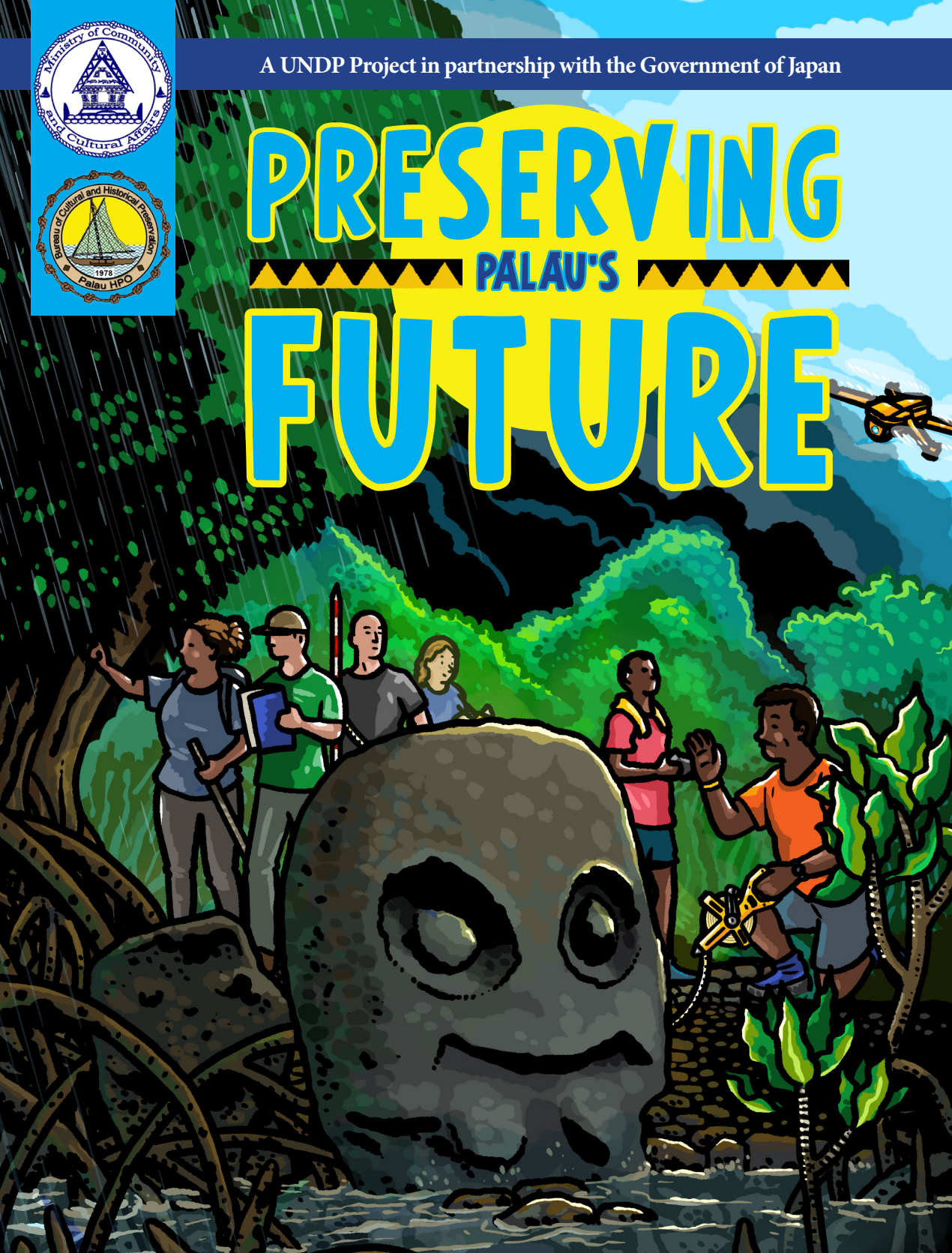
A UNDP Project in partnership with the Government of Japan

PRESERVING PALAU'S FUTURE



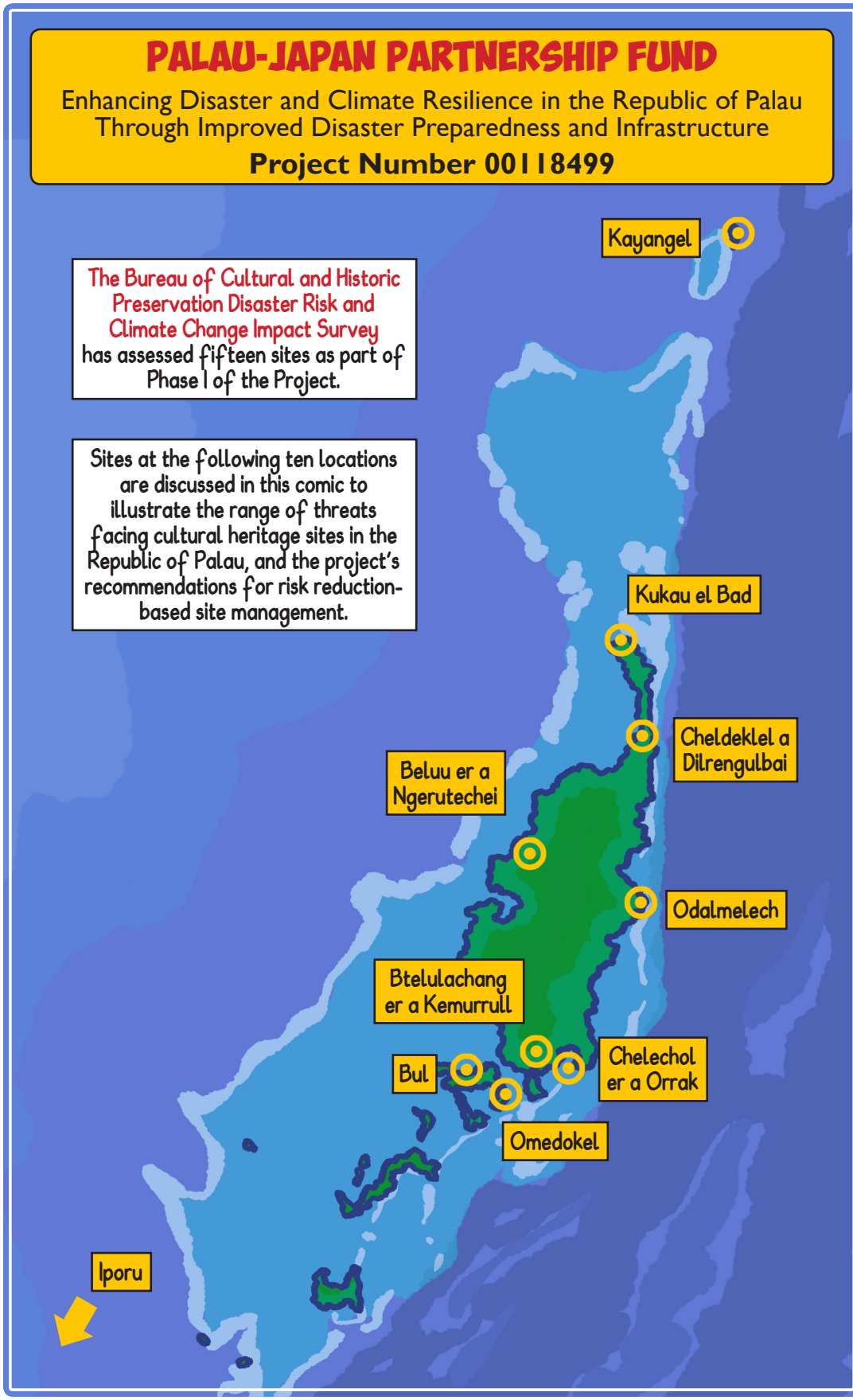
How Climate Change is affecting our unique Cultural Heritage, and What Government and Communities are doing about it.

A comic from The Enhancing Disaster and Climate Resilience in the Republic of Palau Cultural Sites Impact Team

PALAU-JAPAN PARTNERSHIP FUND

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

Project Number 00118499



INTRODUCTION


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?

