

# Status of the Environment in the Republic of Palau

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Palau is blessed with a wealth of natural resources. We enjoy clean air, clean water, abundant marine life, and healthy, productive reefs. Our stunning Rock Islands and majestic dive sites continue to draw admiration from around the world. But Palau's wealth is not just found in its natural resources. Palau has also been blessed with a wealth of human resources and technical capabilities. The population of Palau is well educated and highly talented, and makes use of the most advanced computer and development techniques on a daily basis. Weaving these sources of natural and human wealth together is perhaps the most important resource of all: our traditions. Palauans maintain strong cultural ties to their land, their waters, and their history, and with these ties we strive to preserve and conserve all of our precious resources.

This is not to say that Palau does not have its problems and pressures. Development pressure is strong and driven largely by economic motives. Balancing the benefits of development with the dangers of exploitation continues to be a challenge, but a challenge that Palauans are meeting head on.

The small island nation of Palau is located in the Western Pacific approximately 750 kilometers southeast of the Philippines and 1300 kilometers southwest of Guam. While we may be small, we think big, as you can see by our numbers: Palau is made up of 586 separate islands, stretching over a distance of 700 kilometers from our northernmost atoll of Kayangel to our southernmost atoll state of Hatohobei. While our land mass may be a mere 500 square kilometers, our Exclusive Economic Zone allows us a seaborne area of almost 700,000 square kilometers. Needless to say, Palauans feel at home in the water.





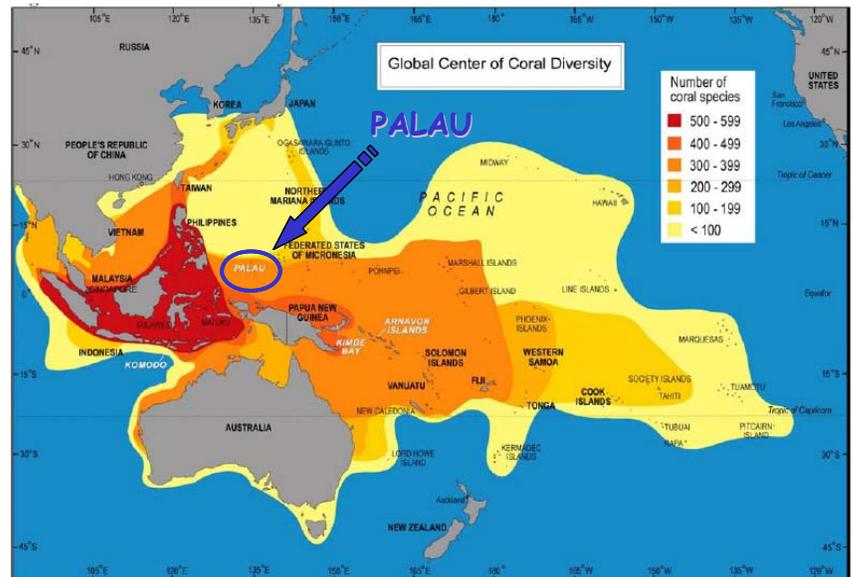
In terms of land, Palau's population of 20,000 people live on only 10 islands. The majority of those people live in Koror. The largest island is Babeldaob, to the north. Babeldaob comprises 80% of Palau's land mass, and is the second largest island in Micronesia, following Guam. Babeldaob's size and wealth of resources make it a critical target for both development and conservation.

Geologically, Palau consists of four island types: volcanic islands, high limestone islands, low coralline platform islands, and atolls. The capitol of Koror is made largely of limestone formed from uplifted coral reefs. The highly weathered island of Babeldaob was formed by volcanic activity almost 70 million years ago.

The climate is hot and wet. Palau has a consistent tropical marine climate with a mean temperature of 27 degrees Celsius. The coldest months of the year are January and February, but the hottest month of April is only 1 degree hotter. Palau receives 375 centimeters of rain annually, although it is subject to periods of draught.

Palau is one of the jewels of the Pacific because of its high rate of biodiversity. Palau is located in a globally important coral diversity hotspot, according to the World Conservation Union. Palau's biodiversity extends out of the sea onto the land as well. Because Palau is geologically old, and because as an island it is so isolated, Palau has a high level of endemic species that augment the existing Asian-Pacific biodiversity levels. While Palau does pride itself on its existing biodiversity, we are aware that preserving fragile endemic species is a challenge, and we are only now recognizing the full extent of the efforts and resources that must be committed to protecting biodiversity.

