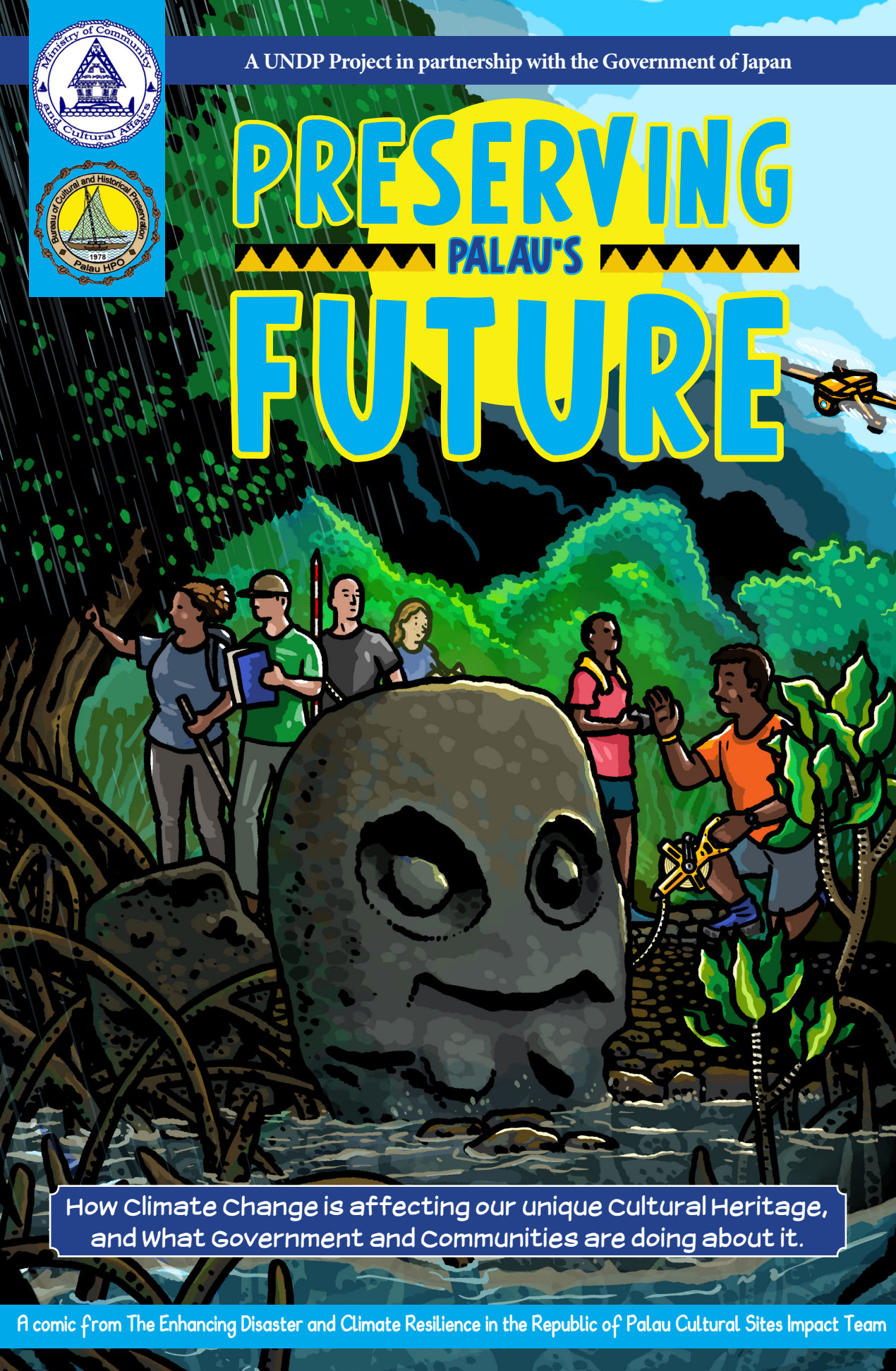




A UNDP Project in partnership with the Government of Japan

# PRESERVING PALAU'S FUTURE



How Climate Change is affecting our unique Cultural Heritage,  
and what Government and Communities are doing about it.

# PALAU-JAPAN PARTNERSHIP FUND

Enhancing Disaster and Climate Resilience in the Republic of Palau  
Through Improved Disaster Preparedness and Infrastructure

Project Number 00118499

The Bureau of Cultural and Historic Preservation Disaster Risk and Climate Change Impact Survey has assessed fifteen sites as part of Phase I of the Project.

Sites at the following ten locations are discussed in this comic to illustrate the range of threats facing cultural heritage sites in the Republic of Palau, and the project's recommendations for risk reduction-based site management.



# INTRODUCTION

Oct. 24th 2019  
United Nations Day  
& World Food Day

From singing to dancing,  
from traditional skills and  
crafts to food and stories,  
Palau has a rich and vibrant  
cultural heritage...

... which we  
share and celebrate  
throughout the year at  
events like the Olechotel  
Belau Fair.

**Sunny Ngirmang,**  
Director, Bureau of  
Cultural and Historic  
Preservation

**Pacific has 'moral authority' on climate crisis**

**UOG research informs report on impact of climate change Guam's freshwater availability**


**NZDF prepares for fishing migration from Pacific**

**US launches new project to reduce disaster**

**12 Pacific cyclones expected**

Small Island developing States, on the front lines of climate and economic shocks, need international assistance

But all of us in the Pacific - as well as around the globe - face an uncertain future.



Our world has reached a tipping point.

Man-made climate change is having real impacts on our lives...

...threatening communities and ecosystems...

... across the globe.

Here in the Pacific we are all too aware that rising sea levels...

... changing sea temperatures...

... and increasingly damaging storms can take a terrible toll on our islands.

But what does this mean for our cultural heritage?

This year, the **Palauan Government**, working with the **United Nations Development Programme** and funded by our partnership with the **Government of Japan**, is undertaking a bold new project to understand what we can do to prepare our islands for the impacts of climate change...

Climate change is affecting everything on Palau, including our precious and irreplaceable cultural heritage. The UNDP project has created a **Cultural Sites Impact Team** to identify how climate change is impacting our cultural heritage, and to recommend ways to preserve and protect traditional villages, landscapes and archaeological sites.

The Cultural Sites Impact Team includes BHP and HPO staff, as well as specialists in Micronesian archaeology from the United States and Great Britain.

**Sunny Ngirang**  
Director, Historic  
Preservation Office

**Calvin Emioschotel**  
Deputy, Historic  
Preservation Office

**McMichael Mutok**,  
Registrar, Bureau of  
Cultural and Historical  
Preservation

**Temael Erroflynn  
Kloulechad**  
Compliance Office,  
Bureau Cultural and  
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**Tutii Derek Benjamin**,  
Field Surveyor, Bureau  
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Historical Preservation  
Specialist, Bureau of  
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Preservation

**Dr. Scott Fitzpatrick**  
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**Dr. Jessica Stone**  
Archaeologist,  
University of Oregon

**John Swogger**  
Archaeologist and  
Illustrator

**Matthew Napolitano**  
Archaeologist,  
University of Oregon

This comic will show you how climate change has impacted ten different sites from our team's survey, and how those impacts are affecting local communities. We will also show how Government and communities can work together to preserve, protect and manage those sites.