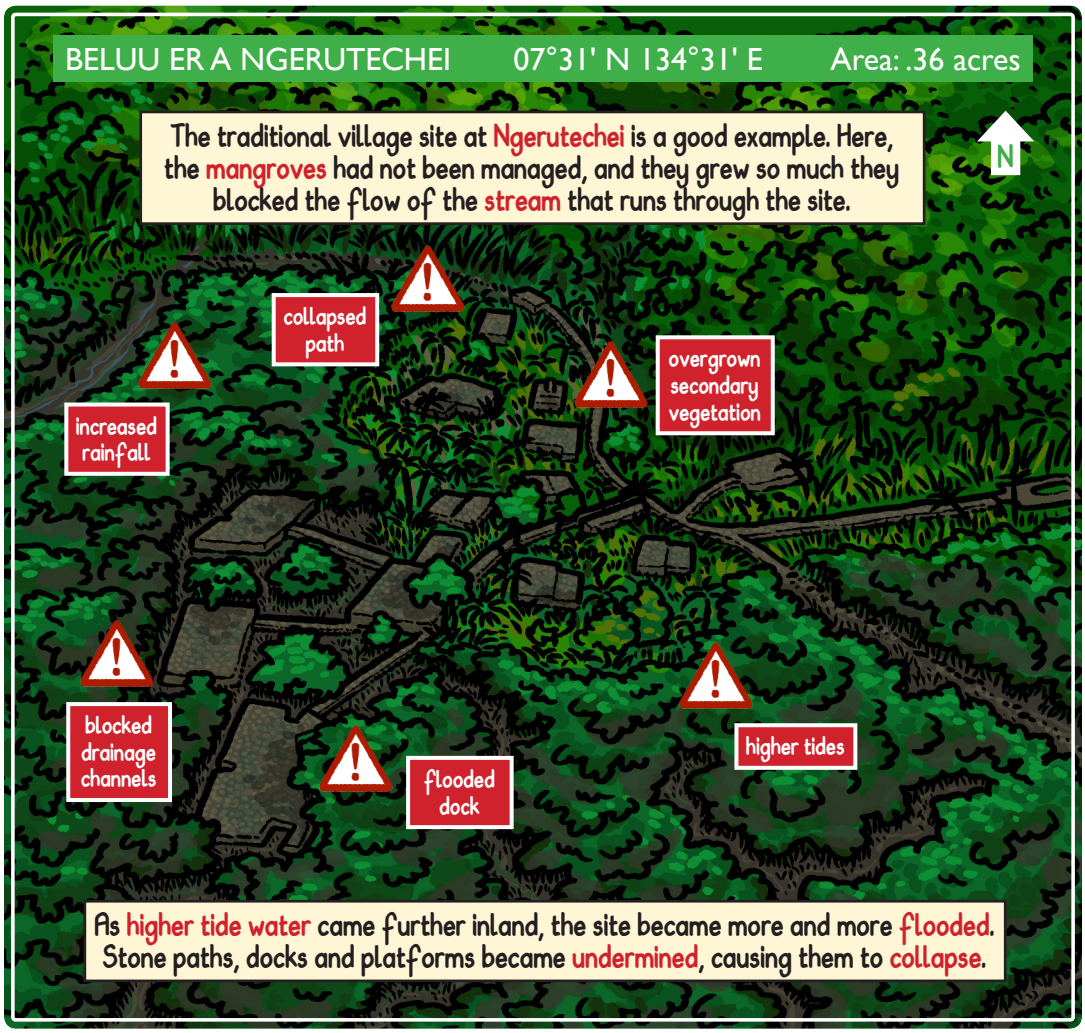
This year, the Palauan Government, working with the United Nations Development Programme and funded by our partnership with the Government of Japan, is undertaking a bold new project to understand what we can do to prepare our islands for the impacts of climate change...

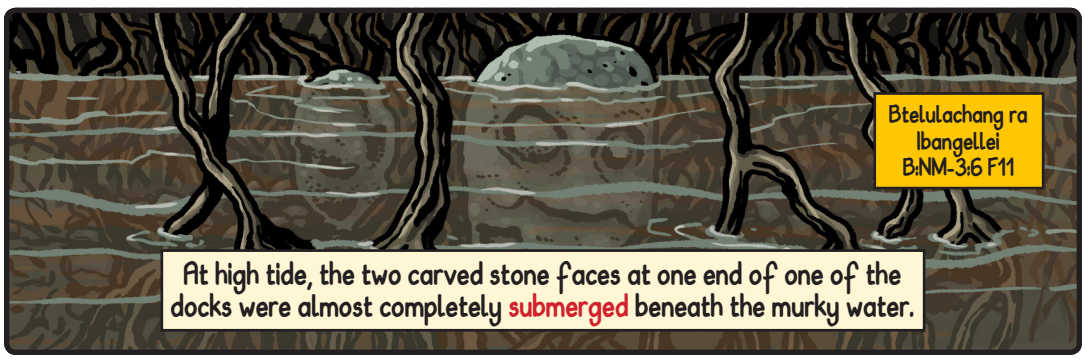
Climate change is affecting everything on Palau, including our precious and irreplaceable cultural heritage. The UNDP project has created a Cultural Sites Impact Team to identify how climate change is impacting our cultural heritage, and to recommend ways to preserve and protect traditional villages,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

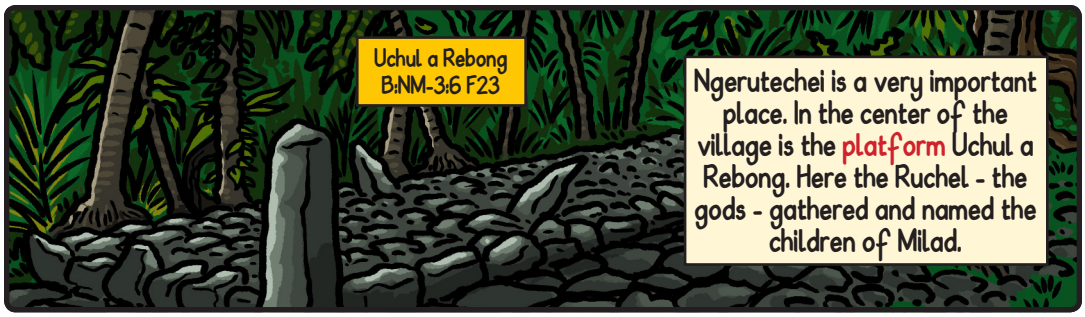
The Cultural Sites Impact Team includes BCHP and HPO staff, as well as specialists in Micronesian archaeology from the United States and Great Britain.

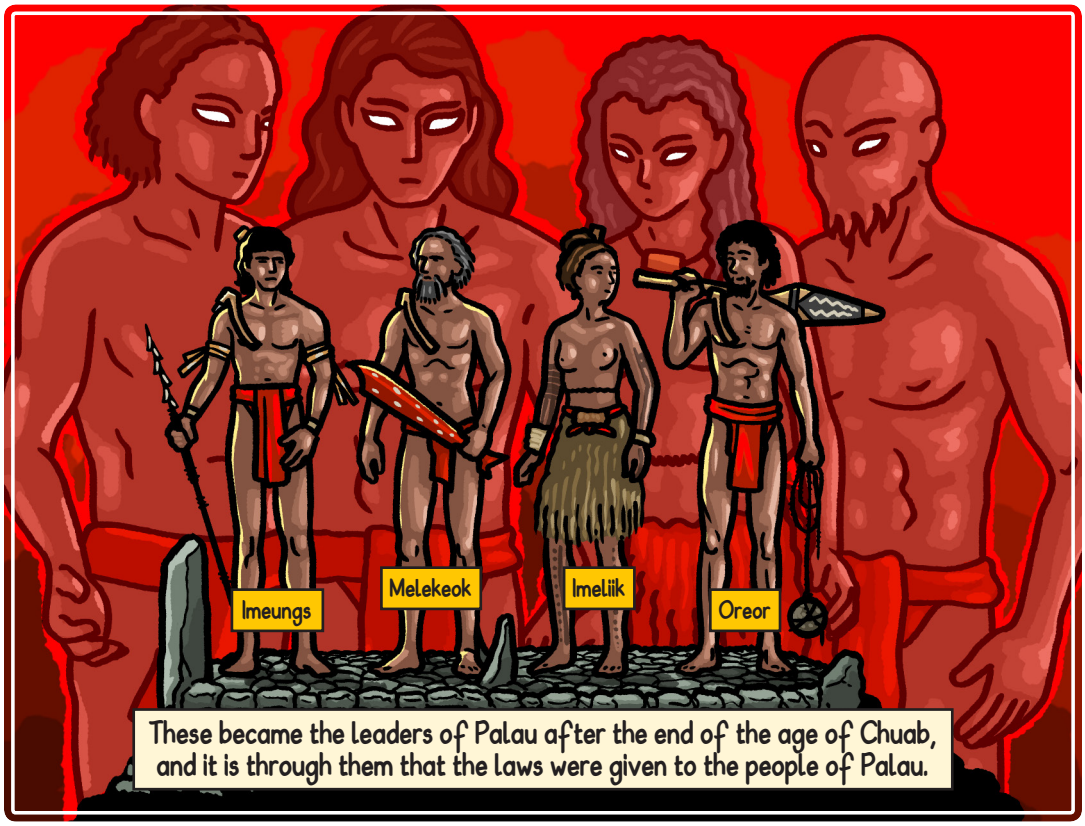
This comic will show you how climate change has impacted ten different sites from our team's survey, and how those impacts are affecting local communities. We will also show how Government and communities can work together to preserve, protect and manage those sites.

