coordinator role by June 2019
17. Enhance monitoring of all protected areas
18. Build capacity within communities to enable monitoring and enforcement of protected areas

### Traditional knowledge and practices:

19. Strengthen and support traditional management practices for the conservation and sustainable use of biodiversity
20. Record traditional knowledge related to the conservation and sustainable use of biodiversity
21. Support the revival of traditional knowledge related to the conservation and sustainable use of biodiversity

## Indicators

Indicators under this objective will relate to the numbers of policies and pieces of legislation developed. The inclusion of biodiversity conservation with school curricula along with numbers of environmental clubs established will also be indicators of progress. Official designations of protected areas will be an important indicator along with the development of adaptive management plans. In relation to capacity, indicators will include, but not be limited to, the number of enforcement officers certified through the Guam Community College (GCC) training program.

## Constraints

Major constraints under this objective will be around personnel and funding. Achievement of the actions under this objective requires personnel with appropriate legal and technical expertise, and the associated funding to support them. In addition, the need for funding for materials, transportation, workshops and consultations, and necessary training may act to constrain progress.

## Objective 2

### Assistance Related

The purpose of this objective is to ensure adequate ongoing funding is available to support biodiversity conservation programs and activities. The actions included in the initial Chuuk BSAP were as follows:

- By FY 2006 government funding for conservation programs will be increased to cover operations on a 60/40 ratio
- By 2006 there will be available outside and inside technical assistance identified and accessible for the sake of biodiversity conservation activities
- By 2006 ability to access sources of funding for conservation activities will be improved by at least 50 percent (using 2004 as baseline)
- By 2007 a system of ‘resource user’s fee’ for conservation of the marine environment will be established, managed, and used for the conservation and maintenance of our marine biodiversity only

### Progress to date

Progress under this objective has been mixed, with many positive developments. Whilst government funding for conservation programs did achieve the planned 60/40 ratio, funding from the Compact Environment Sector subsequently decreased.

Through membership of the Micronesian Island Conservation (MIC) group and the Pacific Islands Managed and Protected Areas Community (PIMPAC), technical capacity for undertaking conservation programs has increased. This technical capacity has been further supported through the US National Oceanic and Atmospheric Association (NOAA), the Department of the Interior, the US Forest Service and the University of Guam. The Nature Conservancy, MCT and other partners provide regional technical expertise and management planning for the establishment of marine protected areas, along with assistance in conducting rapid ecological assessments of those areas. The Pacific Community (SPC) has provided Chuuk with fish aggregating devices (FADs) along with the necessary deployment and monitoring training to fully utilize them. These FADs are deployed offshore with the aim of helping to decrease fishing pressure on the nearshore reef systems.

Other partnerships providing technical expertise include guidance to undertake socio-economic research from Socio-Economic Monitoring Pasifika (SEM-P), financial and technical assistance from RARE to enable necessary training and education as well as enforcement training, and support of young people to become involved in biodiversity conservation through the Micronesia Challenge Young Champions program.

Access to funding has certainly increased, with financial support coming through the 5<sup>th</sup> replenishment of the Global Environment Facility (GEF) for the Ridge to Reef program, and future funding to be sought from 6<sup>th</sup> replenishment of the GEF, as well as through the Adaption Fund and the Green Climate Fund. Starting in 2018, the FSM Congress provided \$50,000 to each of the main conservation organizations in the FSM and this support will continue in future years. This funding has enabled, amongst other things, the establishment of the Chuuk Conservation Society and increasing marine protected area designations.

In terms of resource user fees, systems have been established, but are not functioning properly. For example, a law requiring that all divers pay a fee, which is then to be used for administration and protection of the lagoon, is in place but is not enforced. The Nature Conservancy and the Department of Marine Resources are working with dive shops and communities to establish a system for charging divers fees to access specific sites.

For those fines that are collected, for example from illegal live reef fishing, transparency is needed on how the fines are collected and their intended use. A national law is in place regarding fines of unlicensed foreign fishing vessels, with half of any fines due to be received by the affected state, and 70% of that required to be directed to enforcement and conservation. Again, however, it is not clear how effective this law is in practice.