# NGERUTECHAI

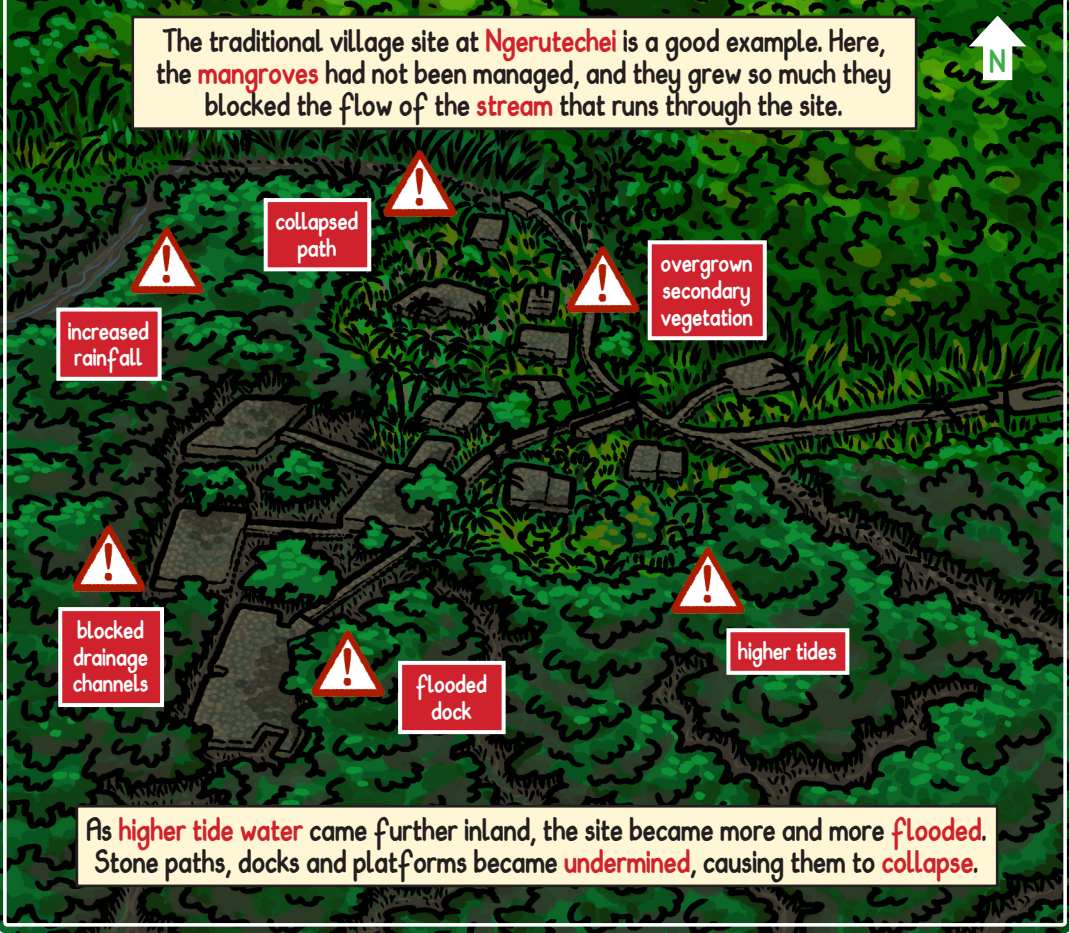


The cultural heritage of Palau that most people will probably know best are our unique **traditional villages**. Many of these lie inland, but they are still vulnerable to the effects of climate change - as our survey has revealed.

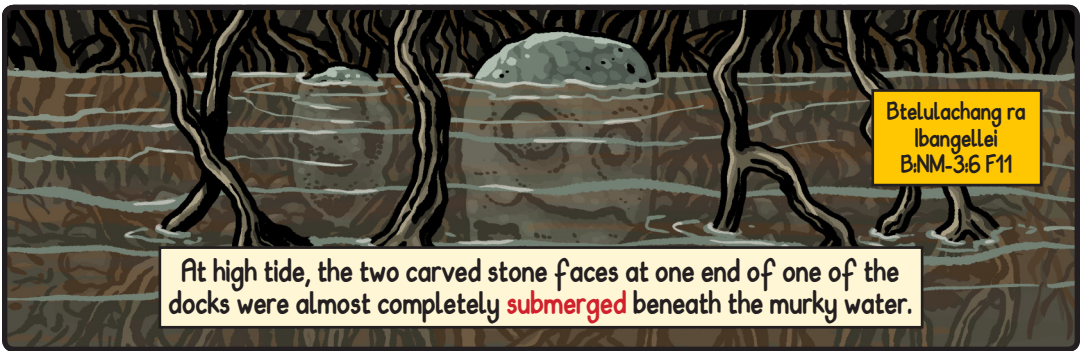
Did ra Ibai  
B:NM-3:6 F24

BELUU ER A NGERUTECHAI    07°31' N 134°31' E    Area: .36 acres

The traditional village site at **Ngerutechai** is a good example. Here, the **mangroves** had not been managed, and they grew so much they blocked the flow of the **stream** that runs through the site.



As **higher tide water** came further inland, the site became more and more **flooded**. Stone paths, docks and platforms became **undermined**, causing them to **collapse**.



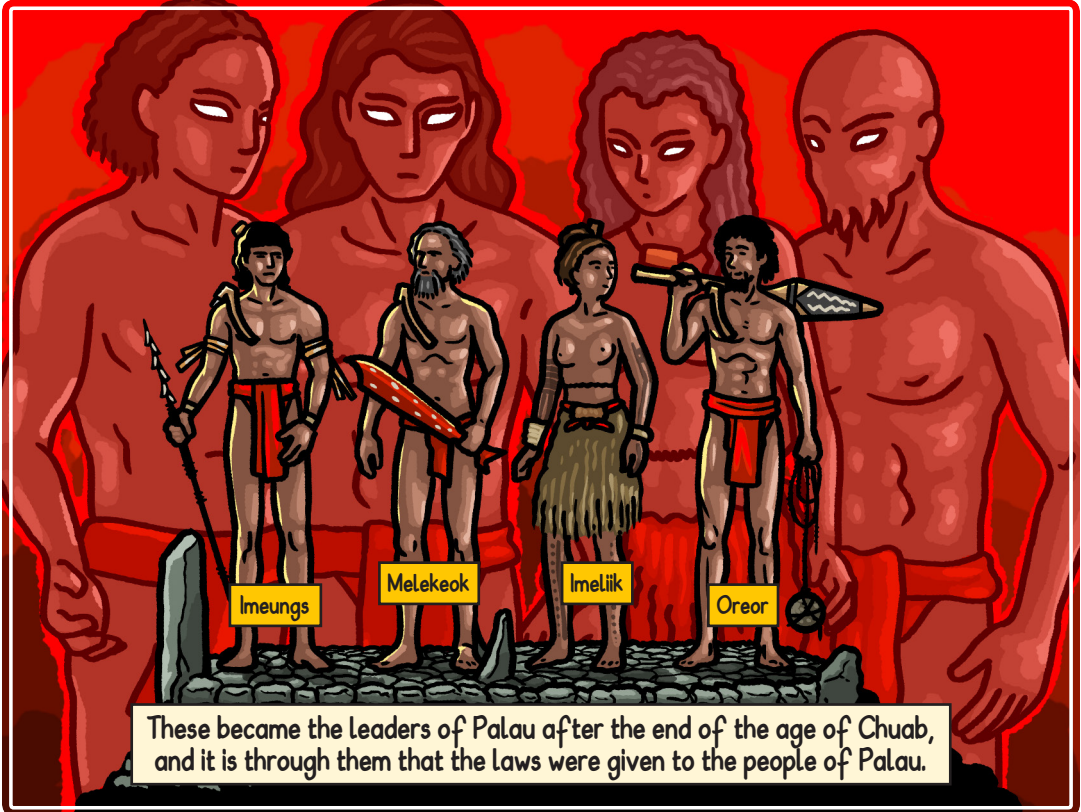
Btelulachang ra  
Ibangellei  
B:NM-3:6 F11

At high tide, the two carved stone faces at one end of one of the docks were almost completely **submerged** beneath the murky water.



Uchul a Rebong  
B:NM-3:6 F23

Ngerutechei is a very important place. In the center of the village is the **platform** Uchul a Rebong. Here the Ruchel - the gods - gathered and named the children of Milad.



Imeungs

Melekeok

Imeliik

Oreor

These became the leaders of Palau after the end of the age of Chuab, and it is through them that the laws were given to the people of Palau.



Ilud  
B:NM-3:6 F21

Because of its unique significance to the traditional history of Palau, our project recommends **long-term monitoring** and mapping of Ngerutechei.



This monitoring will help support the work that the **local community** in Ngeremlengui State have started at the site.

Diong ra lmeched  
B:NM-3:6 F4

When drainage of water is managed well it can lessen the danger from erosion and flooding. Our **ancestors** knew this - and here at Ngerutechei we can learn from their example.

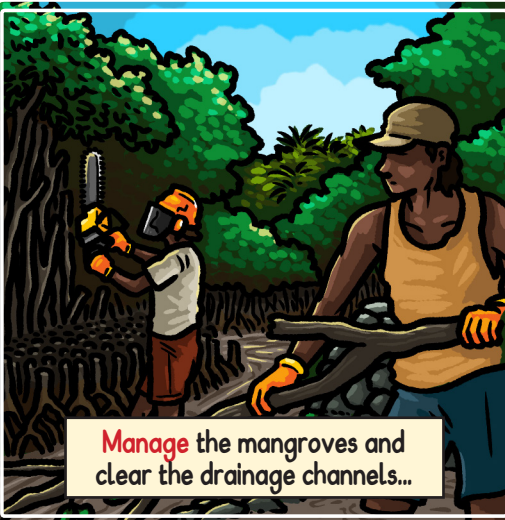
The community can **rebuild** culverts...



**Remove** invasive secondary vegetation...



**Manage** the mangroves and clear the drainage channels...



And **restore** traditional trees and plants.



This kind of work will help manage the problem of surface water. And once again, the stone figures will look out over the water as they should, and guard this village **for the future**.





# BTELULACHANG



Taoch ra Ngiteuai  
B:IR-2:1 F12

We have a similar project at the site of **Btelulachang** er a **Kemurrull me a Taoch** er a **Ngiteuai**. Here, a community group has been restoring a traditional dock, stone path and platform.

**Remurang Rengulbai**  
Airai State Historical & Cultural Preservation Coordinator



The work is being done by a **young men's club** here in Ngerusar. It **connects** them to the stories of the famous **Ngaraklasekl** men's club whose **Bai** once stood at this site.