Terrestrially, approximately 80% of Palau is forested, including small areas of agroforestry. There are nine types of forest present, including healthy stands of upland forest and mangroves. The remaining 20% of land area are grasslands, cropland, or urban development. Babeldaob has highly weathered volcanic soils that are acidic, high in aluminum, low in nutrients and organic matter, and easily eroded. Agriculture is difficult because of the poor soil quality, and requires careful care of the land and high input





of fertilizers and organic matter to create successful crops. Activities such as fire, clearing of vegetation, or construction often lead to a loss of soil that cannot be replaced, making agriculture even more difficult.

There are approximately 1,200 species of plants in Palau, with approximately 14% (or 163 varieties) of them unique to Palau or Micronesia. Palau is believed to have more native species of plants than any other island in Micronesia. Interestingly, Palau is home to 23 varieties of endemic orchids. Unfortunately, there are 167 invasive species of plants threatening the country, and eradication of invasive

and introduced species is proving to be nearly impossible. A number of agencies have banded with communities to undertake successful ongoing efforts to reduce the amounts of the choking vine *Mikania* present, however, prevention needs to be stressed more than anything else.

There are high levels of endemism for most of the other native species in Palau, including insects, amphibians, reptiles, freshwater fish, and birds. Palau is perhaps the only remaining nation with a viable population of the Micronesian Megapode, a flightless bird that is endangered globally. The only native land mammal is the fruit bat. There are a number of introduced mammals such as dogs, cats, rats, cows, pigs, horses, and goats. Rats and cats in particular are a large threat to existing populations of birds and other vulnerable species.



During most of the year, freshwater is abundant, with nearly 500 million gallons of freshwater pouring out of Babeldaob per day. However, during times of draught, there have been water shortages, many of which are tied to global climate events. Several inhabited islands do not have any freshwater resources, and rely solely upon rainwater. In addition, most of the freshwater rivers in Babeldaob travel through multiple states. For instance, all of the water in Koror originates in the state of Airai. Because all natural resources are owned by State governments, and not the federal government, Palau needs to formulate more cooperative mechanisms to share its freshwaters resources. In a good note, we are proud to say that Palau does have in place a number of comprehensive freshwater monitoring programs that monitor both water quality and water habitats.

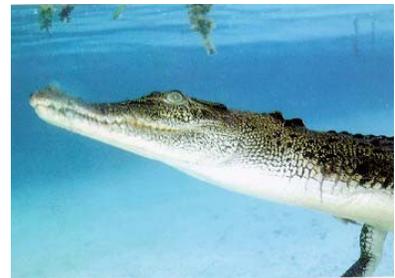




Moving on to marine resources, Palau is indeed a jewel in the Pacific. We are world famous for our Rock Islands and fabulous diving spots. Palau is also famous for its seafood, which is some of the freshest and tastiest in the world.

Palau is perhaps best known for its barrier and patch coral reefs, which have formed over time into pristine ecosystems reliant upon constantly warm, clean, and clear waters. As mentioned earlier, Palau is located in a coral diversity hotspot, and there are over 600 identified hard and soft coral species. Scientists believe that there may be many more hundreds of species left to be identified. With over 1,350 fish species, Palau has the richest fish fauna in Micronesia, and the reefs are home to many healthy populations of large sport fish and sharks. Palau's largest industry is tourism, and most of the visitors that come to Palau do so to explore the many diverse marine habitats and species that the nation has to offer.

Several unique or endangered species make their homes in our rich waters. Four species of sea turtles (all of which are endangered) pass through our waters, and Palau has nesting populations of Green and Hawksbill turtles. Palau is also home to endangered saltwater crocodiles and dugongs. Palau has an endemic species of Nautilus, which is the largest in the world. Palau is also home to a number of marine lakes, which have been separated from the ocean by over a thousand years, leading to unique assemblages of species, including the world-famous stingless jellyfish.





Marine resources are also the mainstay of Palau's culture and traditions. Nearly every aspect of life is tied to the sea, from transportation to food to legends to leadership. Fishing is extremely important, both as a sustainable practice to provide food for families and as a means of providing income to the nation. In fact, nearly every marine habitat, location, or species has some special place in Palauan tradition or culture. We are proud of the fact that we have names for all land and reef areas, and these names tie people and communities to their natural resources.

As Palauans, we are deeply rooted in our beliefs, traditions, and culture. Everything from the sharing of food to the caring of children is dictated by tradition, and this extends to the natural world as well. We have a traditional conservation system of moritorium called *Bul* that can be instituted by Chiefs during times of scarcity. Modern day Palau is actually the results of settlement that began between 3000 and 5000 years ago. The population was believed to have peaked at 80,000 people. Archeological evidence from terraces in Babeldaob shows that the ancient system of leadership was highly structured, allowing for sustainable living, even in such a large population.