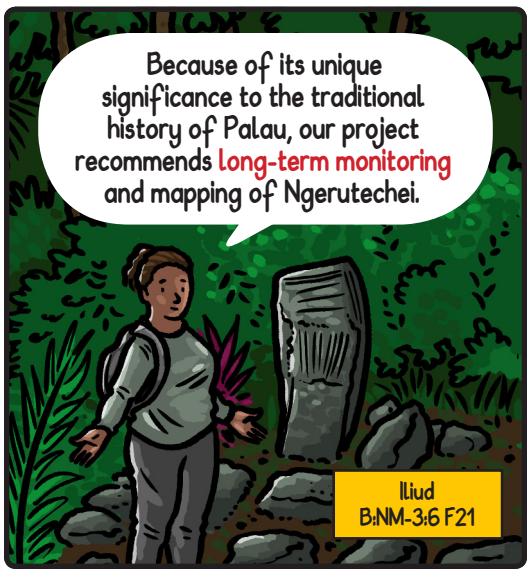
NGERUTECHEI






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.

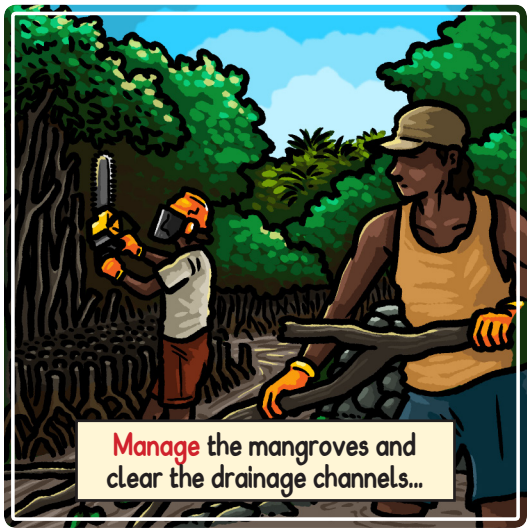

Because of its unique significance to the traditional history of Palau, our project recommends long-term monitoring and mapping of Ngerutechei.
Iliud
B:NM-3:6 F21


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...

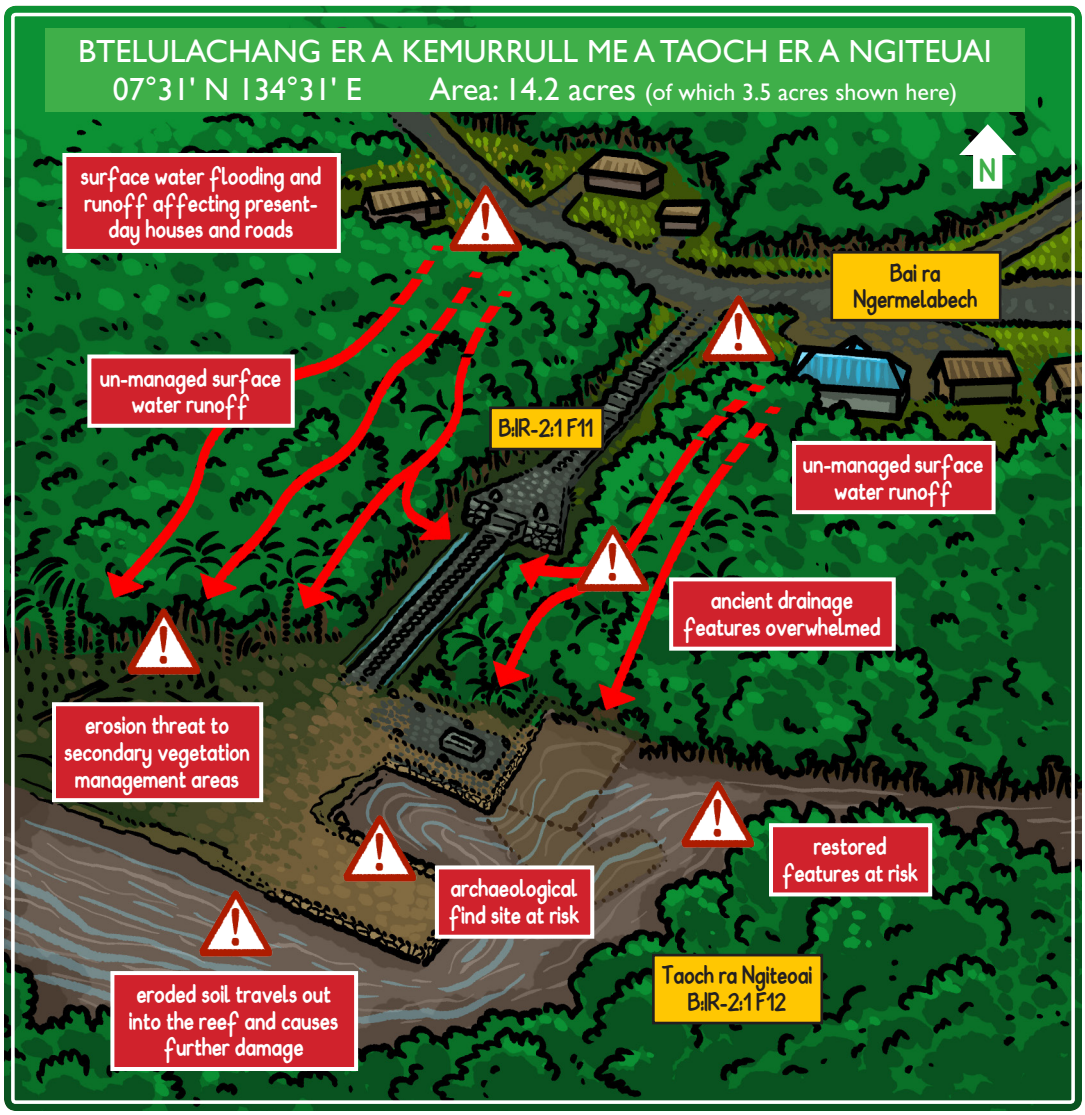

Manage the mangroves and clear the drainage channels...


And restore traditional trees and plants.

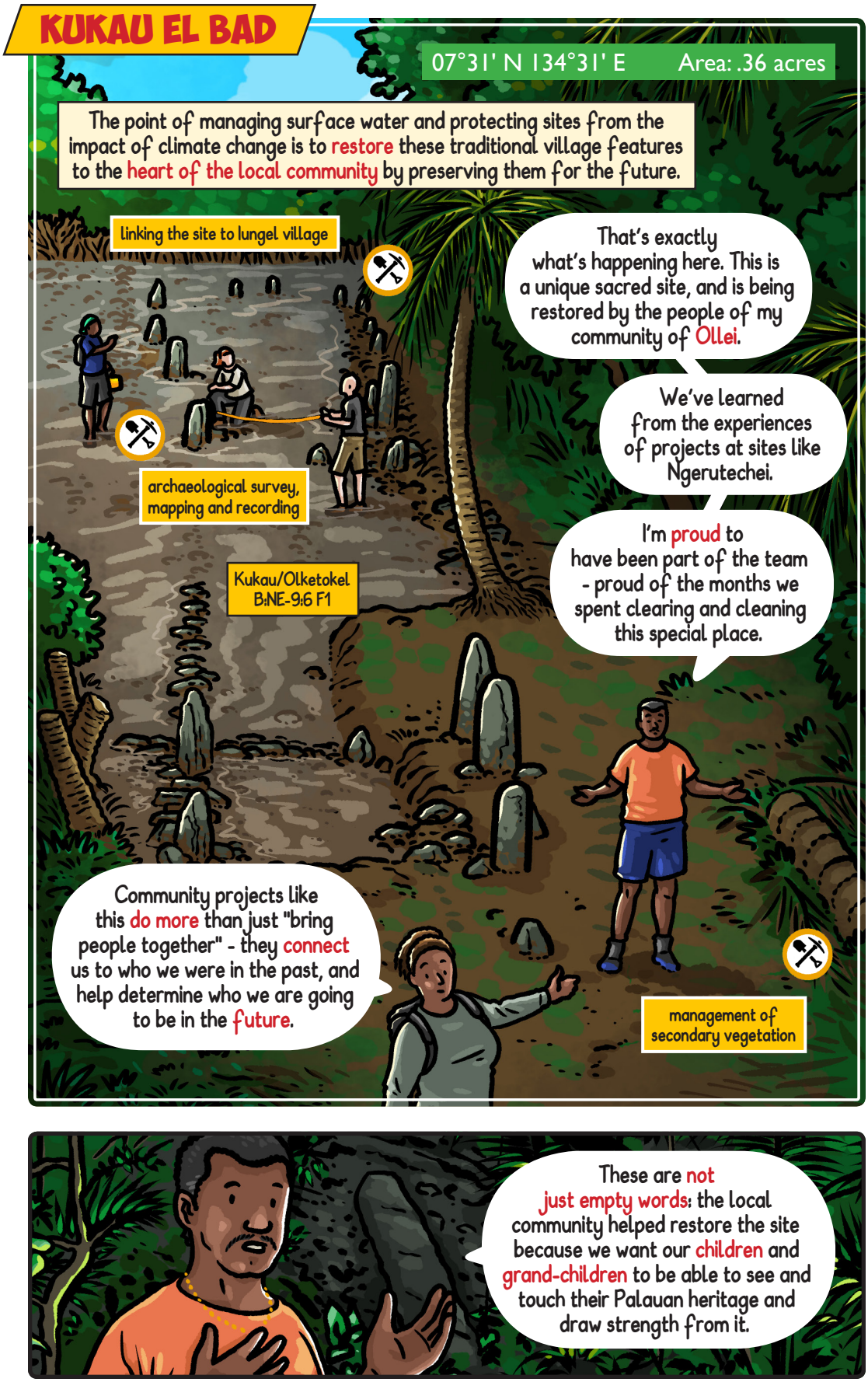

This kind of work will help manage the problem of surface water. And once again, the stone figures will look out over the water as they should, and guard this village for the future.