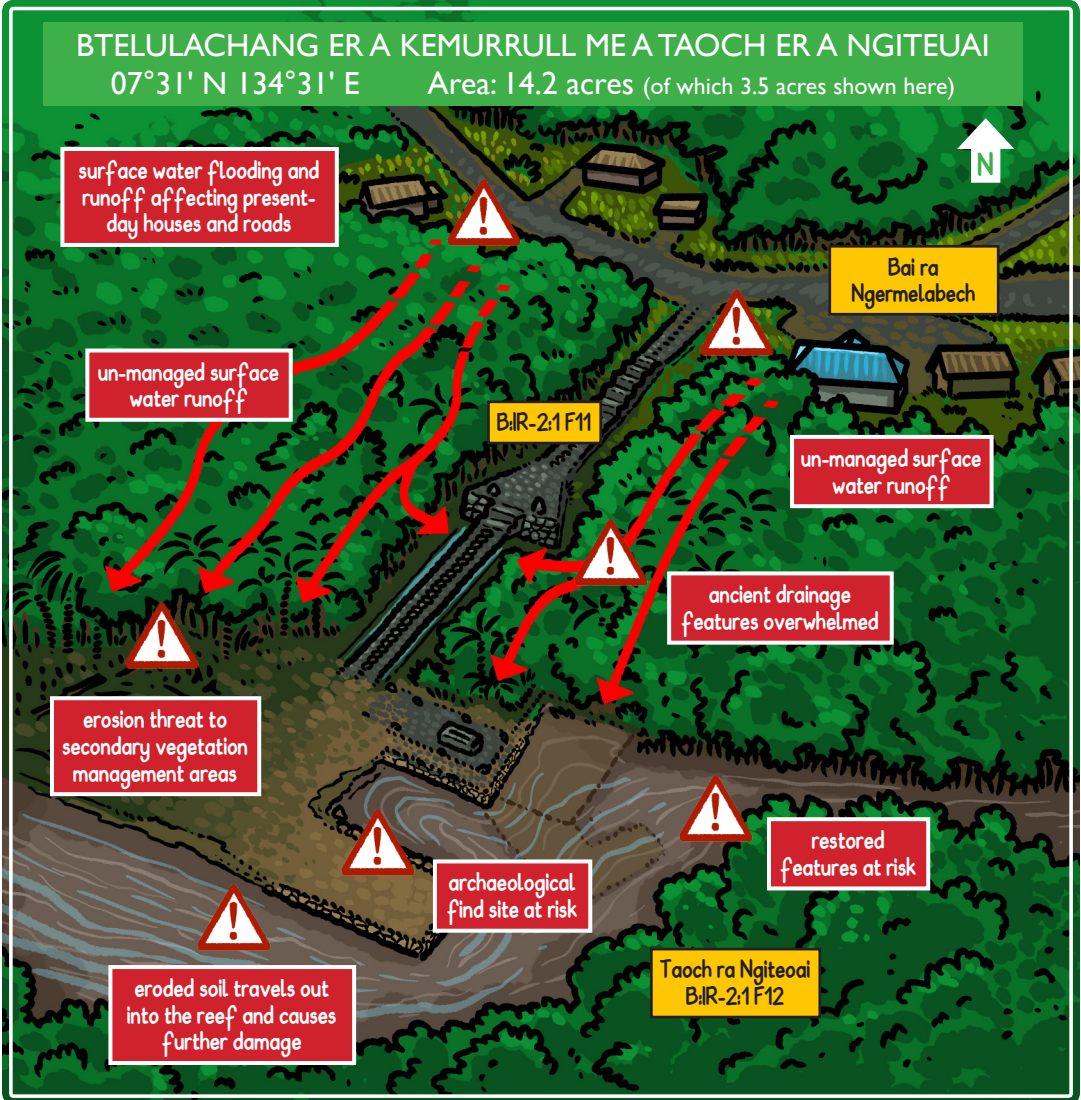
And the **community** use this place for other things, too - there's going to be a **Halloween Haunted House** here this evening!



It's great to see sites like this being restored and **brought back to life**.

And there are ways for **archaeological research** to help contribute to this process.

This is the remains of a wooden post from an ancient canoe house. We can sample and date it, adding to what we know from the traditional histories and previous research.



# KUKAU EL BAD

07°31' N 134°31' E

Area: 36 acres

The point of managing surface water and protecting sites from the impact of climate change is to **restore** these traditional village features to the **heart of the local community** by preserving them for the future.

Linking the site to lungel village



archaeological survey, mapping and recording

Kukau/Olketokel  
B:NE-9:6 F1

That's exactly what's happening here. This is a unique sacred site, and is being restored by the people of my community of **Ollei**.

We've learned from the experiences of projects at sites like Ngerutechei.

I'm **proud** to have been part of the team - proud of the months we spent clearing and cleaning this special place.

Community projects like this **do more** than just "bring people together" - they **connect** us to who we were in the past, and help determine who we are going to be in the **future**.

management of secondary vegetation

These are **not just empty words**: the local community helped restore the site because we want our **children** and **grand-children** to be able to see and touch their Palauan heritage and draw strength from it.



B:NM-3:6 *Beluu er a Ngerutechei*  
B:IR-2:1 *Btelulachang er a Kemurrull me a Taoch er a Ngiteuai*  
B:NE-9:6 *Kukau el Bad / Olketokel er a Kukau*

## SUMMARY

Even sites which are some ways inland are still at risk from climate change in the form of **surface water** as a result of heavier, less predictable storms.

These sites are focuses for community **pride**, and the community are an important partner in any strategy to mitigate for the impact of climate change at these sites.

**Restoring** sites like these manages surface water drainage and benefits the local ecology. Such restorations contribute to community cohesion and the sustainable tourism economy.

Importantly, they build close **partnerships** between youth and elders, between the community and state government, and between Palauans and visitors. These partnerships ensure that ancient sites become an important part of contemporary society.

The Enhancing Disaster and Climate Resilience in the Republic of Palau Cultural Sites Impact Team hopes that National Government and NGOs recognise the significant contributions to community **resilience** and **cohesion** that these projects make, as well as their potential to incorporate meaningful mitigations for climate change-related erosion.

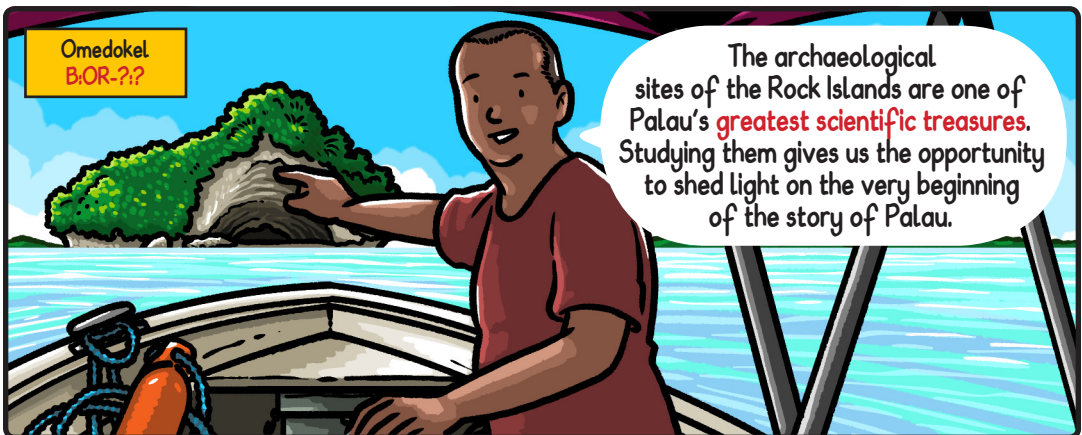
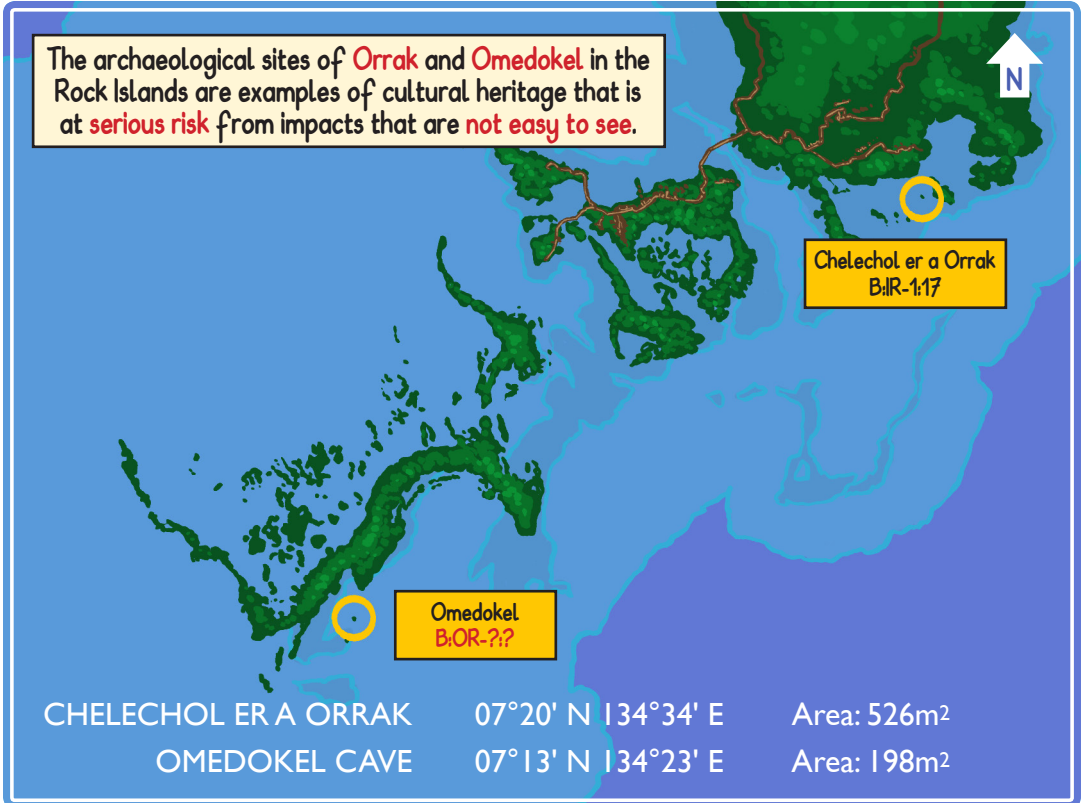
We strongly recommend continuing National and State Government **support** for these community projects, and **enhancing** them by incorporating programs of ongoing research and monitoring, as well as funding more complex interventions as required.