### Updated actions:

#### Expertise

1. Strengthen and expand the network of experts available to support biodiversity conservation activities, and ensure appropriate oversight of their work
2. Re-establish the mechanism/group (previously Chuuk Environmental Team) for coordinating conservation activities across Chuuk State through an executive order by the Chuuk State Governor by the end of 2018
3. Ensure the continuation of the Ridge to Reef Technical Advisory Committee in the future as a decision-making group to support the execution of this Chuuk BSAP, and ensure all sectors are represented in the Committee

Funding

4. Secure funding to initiate the dry litter piggery program in at least two communities within one year
5. Continue to expand access to appropriate sources of funding for conservation activities
6. Review current mechanisms for the collection of diving fees and foreign fishing violation fines, ensuring funds are collected and directed to the Department of Marine Resources for marine biodiversity conservation activities
7. Ensure Chuuk State Budget Review Committee includes members who are able to raise awareness of conservation issues within the Committee and competently represent conservation priorities
8. Consider the potential for water funds as a route to securing freshwater supplies
9. Establish a funding mechanism to provide support to resource owners to properly manage the watershed

Indicators

The main indicators under this objective will be the establishment of a conservation co-ordinating body, and an increase in funding for conservation activities from a variety of governmental and non-governmental sources.

Constraints

A major constraint under this objective is decreasing funds being made available via sectoral grants under the Compact of Free Association. These will limit what can be achieved unless alternative funding streams are identified and secured. Related to this is political will, which will be required to prioritize biodiversity conservation at the state level.

## Objective 3

### Management Related

The purpose of this objective is to expand the institutionalization of protected areas, and to develop relevant legislation to support a range of important biodiversity conservation-related activities. The actions included in the initial Chuuk BSAP were as follows:

- By 2006 a complete demarcation and registration of at least 2 ABS (Areas of Biological Significance) will be completed
- By 2006 there will be legislation for the protection of our endemic, endangered and rare species
- By 2007 there will be legislation that appropriate agencies and departments work with communities to patrol areas under the traditional land-based conservation practice of ‘pwau’
- By 2007 there will be legislation that appropriate agencies and departments work with communities to patrol areas under the traditional marine-based conservation practice of ‘mechen’
- By 2007 there will be legislation to regulate, monitor, and control the introduction of alien species and their effects on our biodiversity local gene pool
- By 2007 there will be legislation to regulate, monitor, and protect the use of our natural marine resources from being over-exploited by our local people and outside people
- By 2007 there will be legislation to regulate, monitor, and protect the use of our natural terrestrial resources from being over-exploited by our local people and outside people
- By 2008 there will be at least 3 fully established and protected marine areas some of which are listed under the ABS (Areas of Biological Significance)
- By 2008 there will be at least 2 fully established and protected terrestrial or land based areas some of which are listed under the ABS (Areas of Biological Significance)
- By 2008 there will be an updated inventory of the types of marine plants and animals present in Chuuk
- By 2008 there will be an updated inventory of the types of terrestrial or land based plants and animals present in Chuuk

### Progress to date

Progress under this objective has certainly been made, with substantial amounts of legislation developed since the initial Chuuk BSAP was introduced in 2004, with much of this focusing on the marine environment. It has been noted that communities tend to focus on fisheries rather than biodiversity as a whole, leading to prioritization of fisheries over areas of biological significance.

Fefen Forest has been designated a protected area under the UFO forest stewardship program, with other communities having declared protected areas without them being officially designated yet.

In terms of legislation, the Chuuk Coastal Fisheries Management Act of 2016 has been signed into law. This law does not include any limits on the size of fish that can be taken but does provide a number of other provisions. These include a ban on the use of gill nets and surround nets with a mesh size of less than 3 inches (measured diagonally) and a ban on fishing using explosives or poisons. The Act also prohibits the taking of trochus, Napoleon wrasse and humphead parrotfish, amongst other species, for commercial export. There is a closed season for grouper and turtles, as well as a 6-year moratorium on harvesting sea cucumber.

The Protected Area Network law has been established, and traditional closure laws established by municipalities and resource owners are in place. A state-wide mangrove protection law, which will contain a permitting aspect, is also under development.