However, Palau is being faced with rapid modernization. The small national population is now only 20,000, but of this, only 13,000 people are Palauan in origin. The remaining 7,000 people are foreign workers or residents. This combination of peoples provides Palau with valuable insights to other cultures and ways of life, but it does make the preservation of our traditional past an active challenge. In addition, nearly 75% of the population, or 15,000 people, live in the capital of Koror. The problems of urbanization seen in other nations are present here, including over-



crowding and scarcity of resources. Material and energy consumption in Koror are high, and utilize non-renewable resources such as gas and oil. While some of the outlying states do use solar energy, the need to use renewable energy sources is especially applicable to Palau and remains to be optimized.

Currently, Palau's means of addressing these issues of urbanization is to focus its development efforts to the island of Babeldaob, which, as stated before, holds a wealth of space and resources. The Compact Road that is being built around the island will open up the island to development, relieving Koror of some of its pressures. However, currently Palau has limited land use planning, which is a key tool to managing urbanization.



It is the very presence of Palau's diverse and abundant natural resources that creates many of Palau's current threats. Tourism opportunities and a growing population create development pressures that threaten the very livelihood of the country. Earthmoving activities lead to land clearing and erosion that threaten land and marine habitat quality. In 2002, there were 314 permits for construction issued, with 86 of them issued for State activities (for only 16 states). Agriculture, which offers a beneficial alternative to construction, also poses the threats of burning, soil loss, and pesticide and fertilizer runoff. Dredging and filling operations are directly tied to the loss of critical habitats such as mangroves. Mangroves and other habitats are also being degraded by solid and hazardous waste disposal.



Overexploitation of resources is a problem, with over-fishing of both inshore and reef fisheries through both industrial and individual fishing practices. Specific species are threatened due to illegal practices such as shark-fining or poaching. Invasive species are a growing problem, and as we speak there are ef-



forts underway to eradicate the highly invasive and destructive tilapia fish, which has been found in freshwater areas in Palau. Even global events such as climate change are proving to be a threat to our far-flung islands. Effects of climate change seen here in Palau already are coral bleaching, sea level rise, and even unexpected effects, such as the loss of all the jellyfish in marine lakes during the 1998 El Nino event.

The conflict between modernization and tradition presents additional challenges to Palau, and the nation must proceed carefully in order to preserve those things it values. Many of these challenges can only be addressed through government, such as by strengthening coordination across sectors and between agencies, and by increasing the political will to maintain environmental sustainability. Some challenges are the lack of information, data, and training, although Palau prides itself in moving forward even when faced with shortfalls of information or capacity. For instance, Palau's 30-plus environmental agencies are actively moving to protect and sustainably manage its resources.



Palau is well aware of its many opportunities and assets for protecting its environment. Its greatest resource is its population, which is highly educated and includes a number of committed professionals. The environment remains a source of community support, and Palauan culture provides us with strong ethics, tools, and practices that lead naturally to ac-





cepted methods of conservation. There are a number of groups that are actively working with specific aspects of the environment. The Palau Conservation Society, along with the rest of the NGO community, has an important role in coordinating and stimulating community-based management activities.

There is a strong legislative framework in place to allow for effective environmental management. The Republic of Palau has signed a number of international conventions and agreements, such the Convention on Biological Diversity and the Ramsar Convention, that provide a network of international support and financial assistance. Locally, we are very proud of our newly passed Protected Area Network Act, which was signed into law by President Remengesau only this past November. This law, which provides for a network of protected areas, is one of the first in the region that will address protected areas from a holistic and integrated approach.

Another asset to Palau is its strong belief in partnerships. Partnerships begin at the local level, between families and communities, move up to the State and National levels, and are evident even at the international level.

To ensure Palau's survival and success, we know that we must address our environmental threats and challenges head on, and that we must exhibit good governance to do so. We know that we must invest in capacity building for our people. And we know that we must maintain these critical partnerships.

In this modern age, we know that we cannot rely on our cultures and traditions alone to safeguard our resources. Our partnerships and the activities with our partners give us the chance to examine the resources and opportunities available to us, while at the same time allowing us to reconnect with and reflect upon those cultural traditions that have allowed Palauans to live so fruitfully. Palau, like all island nations facing the same challenges, must work to meet the balance between development and conservation, between modernization and tradition, and between globalization and self-identity. There is a thread that ties all cultures together, and it is that our identities are linked inseparable to our lands and waters. We look forward to working together to preserve the wealth with which we have been blessed, and I am confident that with our partners we will be able to share a bounty of ideas that will lead to culturally appropriate resource use decisions.

Kom kmal mesulang.

Belhaim Sakuma, Executive Director of Palau Conservation Society