# ORRAK & OMEDOKEL



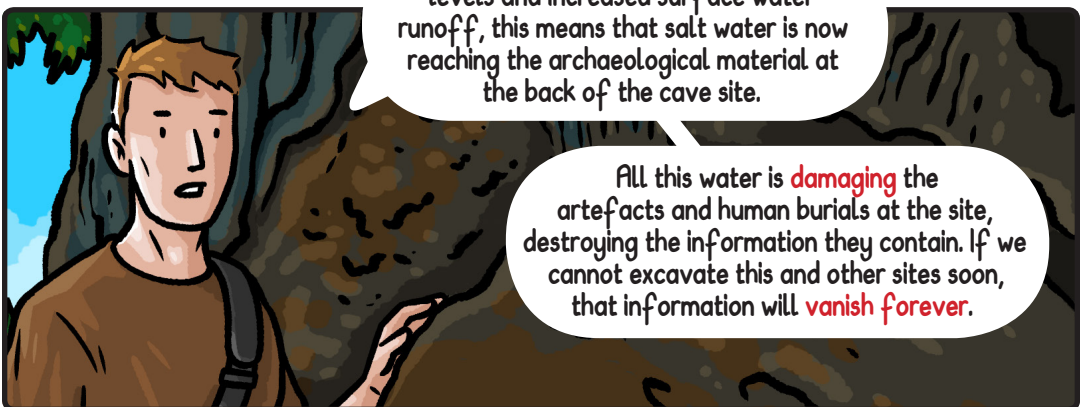
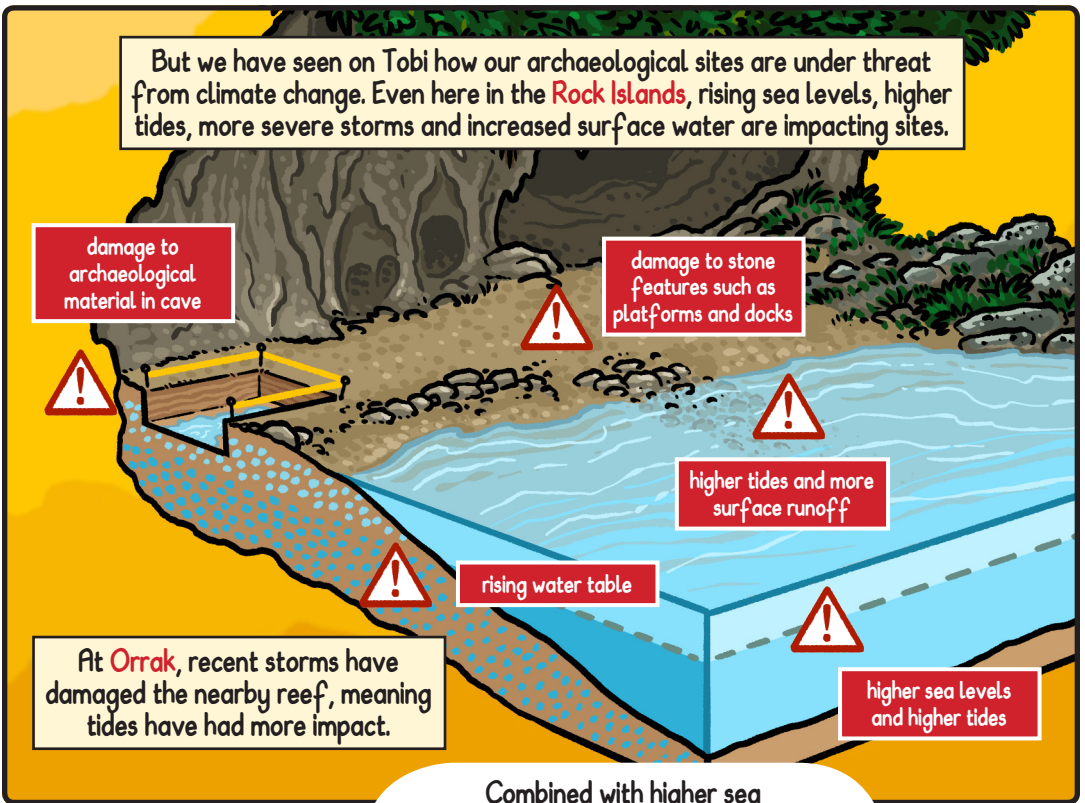
Our traditional village sites are **highly visible** - but what about cultural heritage sites that most people don't know exist?

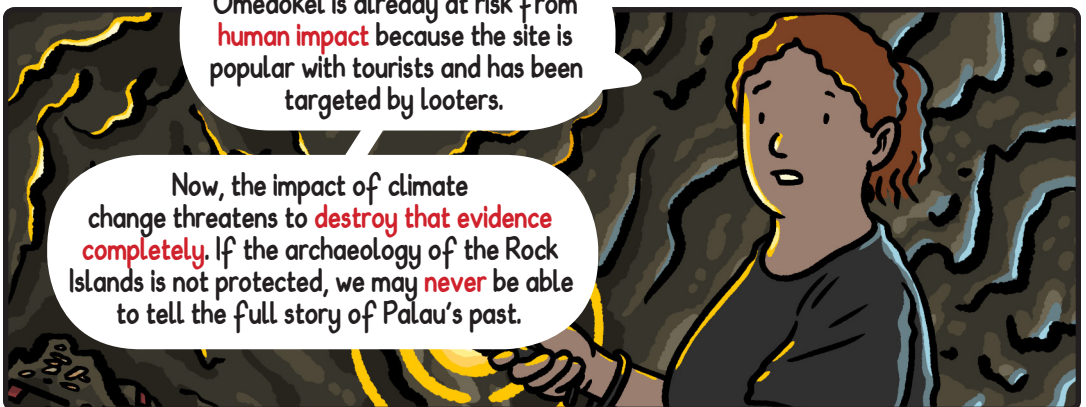
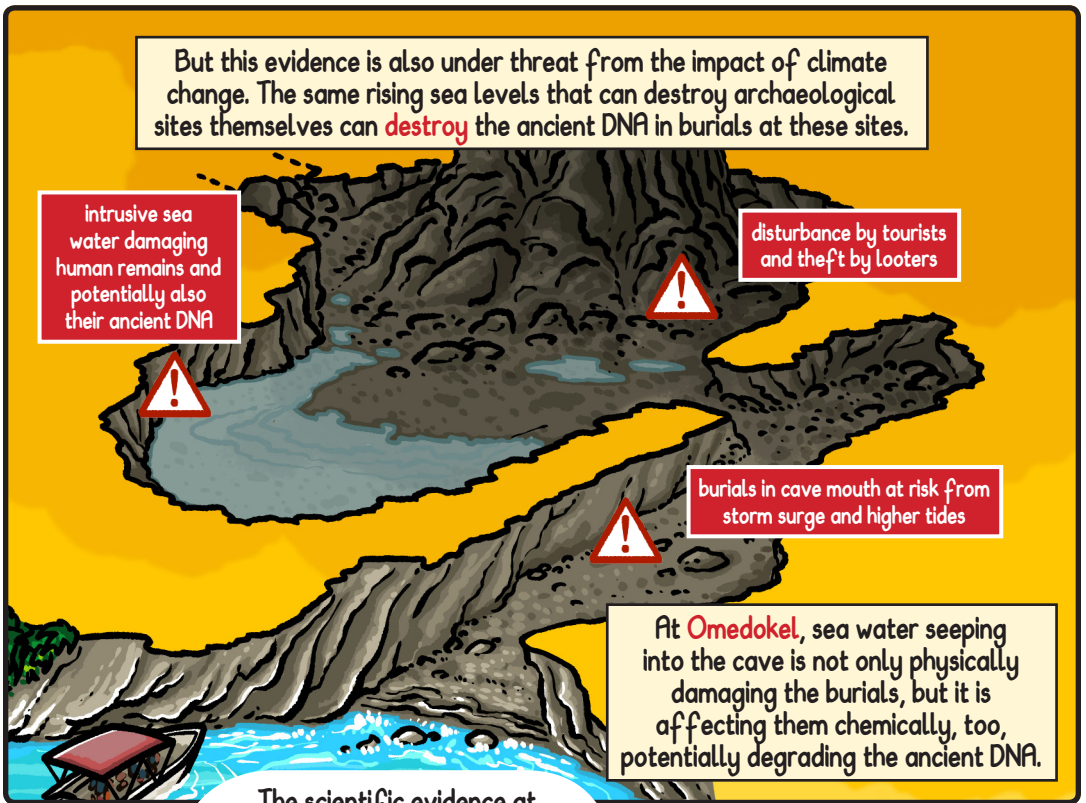
Chelechol er a Orrak  
B:IR-1:17



Omedokel  
B:OR-??:?