BTELULACHANG
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.
Taoch ra Ngiteuai
B:IR-2:1 F12
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.


This may be a much smaller site than Ngerutechei, but even here, erosion is a concern. Rainwater running down the hill will damage the restored platform, stone path and dock.


BTELULACHANG ER A KEMURRULL ME A TAOCH ER A NGITEUAI
07°31' N 134°31' E
Area: 14.2 acres (of which 3.5 acres shown here)
N
surface water flooding and runoff affecting present-day houses and roads
Bai ra Ngermelabech
un-managed surface water runoff
B:IR-2:1 F11
un-managed surface water runoff
ancient drainage features overwhelmed
erosion threat to secondary vegetation management areas
restored features at risk
archaeological find site at risk
Taoch ra Ngiteoai B:IR-2:1 F12
eroded soil travels out into the reef and causes further damage


Here, restoring the ancient drainage features is not enough to mitigate for surface water erosion...
... and larger-scale solutions may need to be developed in partnership with State and National government.


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
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.
archaeological survey, mapping and recording
I'm proud to have been part of the team - proud of the months we spent clearing and cleaning this special place.
Kukau/Olketokel B:NE-9:6 F1
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.

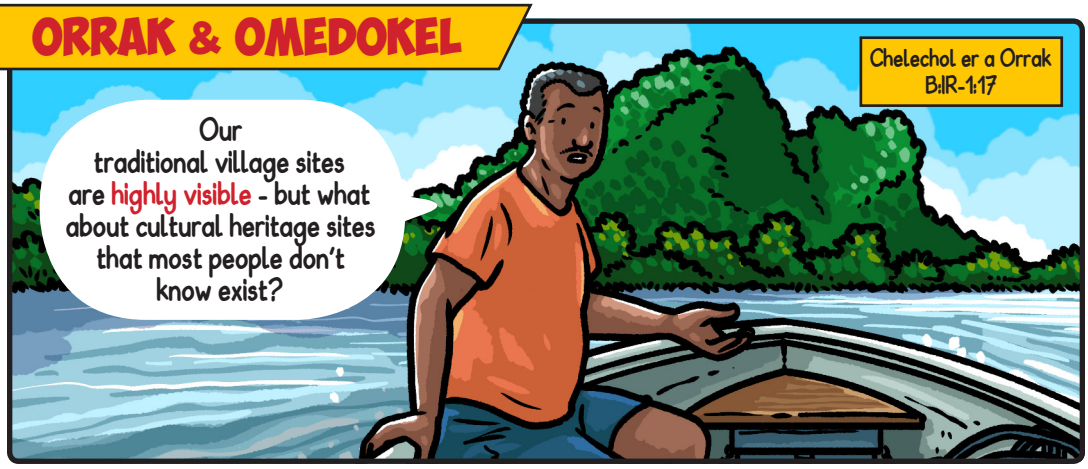
Restoring sites like these manages surface water drainage and benefits the local ecology. Such restorations contribute to community cohesion and the sustainable tourism economy.

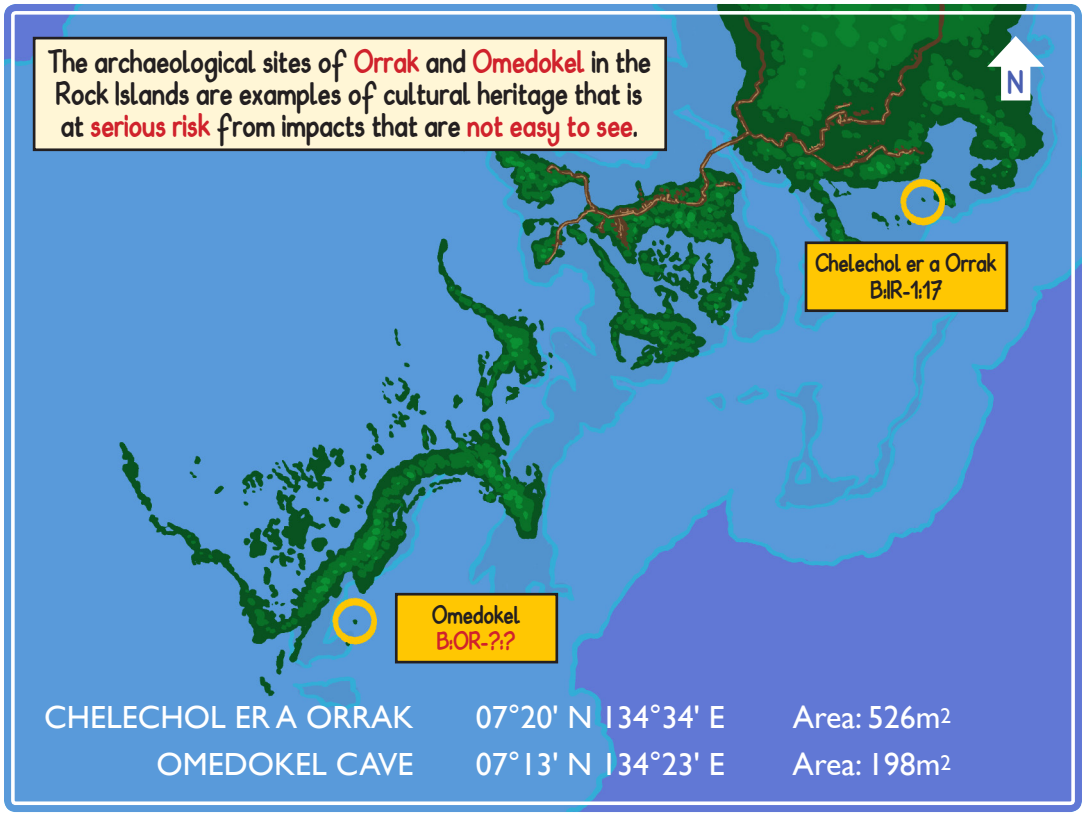
Importantly, they build close partnerships between youth and elders, between the community and state government, and between Palauans and visitors. These partnerships ensure that ancient sites become an important part of contemporary society.

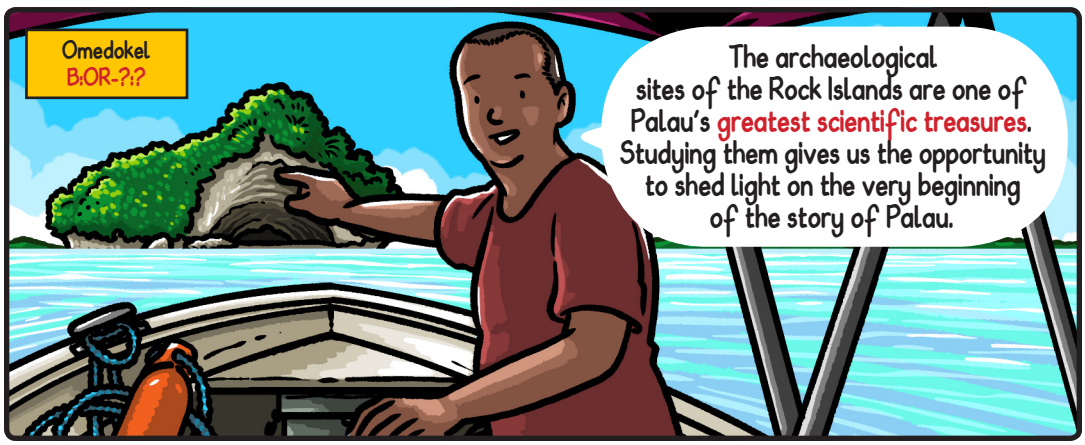
The Enhancing Disaster and Climate Resilience in the Republic of Palau Cultural Sites Impact Team hopes that National Government and NGOs recognise the significant contributions to community resilience and cohesion that these projects make, as well as their potential to incorporate meaningful mitigations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