In terms of invasive species, there are no specific pieces of legislation in place though there is a Chuuk Invasive Species Taskforce. In addition, a program is in place working to control crown-of-thorns starfish. There will be a growing focus on invasive species as funding becomes available under the 6<sup>th</sup> replenishment of the Global Environment Facility.

Terrestrial natural resource protection is being addressed with the introduction of a water-use memorandum of understanding in Onei, whereby the community water owners have agreed to share access to ensure the availability of fresh clean water for the whole community when the need arises. This has led to the rehabilitation of nine water wells in the village of Onei, in the Faichuk region. Watershed replanting programs have been undertaken, as has tree planting under the Ridge to Reef initiative. The Red Cross also supports a mangrove replanting operation.

An inventory of marine biodiversity is supported by the University of Guam, which hosts a marine database. This is also supported by rapid ecological assessments, as well as benthic monitoring under the Micronesia Challenge. The regular Forest Inventory Assessments provide something of an inventory of terrestrial biodiversity, though this is not comprehensive.



#### Updated actions:

##### Areas of biological significance and protected areas

1. Start to register PAN sites based upon the National Pan Framework and the Chuuk State PAN law
2. Improve the management and governance of protected areas through demarcation, management planning etc. with a view to future PAN designation
3. Continue to establish marine and terrestrial protected areas, some of which being listed as areas of biological significance, ensuring they are appropriately designated
4. Improve the design and connectivity of the network of protected areas within Chuuk State

##### Legislation

5. Expand current legislation to ensure the protection, and prevent the exploitation, of all endemic, endangered and rare species in Chuuk State by the end of 2019
6. Explore the feasibility of new programs to enhance protection of endemic, endangered and rare species
7. Establish and enact the Mangrove Protection law
8. Consider amending the Chuuk Fisheries Management Act to include size limit regulations on fish and other marine resources
9. Explore the possibility of introducing legal limits to fish exports
10. By the end of 2019 assess current regulation regarding turtle harvesting and consider designating turtle nesting sites as no-take zones
11. Explore the feasibility of programs that enable communities to comply with current and future legislation, such as net exchange programs
12. Establish legislation enabling appropriate agencies and departments to work with communities to patrol areas under traditional land and marine based conservation practices
13. Establish legislation to regulate, monitor, and protect the use of our natural marine and terrestrial resources from over-exploitation by all people, local or otherwise
14. Expand the Onei water use memorandum of understanding model across at least two communities per year
15. Develop memoranda of understanding with resource owners to ensure continued access to gene banks and nurseries to support agrobiodiversity
16. Establish necessary state legislation to monitor and control the introduction of alien species, and to monitor their impacts on the biodiversity of Chuuk State
17. Update and implement the Chuuk Invasive Species Taskforce strategic action plan by the end of 2018
18. By the end of 2018 ensure the Environmental Protection Agency strategic action plan for waste management is followed

##### Inventory

19. Ensure ongoing monitoring of all biodiversity in Chuuk State and maintain marine and terrestrial biodiversity inventories

#### Indicators

The key indicators under this objective will include, but not be limited to, the number of marine and terrestrial protected areas that are officially designated, and the extent of biodiversity-conservation driven legislation.

#### Constraints

Owing to the strong emphasis on legislation under this objective, the main foreseeable constraint will be political will. There will naturally also be constraints regarding the financial and human capacity needed to expand the protected area network within Chuuk, and to enable appropriate patrolling/enforcement of conservation-related marine and terrestrial areas.

## Objective 4

### Control Related

The purpose of this objective is the control of alien species and that all activities with the potential to impact biodiversity and other natural resources are appropriately assessed and approved prior to being initiated. The actions included in the initial Chuuk BSAP were as follows:

- By 2006 there will be improved strict control of alien species into the state that may be detrimental to our biodiversity
- By 2006 it will be required that prior to granting a permit for activities affecting our marine biodiversity all agencies concerned must be involved in the approval process
- By 2006 it will be required that prior to granting a permit for activities affecting our terrestrial biodiversity all agencies concerned must be involved in the approval process
- By 2006 it will be required by law that prior to commercialisation of any natural marine resource for exportation, approval must be granted by the appropriate agency(s)
- By 2006 it will be required by law that prior to commercialisation of any natural terrestrial resource for exportation, approval must be granted by the appropriate agency(s)
- By 2006 all government departments and agencies will include biodiversity conservation in their planned activities
- By 2006 exportation of reef fish and other reef products for commercial purposes will be fully banned