The archaeological sites of the Rock Islands are one of Palau's **greatest scientific treasures**. Studying them gives us the opportunity to shed light on the very beginning of the story of Palau.







B:IR-1:17      *Chelechol er a Orrak*  
B:OR-?:?      *Omedokel Cave*

## SUMMARY

The cultural heritage located beneath ground at Palau's archaeological sites is at risk from a **dangerous combination** of climate change impacts. **Higher tides, storms** and increased **surface water runoff** are causing significant and irreversible damage to the scientific evidence at these sites - including potential loss of ancient DNA evidence.

Losing this archaeological data means losing forever a crucial part of the story of **who we are** as Palauans. A long-term program of survey, research and outreach must be supported by government and NGOs in order to recover and preserve the information from these sites.

The Bureau of Cultural and Historic Preservation is already conducting an intensive survey of the archaeological sites in the Rock Islands, but this is **only the beginning**.

Government and NGOs must help liaise with business and tourism to help protect and promote and good practice around archaeological remains within the Rock Islands - both to Palauans and to visitors.

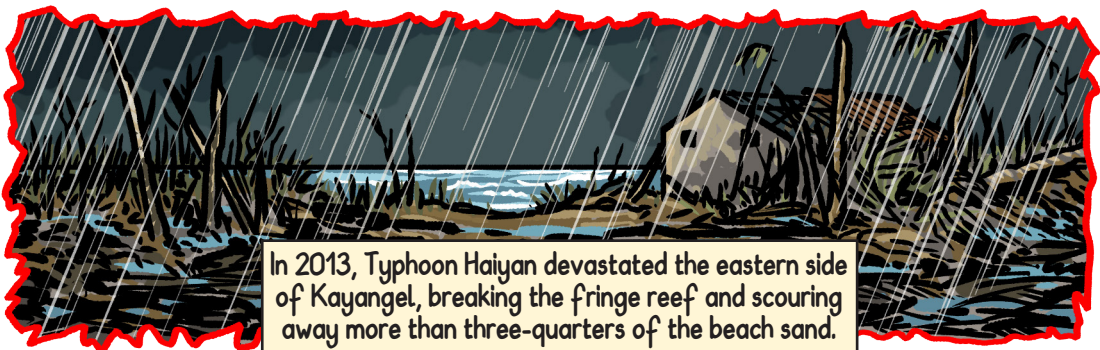
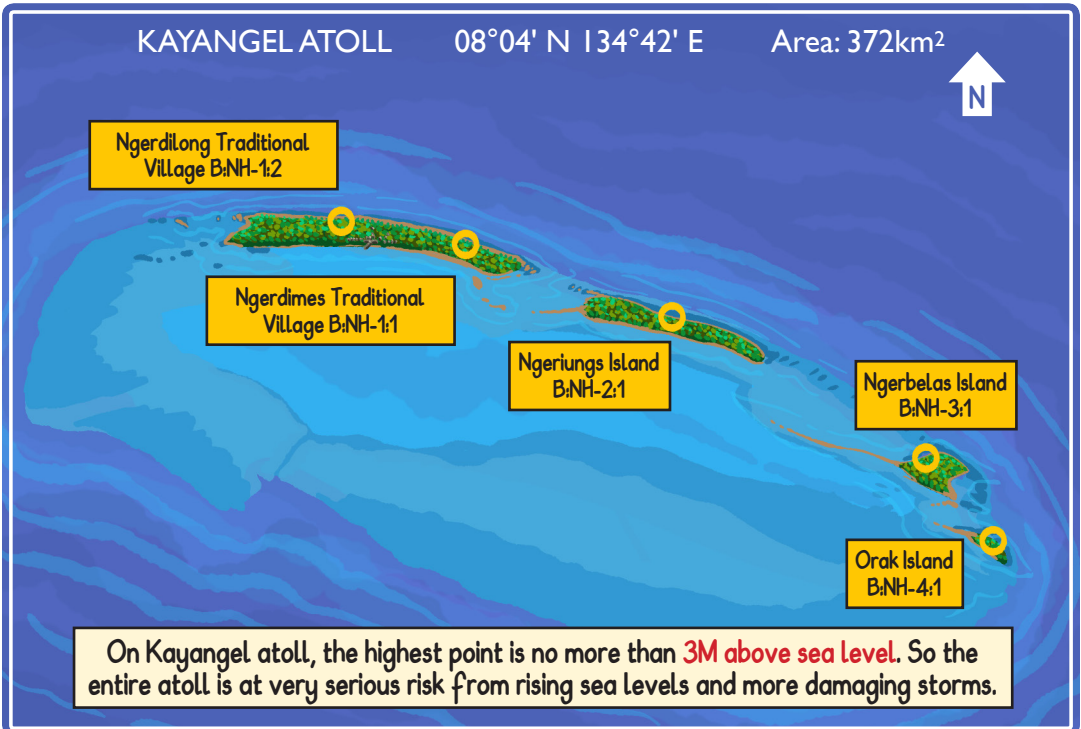
The Cultural Sites Impact Team recommends a two-strand approach to preserving, conserving and managing the archaeological sites of Palau: support for **research, investigation** and scientific **publication** combined with a broad program of public **outreach** and **education**.



# KAYANGEL



When cultural heritage sites are near open water, the impact of climate change is obviously **more immediate** - and **more visible**.

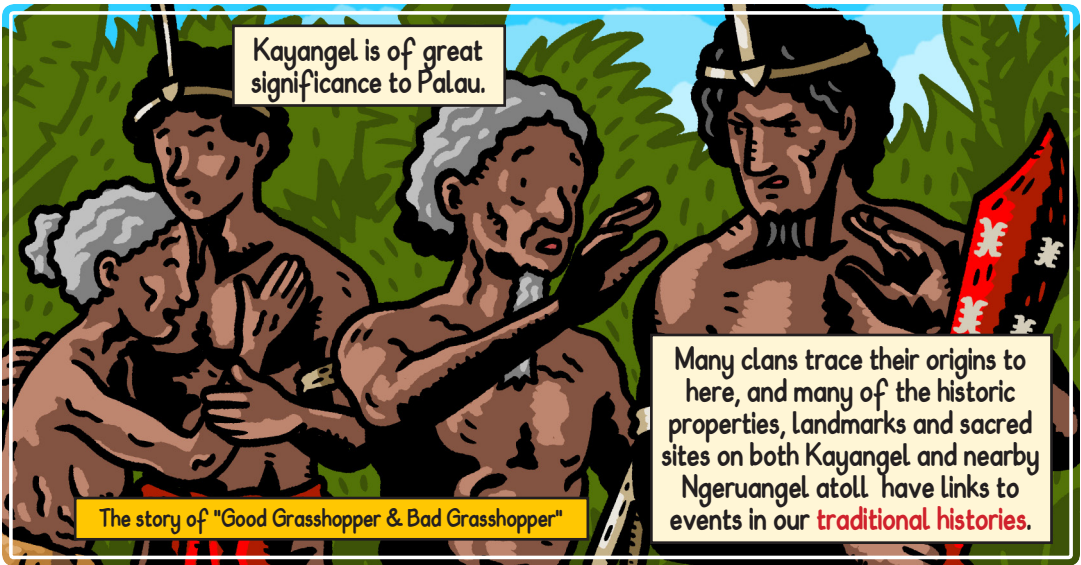


In 2013, Typhoon Haiyan devastated the eastern side of Kayangel, breaking the fringe reef and scouring away more than three-quarters of the beach sand.



You can still see piles of broken coral that was washed up to 20M inland.

A **quarter** of the atoll's population left the island.



Kayangel is of great significance to Palau.

Many clans trace their origins to here, and many of the historic properties, landmarks and sacred sites on both Kayangel and nearby Ngeruangel atoll have links to events in our **traditional histories**.

The story of "Good Grasshopper & Bad Grasshopper"



Some aspects of the traditional villages - like their spirit features - are **unique** to Kayangel.

Meduu el Bai  
BNH-12 F6

Sites like these have already been partly destroyed by recent storms.

Unique cultural heritage helps people feel connected to where they call home - and gives them a reason to **stay**.



But if the next big typhoon forces another 1/3 of the population to leave the atoll, how likely is it that there will be **future generations** on Kayangel?



But typhoons are not the only impact of climate change that threatens cultural heritage sites on Kayangel.