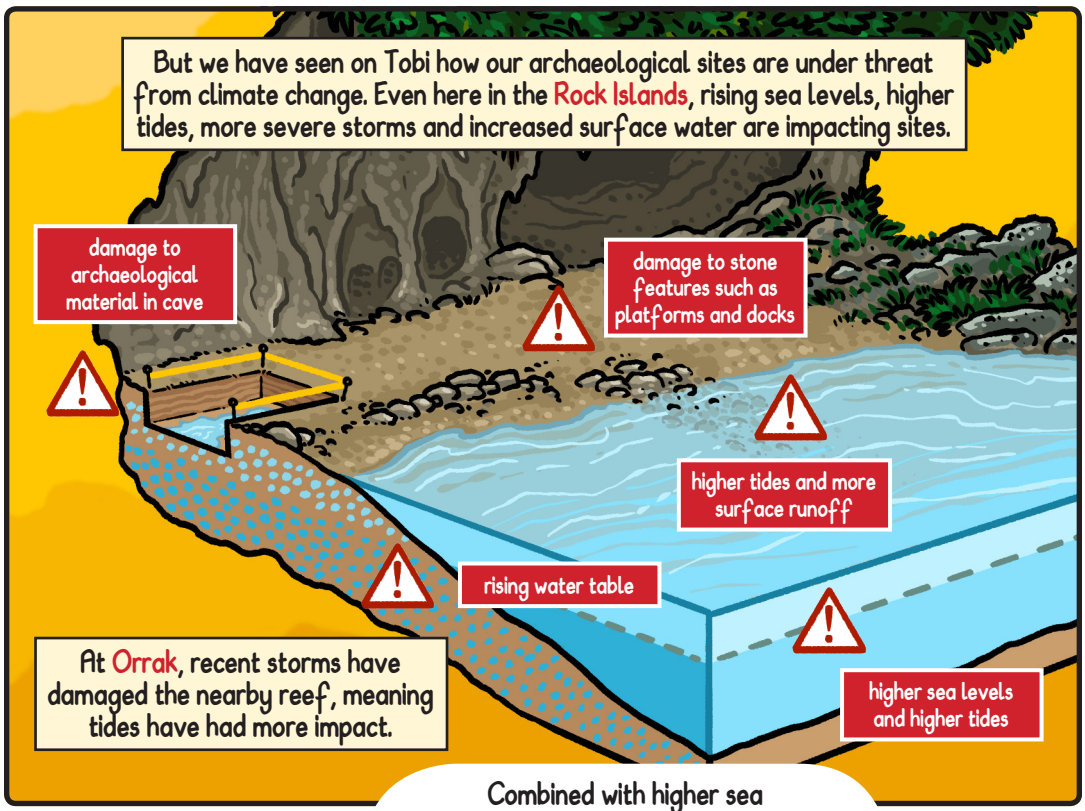
ORRAK & OMEDOKEL

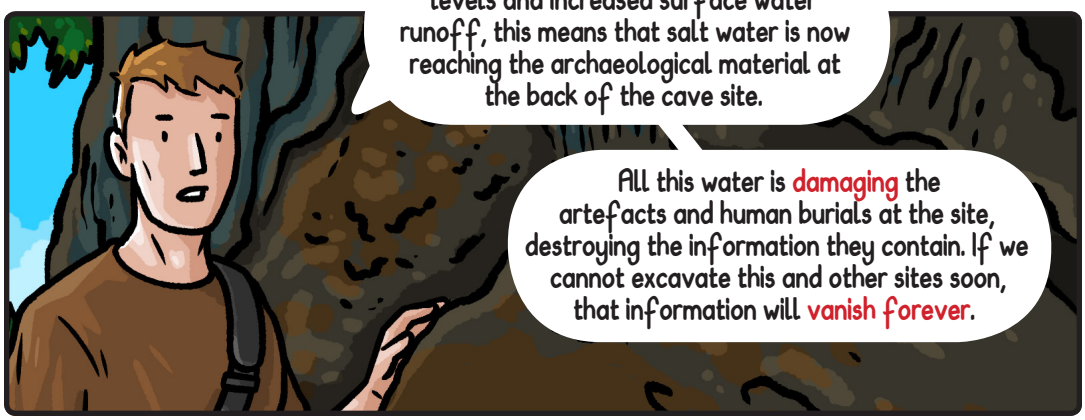




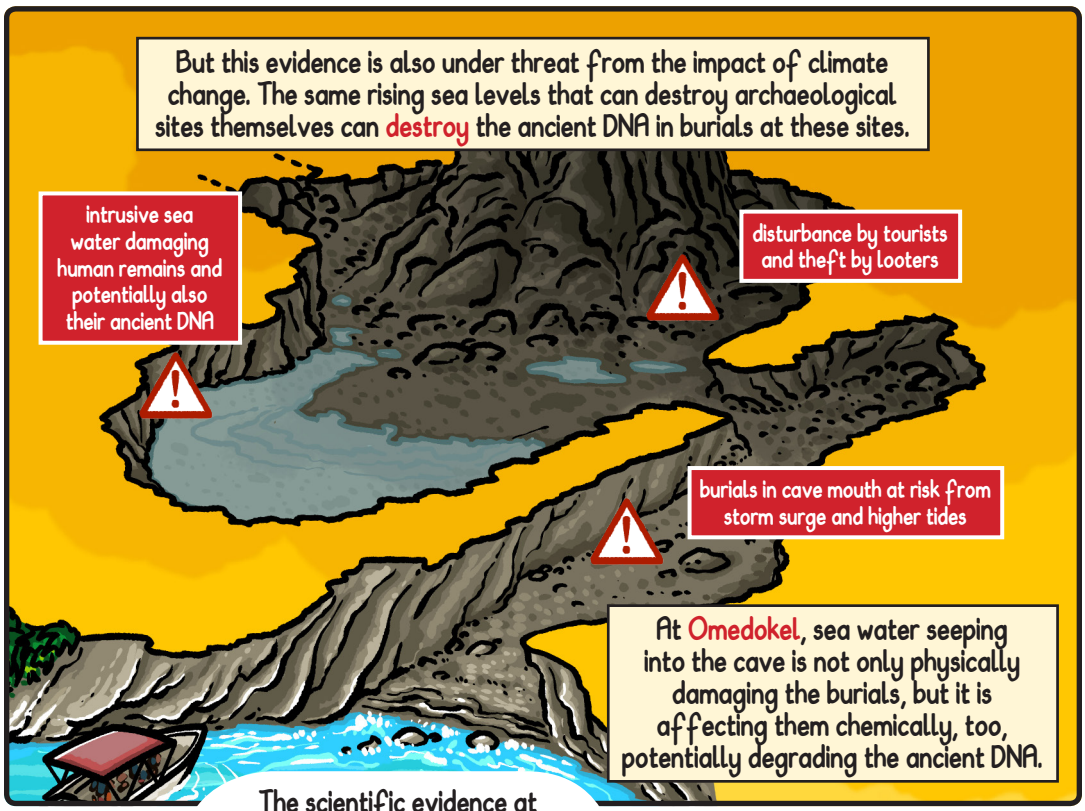



Archaeological investigation reveals the features and artefacts that show us how some of the earliest inhabitants of these islands lived.
This kind of scientific research give context to our traditional histories and gives us a greater understanding of our past.


But we have seen on Tobi how our archaeological sites are under threat from climate change. Even here in the Rock Islands, rising sea levels, higher tides, more severe storms and increased surface water are impacting sites.
damage to archaeological material in cave
damage to stone features such as platforms and docks
higher tides and more surface runoff
rising water table
higher sea levels and higher tides
At Orrak, recent storms have damaged the nearby reef, meaning tides have had more impact.


Combined with higher sea levels and increased surface water runoff, this means that salt water is now reaching the archaeological material at the back of the cave site.
All this water is damaging the artefacts and human burials at the site, destroying the information they contain. If we cannot excavate this and other sites soon, that information will vanish forever.


But the scientific data from archaeological investigation can tell us even more about the distant past of Palau.
We can now recover ancient DNA from sampling human remains. This DNA can tell us so much more about the origins of the people who first settled Palau.


But this evidence is also under threat from the impact of climate change. The same rising sea levels that can destroy archaeological sites themselves can destroy the ancient DNA in burials at these sites.
intrusive sea water damaging human remains and potentially also their ancient DNA
disturbance by tourists and theft by looters
burials in cave mouth at risk from storm surge and higher tides
At Omedokel, sea water seeping into the cave is not only physically damaging the burials, but it is affecting them chemically, too, potentially degrading the ancient DNA.


The scientific evidence at Omedokel is already at risk from human impact because the site is popular with tourists and has been targeted by looters.
Now, the impact of climate change threatens to destroy that evidence completely. If the archaeology of the Rock Islands is not protected, we may never be able to tell the full story of Palau's past.

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.