### Progress to date

Progress under this objective has been somewhat limited. In terms of control of alien species, the focus of the Department of Agriculture has been the control of *Merremia peltata*, rather than a broad program of control. Actions relating to the involvement of all concerned agencies in the approval process of activities impacting biodiversity, and to the prior approval of commercialization of natural resources, have not been achieved. National Export Permits do exist inasmuch as a business license is required for commercial export activities, but a national approach to these issues would be beneficial. Regulation of export of fish for the aquarium trade is being considered, and some differentiation between those species that would benefit from size restrictions and those that would benefit from export restrictions is needed.

While waste and pollution are not strong points of emphasis for the Chuuk BSAP owing to these being Environmental Protection Agency responsibilities, there is a national policy on the importation of Freon, and there is a non-governmental organization established to monitor Freon within Chuuk State.

#### Actions:

##### Mainstreaming biodiversity

1. Continue, and expand, awareness efforts to ensure all government departments and agencies include biodiversity conservation in their planned activities

##### Alien species

2. Expand quarantine activities by stationing quarantine officers on all twenty four outer islands, focusing on two regions per year
3. Work with other quarantine services to prevent invasive species at point of departure to Chuuk
4. Enforce existing quarantine laws requiring all incoming vessels and aircrafts to be inspected
5. Establish policies and secure technical capacity to inspect all imported materials for invasive species

##### Impacts on biodiversity and natural resources

6. Implement training to enable the effective undertaking of environmental impact assessments and the effective reviewing of environmental impact statements by the end of 2020
7. Establish policy and legislation to ensure that environmental impact assessment are conducted and considered as part of the approval process for any infrastructure or development project
8. Ensure effective co-ordination between all agencies concerned in the approval process for permits for any activities affecting marine and/or terrestrial biodiversity
9. Establish legislation requiring approval from all appropriate agencies prior to the commercialization of any natural marine and/or terrestrial resources for exportation by 2020
10. Establish a process for the joint inspection of all potential dredging, earth moving and landfill activities by June 2019
11. Explore and promote value-added products that support the sustainable use of Chuuk State's biodiversity

12. Ensure all biodiversity and natural resource-related legislation remains relevant, and that science is used appropriately to support adaptive management
13. Establish a research program to scientifically support future legislation to appropriately control the exportation of reef fish and other reef products for commercial purposes
14. Establish mechanisms to control any aquaculture/mariculture activities to prevent negative impacts on surrounding ecosystems by the end of 2020

#### Indicators

Indicators under this objective will include, but not be limited to, greater control through legislation and the implementation of appropriate processes over the exploitation and commercialization of all marine and terrestrial biodiversity in Chuuk State.

#### Constraints

Political will has the potential to be a major constraint in the achievement of the actions under this objective, along with the capacity to enable the greater awareness of biodiversity conservation that underlies them. Furthermore, capacity to implement the actions under this objective is likely to be a constraining factor.

## Implementation, Monitoring and Reporting

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### Implementation

Implementation of this Chuuk BSAP will require a broad network of government agencies, funding bodies, civil-society groups and communities. It is suggested within this Chuuk BSAP that its execution be overseen by a Technical Advisory Committee that is a continuation of that established under the Ridge to Reef program. In this way, the requisite technical expertise can be identified and appropriate groups engaged to ensure optimal progress on this plan.

### Monitoring, Reporting and Reviewing

Monitoring the implementation of the Chuuk BSAP will be undertaken in two ways. The lead agencies and parties will be requested to complete an annual quick assessment, using the assessment form provided in Appendix 1. This process will involve identifying which actions have been completed or achieved, which actions some progress has been made on, and which require initiating. This process will also enable the identification of necessary additional actions under each Objective. This quick assessment process will be led and managed by national and state government together, and facilitated by the Micronesia Conservation Trust.