Bai er a Ngerbesang  
B:NH-1:2 F30



Rising sea levels mean that salt water seeps up higher into the soil. When it rains, the fresh rainwater sits on top of the denser sea water. In the past, this fresh water would collect in the ground and become the island's fresh water lens.

overgrown secondary vegetation preventing evaporation

rising sea levels

water runoff

damage to taro fields

damage to stone paths

rising groundwater

damage to houses

But now, there is so much rain that it sits on the surface, causing erosion damage to stone paths...

And flooding which threatens taro fields, houses...

... even cemeteries.

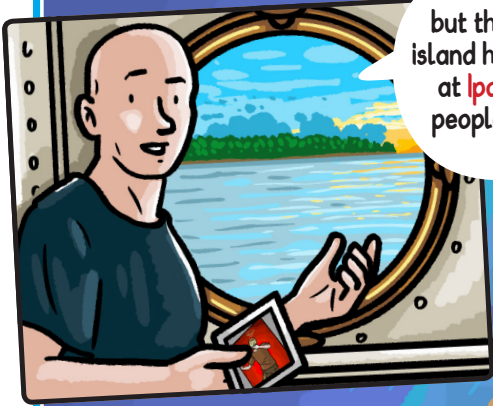


Typhoon warning bell

So while cultural heritage on the low-lying atoll of Kayangel is certainly at risk from storms, it is also at risk from erosion caused by surface water.

Bai er a Ngerurou  
B:NH-1:2 F30

# TOBI



Storms severely delayed our trip to Tobi - but their impact on the **archaeological heritage** of the island has been much more serious. We saw for ourselves at **lporu** - the site of the first settlement of Palauan peoples on the island. This site is just southwest of the main dock, facing the Philippine Sea.

TOBI ISLAND

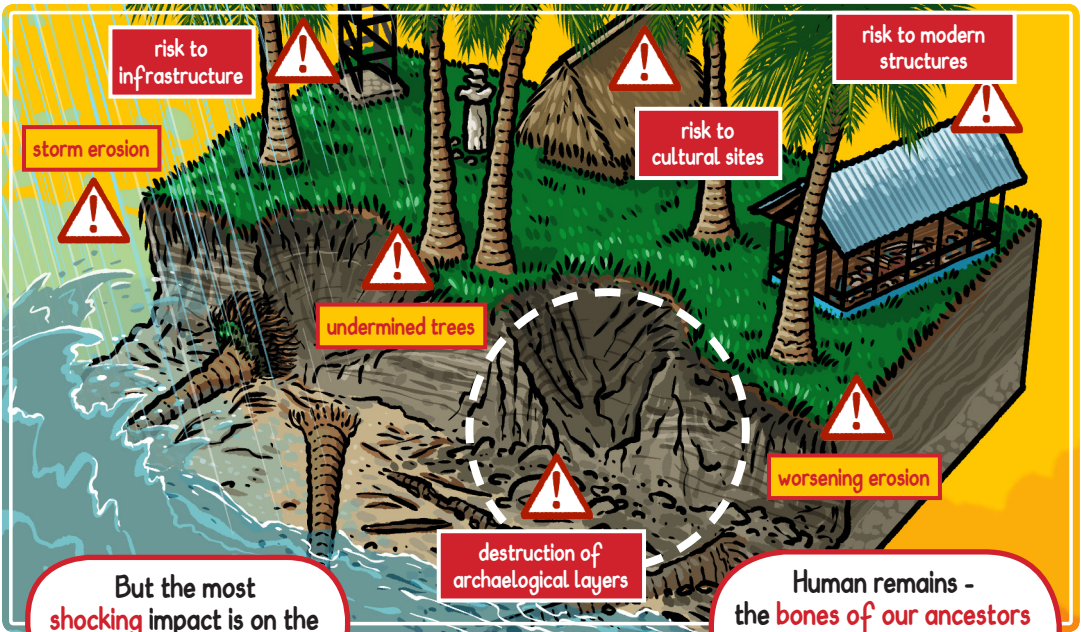
03°00' N 131°07' E

Area: .9km<sup>2</sup>

lporu B:TO-11



More severe storms, rain and rising tides have brought down trees along the shoreline, causing **significant coastal erosion**. Infrastructure, present-day houses and cultural sites are all at risk.



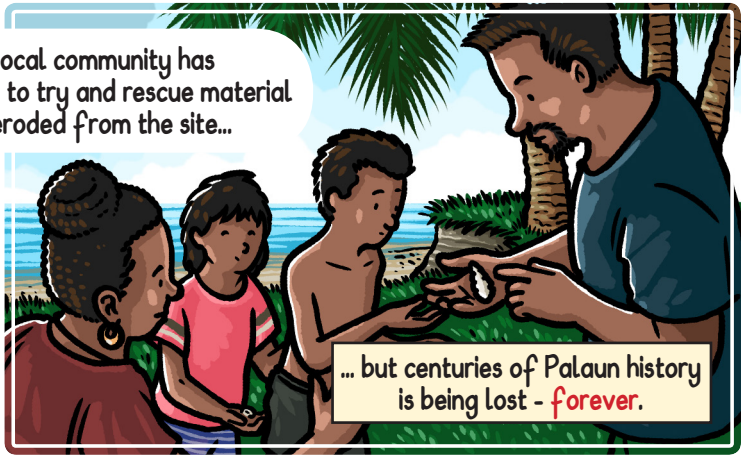
But the most **shocking** impact is on the archaeology at lporu...

Human remains - the **bones of our ancestors** - are literally being washed out to sea.

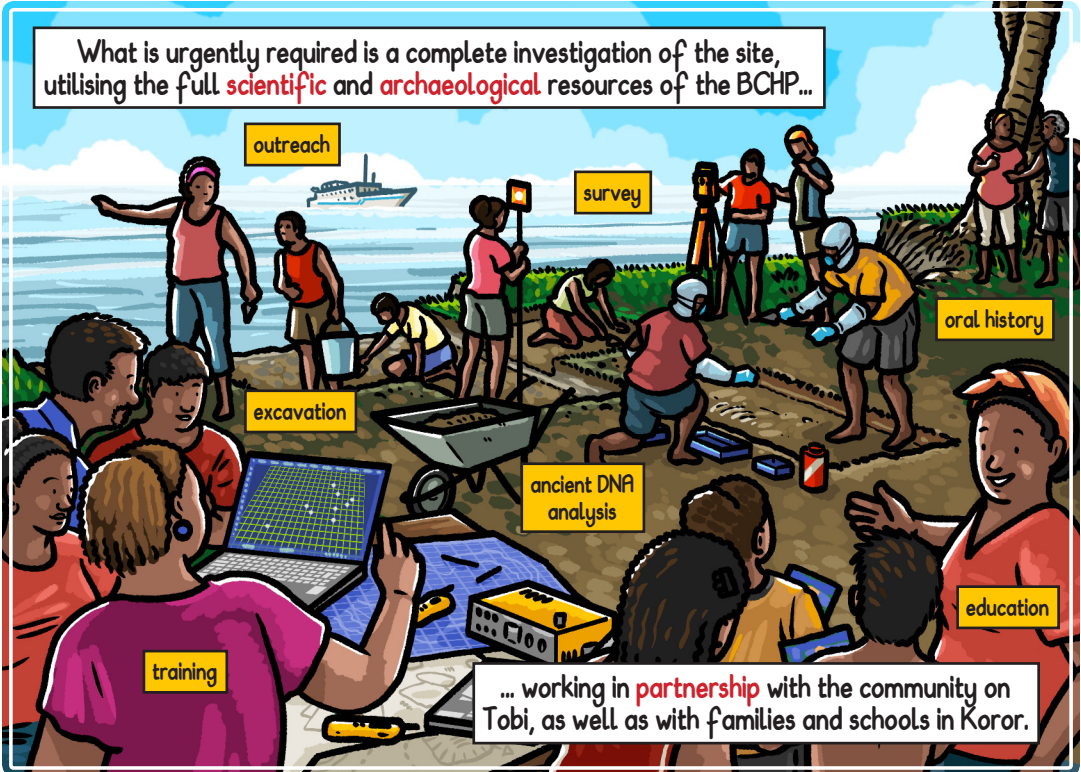




The local community has **worked hard** to try and rescue material being eroded from the site...

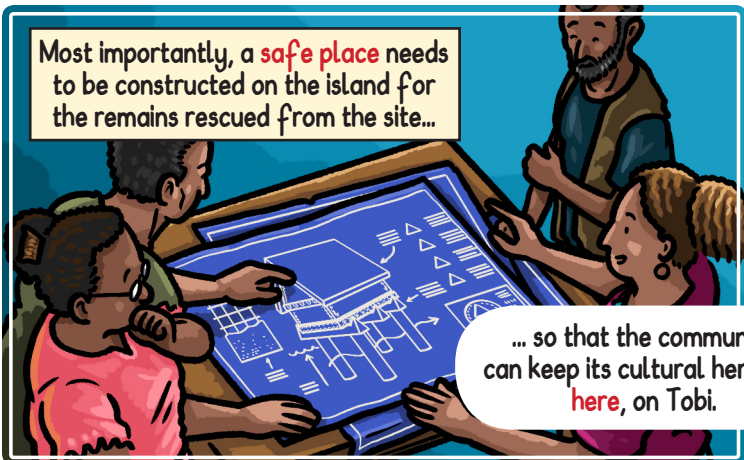


... but centuries of Palaun history is being lost - **forever**.