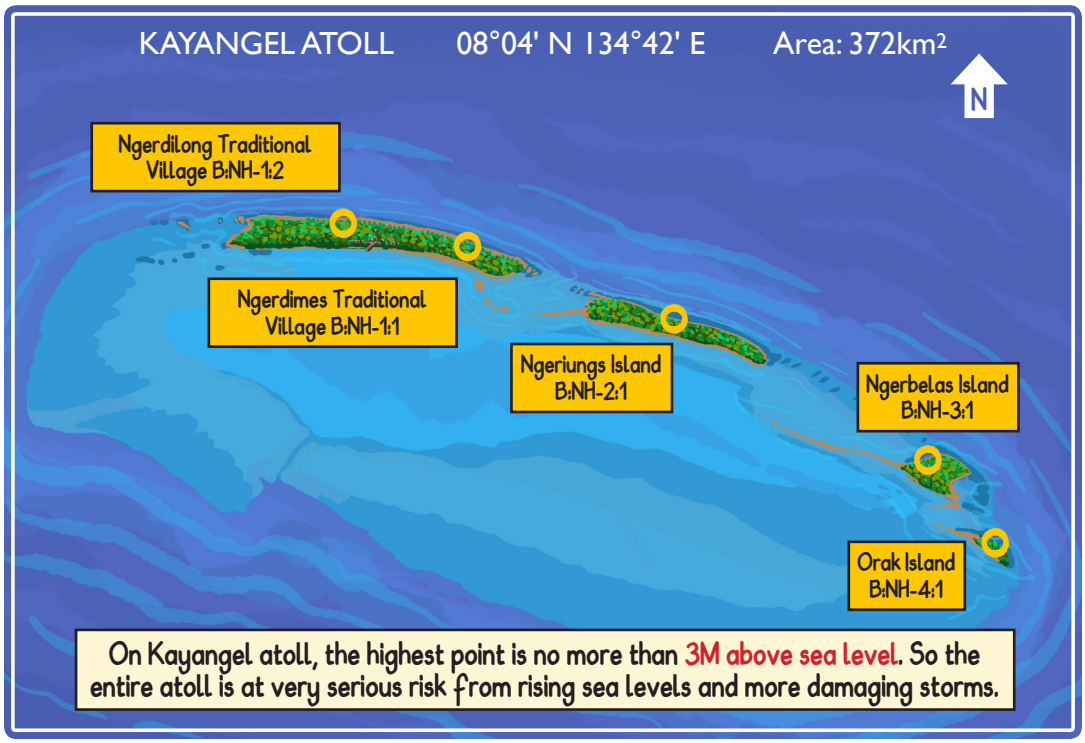
Losing this archaeological data means losing forever a crucial part of the story of who we are as Palauans. A long-term program of survey, research and outreach must be supported by government and NGOs in order to recover and preserve the information from these sites.

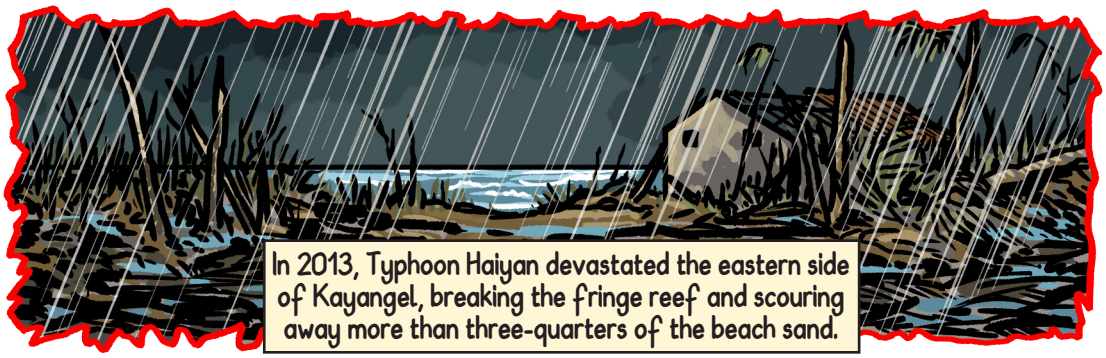
The Bureau of Cultural and Historic Preservation is already conducting an intensive survey of the archaeological sites in the Rock Islands, but this is only the beginning.

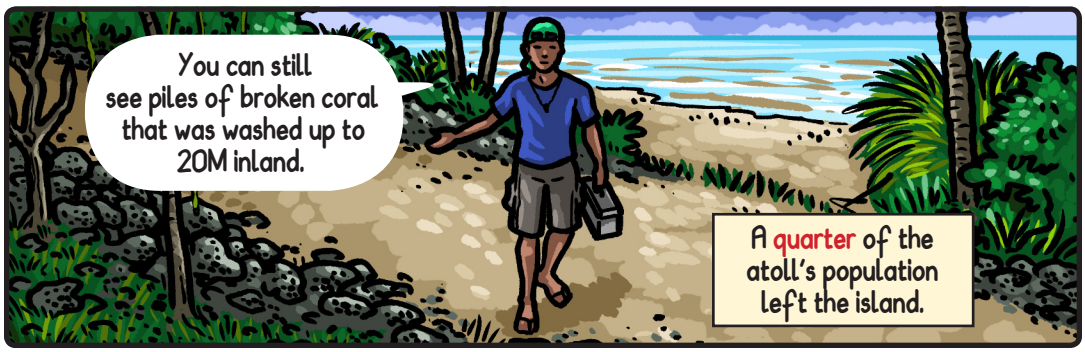
Government and NGOs must help liaise with business and tourism to help protect and promote and good practice around archaeological remains within the Rock Islands - both to Palauans and to visitors.

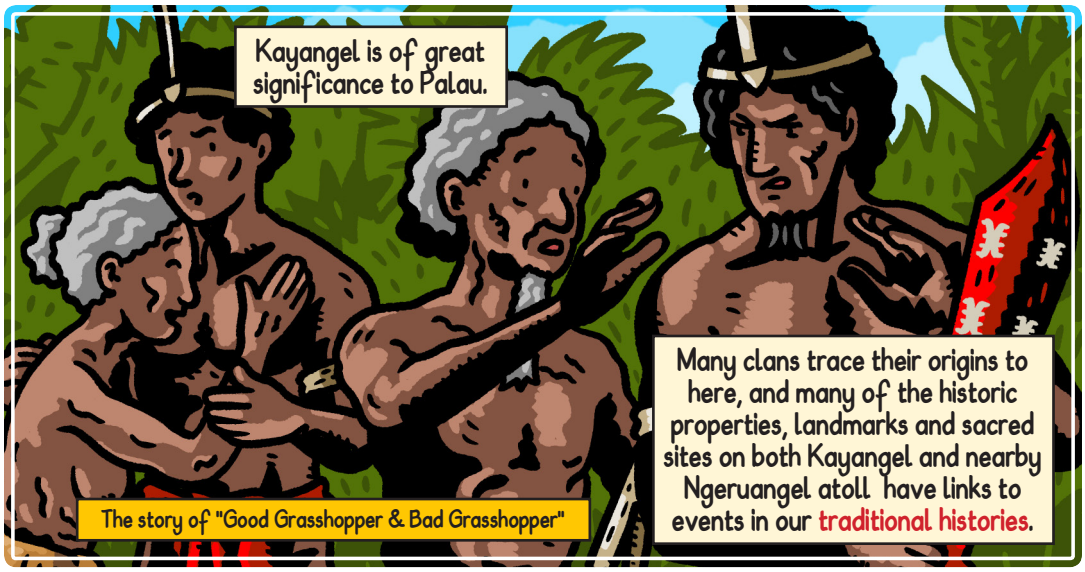
The Cultural Sites Impact Team recommends a two-strand approach to preserving, conserving and managing the archaeological sites of Palau: support for research, investigation and scientific publication combined with a broad program of public outreach and education.