A full review and revision of the Chuuk BSAP will be undertaken after five years, in 2023. This will follow a similar process of consultations and validation that has been utilised in the current revision. This review will provide an opportunity for major progress, changes or developments to be recorded and considered for inclusion in the next revision of the Chuuk BSAP, and will ensure that all Objectives and Actions remain relevant and reflect the challenges and unmet needs of Chuuk State's biodiversity at that time. This will also provide an opportunity to ensure that the Chuuk BSAP supports the planned revision of the NBSAP and that both remain in line with any new strategies of initiatives under the UN Convention for Biological Diversity.

Reporting and disseminating information regarding the Chuuk BSAP and its constituent programs is the responsibility of the state government.

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## Appendix 1: Annual Quick Assessment Template

The following templates will be completed on an annual basis as an overview assessment of progress on the Chuuk BSAP.

### Objective 1: People Related

Actions:	Degree of achievement			Still relevant?
	No progress	Some progress	Completed	
Community-based environmental activities				
1. Support existing community-based environmental organizations and support the establishment of one new organization within 12 months, and then assess the need for more				
• Prioritize invasive species as an area of focus				
2. Support the seedling project to ensure sustainability of this activity and to promote agrobiodiversity amongst an additional seven communities				
3. Undertake assessments of available sources of sustainable finance for community-based environmental organizations with a view to amending existing policies and developing new policies				
4. Build capacity within existing community-based environmental organizations				
5. Consult with existing community-based environmental organizations to identify priorities and align these with state and national plans; consider the Chuuk Environmental Conference 2019 as an opportunity to do this				
6. Consult with four traditional and/or outer island communities and groups per year to identify what activities and work are being undertaken, and document these				
7. Gain necessary national support to enable the registering of co-operatives at the state-level				
Education and educational activities				
8. Work with the Department of Education to incorporate biodiversity conservation into elementary and high school curricula, ensuring that they reflect the local context				
9. Support and improve the current environmentally-focused programs available to students to encourage the pursuit of environmentally focused careers				
10. Increase the number of elementary school and high school environmental clubs by at least one per year				
11. Share best practices and education about basic environmental concepts with resource owners to support the appropriate control of resources and biodiversity conservation				
12. Improve current public awareness activities to ensure departments are coordinated and provide an integrated environmental campaign within one year				
Protected areas:				
13. Continue to establish and support the community planning process for protected areas				
14. Ensure current and future protected areas are officially designated under the Chuuk State Protected Area Network (PAN) Law				
15. Establish a Chuuk State PAN Committee to enable access to the FSM Micronesia Challenge endowment to facilitate related ongoing activities				

## Annual Quick Assessment Template

16. Institutionalize the State Protected Area Network Coordinator role by June 2019				
17. Enhance monitoring of all protected areas				
18. Build capacity within communities to enable monitoring and enforcement of protected areas				
Traditional knowledge and practices:				
19. Strengthen and support traditional management practices for the conservation and sustainable use of biodiversity				
20. Record traditional knowledge related to the conservation and sustainable use of biodiversity				
21. Support the revival of traditional knowledge related to the conservation and sustainable use of biodiversity				

Additional actions and/or comments:



Objective 2: Assistance Related

Actions:	Degree of achievement			Still relevant?
	No progress	Some progress	Completed	
Expertise				
1. Strengthen and expand the network of experts available to support biodiversity conservation activities, and ensure appropriate oversight of their work				
2. Re-establish the mechanism/group (previously Chuuk Environmental Team) for coordinating conservation activities across Chuuk State through an executive order by the Chuuk State Governor by the end of 2018				
3. Ensure the continuation of the Ridge to Reef Technical Advisory Committee in the future as a decision-making group to support the execution of this Chuuk BSAP, and ensure all sectors are represented in the Committee				
Funding				
4. Secure funding to initiate the dry litter piggery program in at least two communities within one year				
5. Continue to expand access to appropriate sources of funding for conservation activities				
6. Review current mechanisms for the collection of diving fees and foreign fishing violation fines, ensuring funds are collected and directed to the Department of Marine Resources for marine biodiversity conservation activities				
7. Ensure Chuuk State Budget Review Committee includes members who are able to raise awareness of conservation issues within the Committee and competently represent conservation priorities				
8. Consider the potential for water funds as a route to securing freshwater supplies				
9. Establish a funding mechanism to provide support to resource owners to properly manage the watershed				
Additional actions and/or comments:				