What is urgently required is a complete investigation of the site, utilising the full **scientific** and **archaeological** resources of the BCHP...

... working in **partnership** with the community on Tobi, as well as with families and schools in Koror.



Most importantly, a **safe place** needs to be constructed on the island for the remains rescued from the site...

... so that the community can keep its cultural heritage **here**, on Tobi.





B:NH-1:2      *Beluu er a Ngerdilong*  
B:NH-1:1      *Beluu er a Ngerdimes*  
B:TO-1:1      *Iporu*

## SUMMARY

Low-lying atoll and island sites are at **immediate threat** of **severe and damaging impacts** from climate change. Both traditional villages and archaeological sites are at risk from damage caused by **storms, surface water** and **rising water tables**.

**Community-lead initiatives** to clear secondary vegetation and restore surface water drainage features - similar to projects at sites such as Beluu er a Ngerutechei - could help protect cultural heritage in the short term. The Cultural Sites Impact team recommends that State and National government support communities in setting up such projects.

However, given the **long-term expectations** for the impact of climate change, it is also vital that significant resources are devoted to the **investigation** and **recording** of cultural heritage at low-lying atoll and island locations. This should include the recording of **oral histories, survey** and **mapping**, and **archaeological excavation**. This research should be accompanied by **educational and outreach programs** to ensure that knowledge of cultural heritage sites likely to be destroyed within the next 25 years is passed on to younger generations.

The Cultural Sites Impact team specifically recommends that such a program be initiated at Iporu on Tobi as a **matter of priority**.

## CHELDEKLEL A DILRENGULBAI

But sometimes, investigation and monitoring are **not enough**.

Some cultural heritage on Palau is so severely impacted by climate change that **intervention is needed** before it is critically damaged or even destroyed.

07°38' N 134°37' E

Area: 849m<sup>2</sup>

Here at **Cheldeklel a Dilrengulbai**, the causeway of the compact road has been built so as to **protect** the ancient coral pier from storm erosion.

Compact Road

Coral Pier  
B:NA-4:1

This has preserved the site even in the face of rising sea levels and more severe storms.

## ODALMELECH

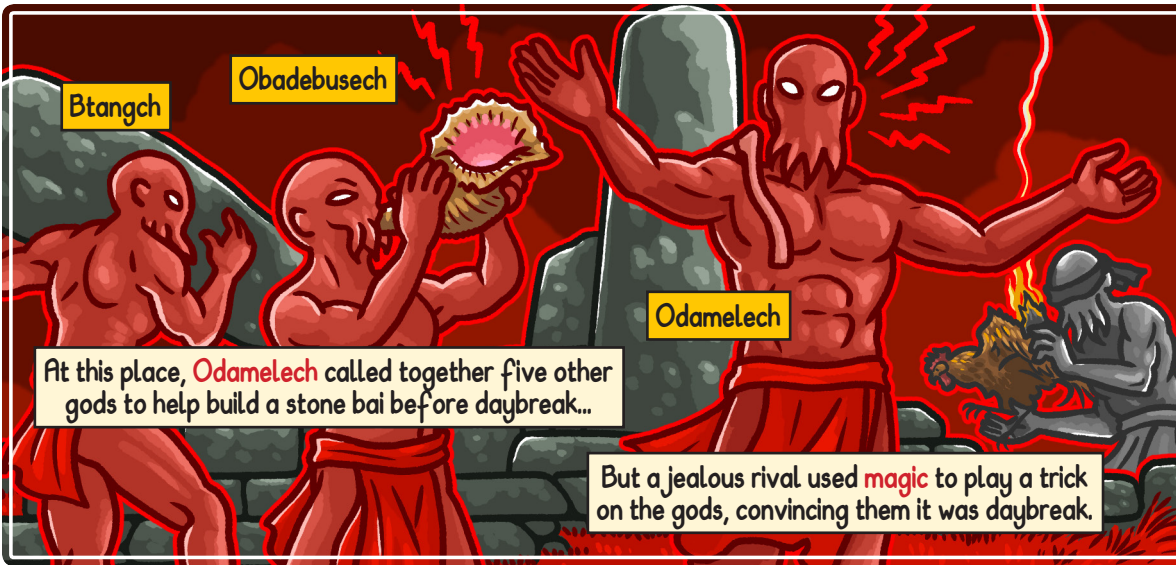
But here at **Odalmelech**, the historic **platform** and the **stone monoliths** of the Ngermelech gods are **unprotected**.

07°30' N 134°38' E

Area: 404m<sup>2</sup>



Already, storm erosion has **collapsed** the bank, and three of the monoliths have **fallen down** - in danger of being **swept away**.



Btangch

Obadebusech

Odamelech

At this place, **Odamelech** called together five other gods to help build a stone bai before daybreak...

But a jealous rival used **magic** to play a trick on the gods, convincing them it was daybreak.



Restoring the platform and the monoliths at this hugely significant site is unquestionably the **right thing** for us to do.

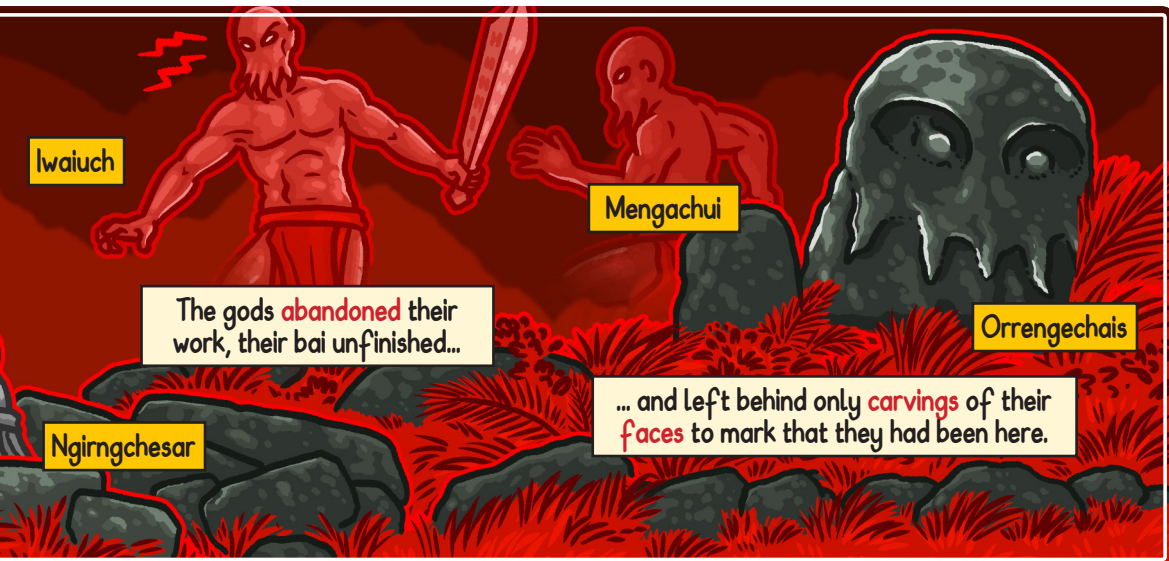
To **protect** this important ancient and traditional site...



Of course, this would be a long-term project - but we must commit ourselves to this kind of **investment** in our cultural heritage if it is to survive.

This kind of **intervention**, combined with **community initiatives**, **research** and **outreach** would be of immense benefit to the local community, the state of Melekeok and the whole of Palau.





Iwaiuch

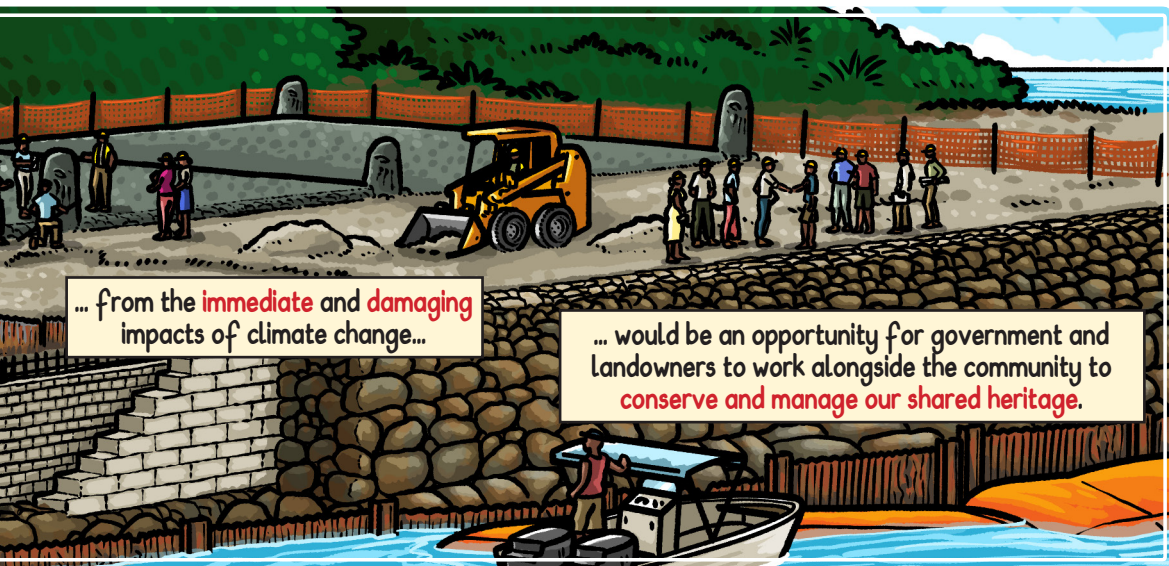
Mengachui

Orrengechais

The gods **abandoned** their work, their bai unfinished...