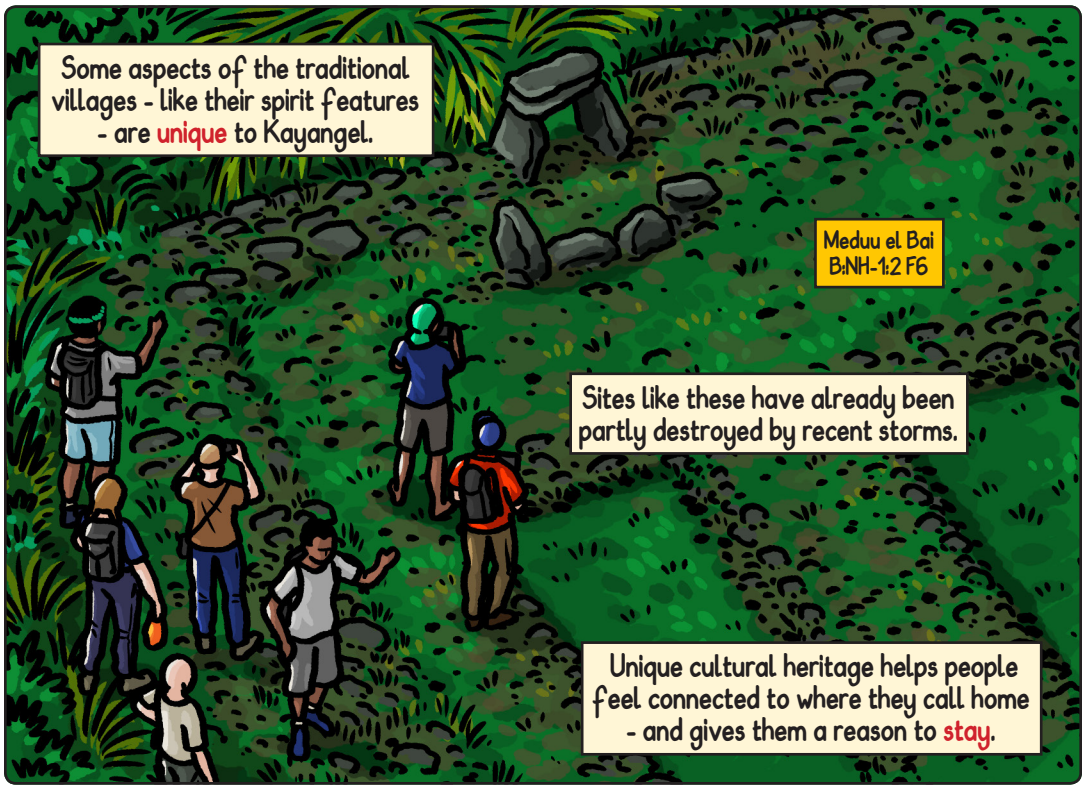

KAYANGEL
When cultural heritage sites are near open water, the impact of climate change is obviously more immediate - and more visible.


KAYANGEL ATOLL
08°04' N 134°42' E
Area: 372km²
N
Ngerdilong Traditional Village B:NH-1:2
Ngerdimes Traditional Village B:NH-1:1
Ngeriungs Island B:NH-2:1
Ngerbelas Island B:NH-3:1
Orak Island B:NH-4:1
On Kayangel atoll, the highest point is no more than 3M above sea level. So the entire atoll is at very serious risk from rising sea levels and more damaging storms.


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.
The story of "Good Grasshopper & Bad Grasshopper"
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.


Some aspects of the traditional villages - like their spirit features - are unique to Kayangel.
Meduu el Bai
B:NH-1:2 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.

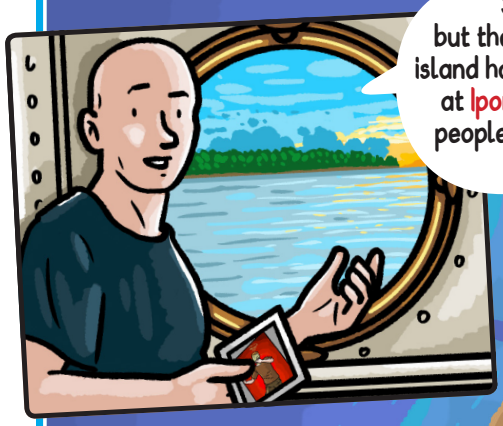

But if the next big typhoon forces another 1/3 of the population to leave the atoll, how likely is it that there will be future generations on Kayangel?


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
damage to taro fields
water runoff
rising sea levels
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 Iporu - 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: .9km²

Iporu B:TO-1:1

N

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.

risk to infrastructure

storm erosion

undermined trees

risk to cultural sites

risk to modern structures

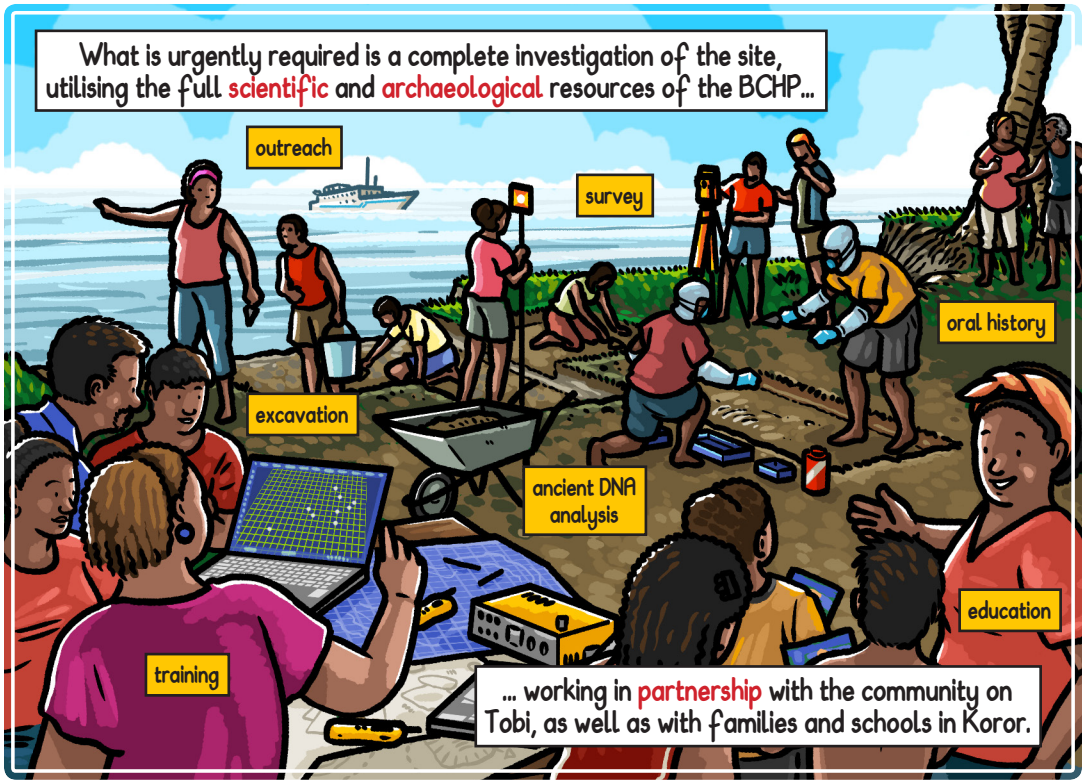
worsening erosion

destruction of archaeological layers

But the most shocking impact is on the archaeology at Iporu...

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...
outreach
survey
oral history
excavation
ancient DNA analysis
education
training
... 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

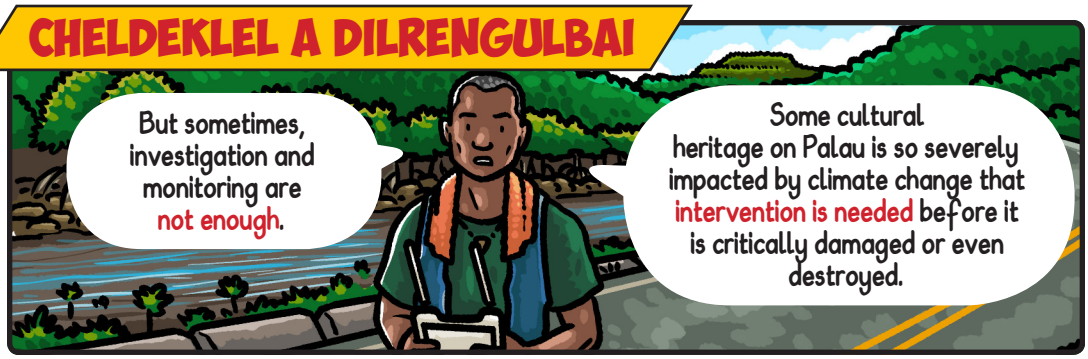
Low-lying atoll and island sites are at immediate threat of severe and damaging impacts from climate change. Both traditional villages and archaeological sites are at risk from damage caused by storms, surface water and rising water tables.