## Objective 3: Management Related

Actions:	Degree of achievement			Still relevant?
	No progress	Some progress	Completed	
Areas of biological significance and protected areas				
1. Start to register PAN sites based upon the National Pan Framework and the Chuuk State PAN law				
2. Improve the management and governance of protected areas through demarcation, management planning etc. with a view to future PAN designation				
3. Continue to establish marine and terrestrial protected areas, some of which being listed as areas of biological significance, ensuring they are appropriately designated				
4. Improve the design and connectivity of the network of protected areas within Chuuk State				
Legislation				
5. Expand current legislation to ensure the protection, and prevent the exploitation, of all endemic, endangered and rare species in Chuuk State by the end of 2019				
6. Explore the feasibility of new programs to enhance protection of endemic, endangered and rare species				
7. Establish and enact the Mangrove Protection law				
8. Consider amending the Chuuk Fisheries Management Act to include size limit regulations on fish and other marine resources				
9. Explore the possibility of introducing legal limits to fish exports				
10. By the end of 2019 assess current regulation regarding turtle harvesting and consider designating turtle nesting sites as no-take zones				
11. Explore the feasibility of programs that enable communities to comply with current and future legislation, such as net exchange programs				
12. Establish legislation enabling appropriate agencies and departments to work with communities to patrol areas under traditional land and marine based conservation practices				
13. Establish legislation to regulate, monitor, and protect the use of our natural marine and terrestrial resources from over-exploitation by all people, local or otherwise				
14. Expand the Onei water use memorandum of understanding model across at least two communities per year				
15. Develop memoranda of understanding with resource owners to ensure continued access to gene banks and nurseries to support agrobiodiversity				
16. Establish necessary state legislation to monitor and control the introduction of alien species, and to monitor their impacts on the biodiversity of Chuuk State				
17. Update and implement the Chuuk Invasive Species Taskforce strategic action plan by the end of 2018				
18. By the end of 2018 ensure the Environmental Protection Agency strategic action plan for waste management is followed				
Inventory				

Annual Quick Assessment Template

19. Ensure ongoing monitoring of all biodiversity in Chuuk State and maintain marine and terrestrial biodiversity inventories				
Additional actions and/or comments:				

Objective 4: Control Related

Actions:	Degree of achievement			Still relevant?
	No progress	Some progress	Completed	
Mainstreaming biodiversity				
1. Continue, and expand, awareness efforts to ensure all government departments and agencies include biodiversity conservation in their planned activities				
Alien species				
2. Expand quarantine activities by stationing quarantine officers on all twenty four outer islands, focusing on two regions per year				
3. Work with other quarantine services to prevent invasive species at point of departure to Chuuk				
4. Enforce existing quarantine laws requiring all incoming vessels and aircrafts to be inspected				
5. Establish policies and secure technical capacity to inspect all imported materials for invasive species				
Impacts on biodiversity and natural resources				
6. Implement training to enable the effective undertaking of environmental impact assessments and the effective reviewing of environmental impact statements by the end of 2020				
7. Establish policy and legislation to ensure that environmental impact assessment are conducted and considered as part of the approval process for any infrastructure or development project				
8. Ensure effective co-ordination between all agencies concerned in the approval process for permits for any activities affecting marine and/or terrestrial biodiversity				
9. Establish legislation requiring approval from all appropriate agencies prior to the commercialization of any natural marine and/or terrestrial resources for exportation by 2020				
10. Establish a process for the joint inspection of all potential dredging, earth moving and landfill activities by June 2019				
11. Explore and promote value-added products that support the sustainable use of Chuuk State's biodiversity				
12. Ensure all biodiversity and natural resource-related legislation remains relevant, and that science is used appropriately to support adaptive management				
13. Establish a research program to scientifically support future legislation to appropriately control the exportation of reef fish and other reef products for commercial purposes				
14. Establish mechanisms to control any aquaculture/mariculture activities to prevent negative impacts on surrounding ecosystems by the end of 2020				
Additional actions and/or comments:				