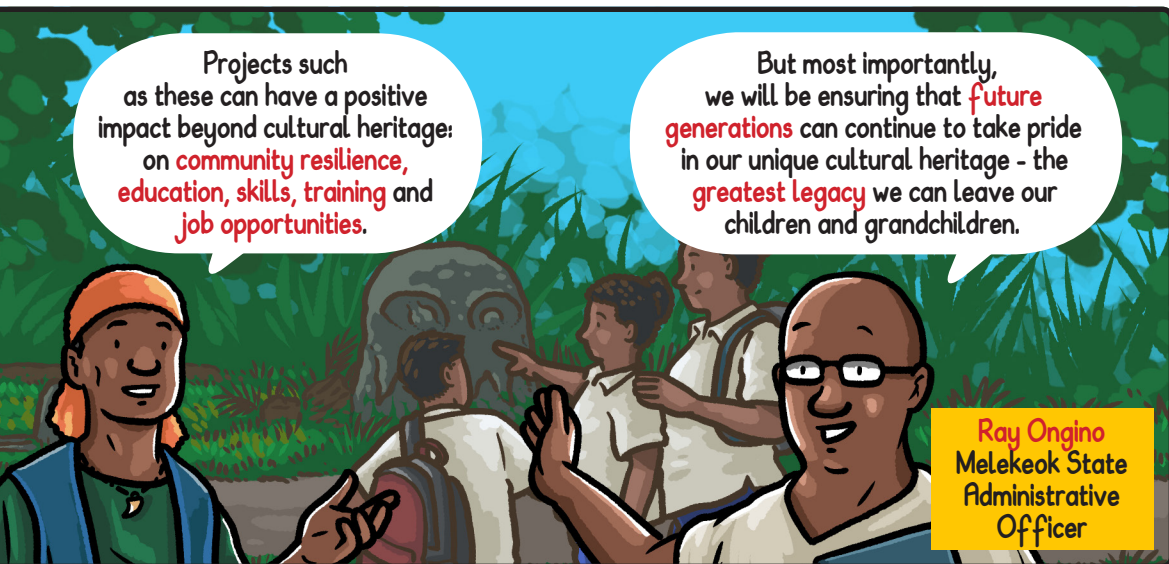
... and left behind only **carvings** of their **faces** to mark that they had been here.

Ngirngchesar



... from the **immediate** and **damaging** impacts of climate change...

... would be an opportunity for government and landowners to work alongside the community to **conserve and manage our shared heritage.**



Projects such as these can have a positive impact beyond cultural heritage: on **community resilience, education, skills, training and job opportunities.**

But most importantly, we will be ensuring that **future generations** can continue to take pride in our unique cultural heritage - the **greatest legacy** we can leave our children and grandchildren.

**Ray Ongino**  
Melekeok State  
Administrative  
Officer



B:NA-4:1      *Cheldekkel a Dilrengulbai*  
B:ME-4:1      *Odalmelech*

## SUMMARY

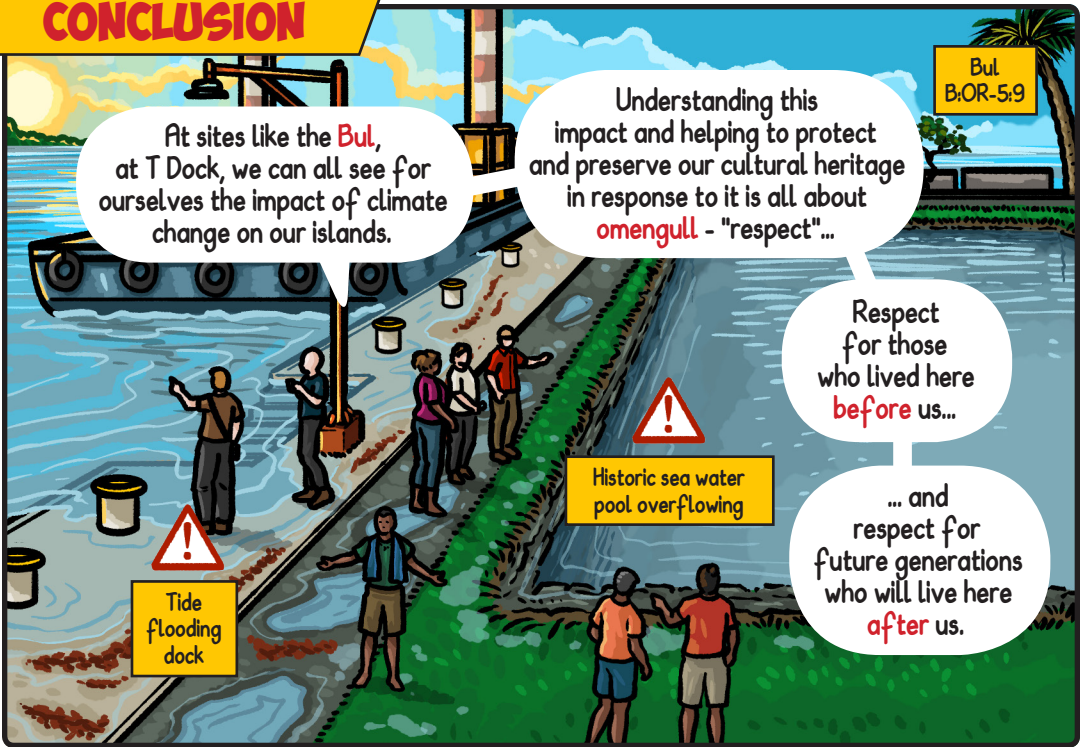
Cultural heritage sites which are at **immediate threat** of severe and irreversible damage or even destruction should be considered as candidates for **interventions**. Sites which are in imminent danger of destruction, or which are already subject to such, should be given priority for a full program of scientific and archaeological work, with accompanying outreach and education designed to involve the local community. At such sites, consideration must be given to the feasibility of relocating and/or restoring historical and traditional structures, and partnership projects created to include and involve local stakeholders in decision-making.

The Cultural Sites Impact Team recommends two such interventions. The first at the site of Iporu on Tobi - as already discussed, and the second at **Odalmelech**.

This intervention should involve (1) **the recovery of the fallen monoliths**, (2) **the re-siting of the monoliths**, (3) **the reconstruction of their platforms**, and (4) **the protecting of the entire site with an appropriate seawall construction**. Evidence of the effectiveness of such construction can be seen at the site of Cheldekkel a Dilrengulbai. This project should be designed so as to involved local landowners as well as the local community, and include cultural outreach and education as an integral component of the project.

The Cultural Sites Impact Team recognises the scale of the investment this intervention would require, but sees no alternative: it is clear that within the next 10-25 years the entire site and its monoliths could well be **destroyed completely**.

# CONCLUSION



## WE CAN ALL BE GUARDIANS OF OUR CULTURAL HERITAGE:

- Learn about your cultural heritage, from family members, teachers and from our museums.
- Learn about climate change, from rangers and our marine and conservation biologists.
- Take part in community projects to help preserve, conserve and manage traditional villages and archaeological sites near where you live.
- Spread the word and help educate friends, relatives and visitors about the importance of understanding climate change and how it impacts our cultural heritage. You can give them a copy of this comic!



To read the full report of The Enhancing Disaster and Climate Resilience in the Republic of Palau Cultural Sites Impact Team, please contact the Bureau of Cultural and Historical Preservation.



# CLIMATE CHANGE IS THREATENING OUR CULTURAL HERITAGE...



## WHAT CAN WE DO ABOUT IT?



We all know that climate change is having a significant impact on our islands. More severe storms, rising sea levels and higher tides affect every aspects of our lives. They also affect our cultural heritage, damaging and even destroying our unique traditional villages, historic places and archaeological sites.

The Enhancing Disaster and Climate Resilience in the Republic of Palau Cultural Sites Impact Team has surveyed cultural heritage sites across Palau to determine exactly how climate change is impacting these sites - and to make a series of recommendations to the Government of Palau and the United Nations Development Programme.

This comic tells what we found on our survey, and what government, communities and even individuals can do to help protect the irreplaceable cultural heritage of Palau from the impacts of climate change.

With support from UN Development Programme through the Enhancing Disaster and Climate Resilience Project, funded by Japan Official Development Assistance. The views in this report are those of the authors and do not necessarily reflect those of the UNDP. Published in the Republic of Palau by the Bureau of Cultural and Historical Preservation. For additional printed copies, please contact the Bureau offices. Also available online at: <https://bit.ly/3ueYoEB>