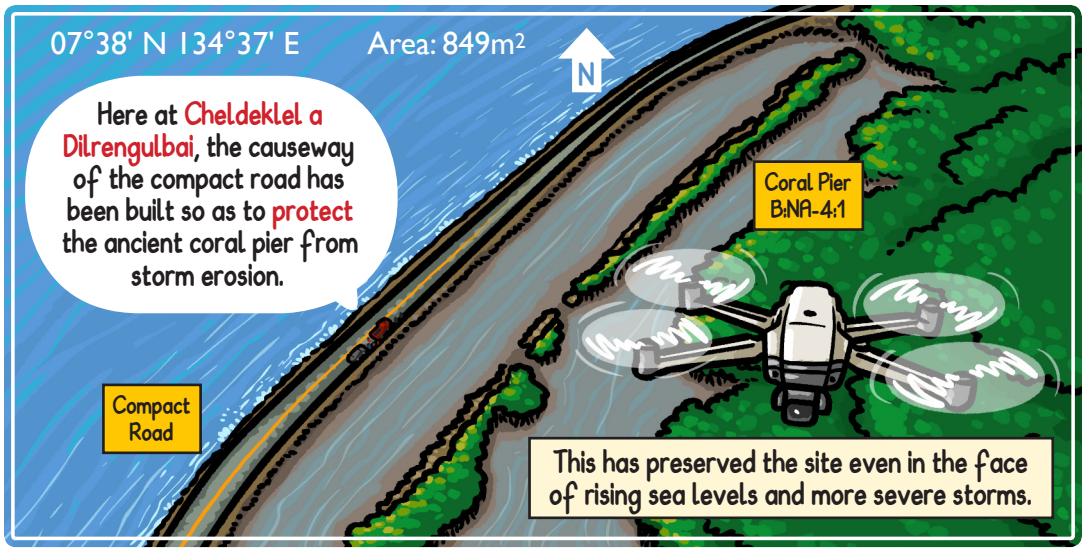
Community-lead initiatives to clear secondary vegetation and restore surface water drainage features - similar to projects at sites such as Beluu er a Ngerutechei - could help protect cultural heritage in the short term. The Cultural Sites Impact team recommends that State and National government support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

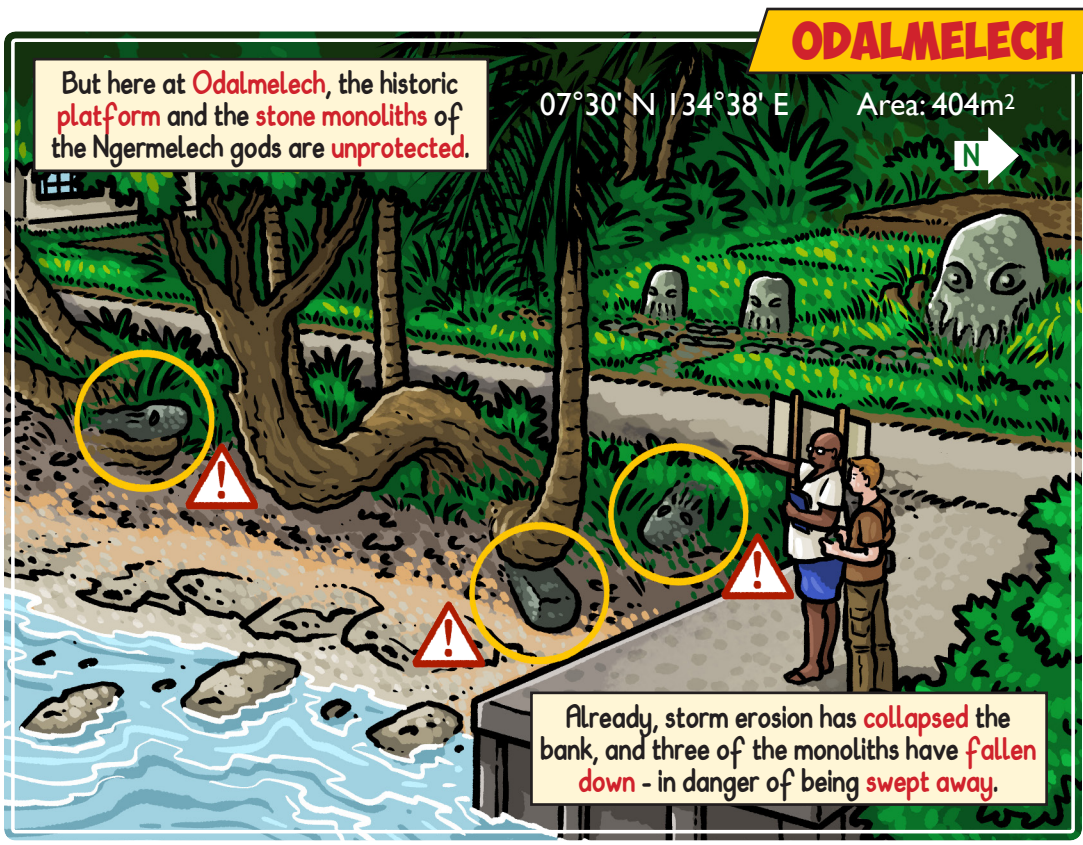
The Cultural Sites Impact team specifically recommends that such a program be initiated at Iporu on Tobi as a matter of priority.

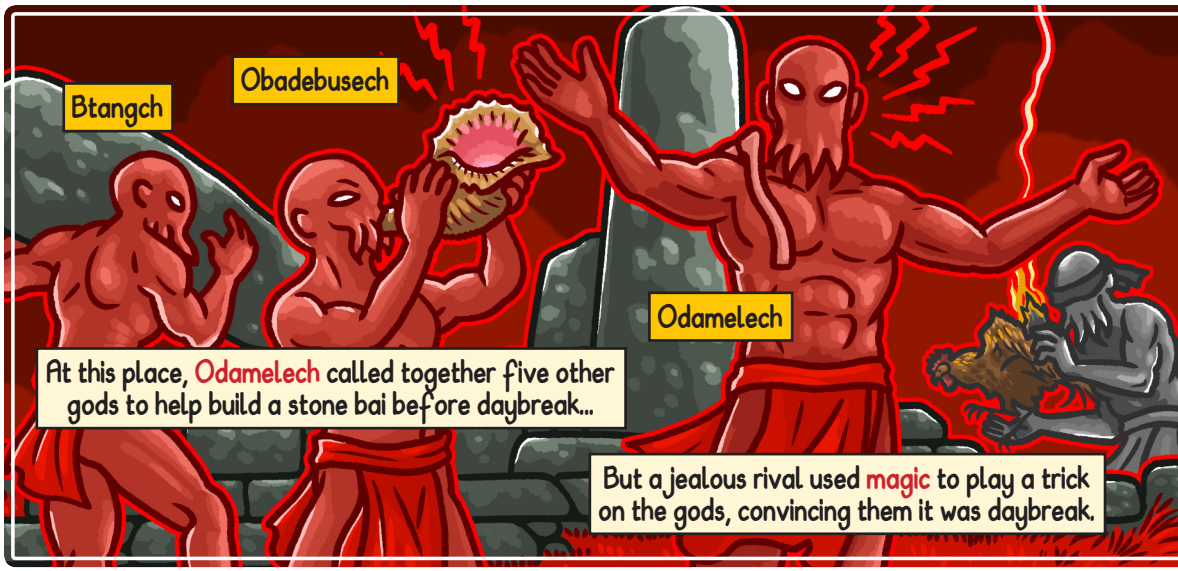
CHELDEKLEL A DILRENGULBAI





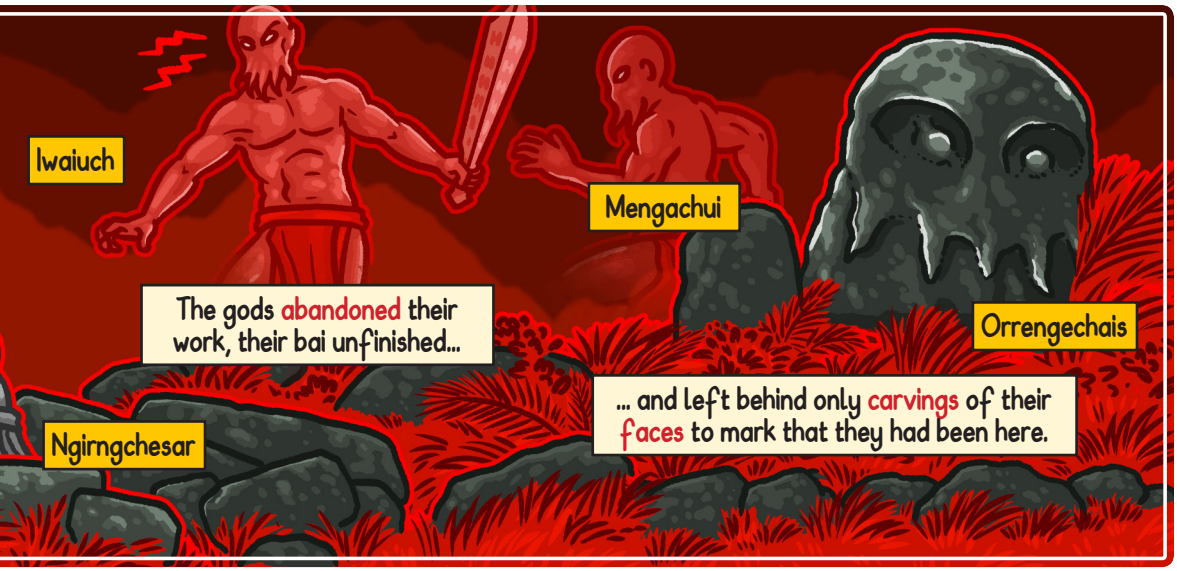
ODALMELECH

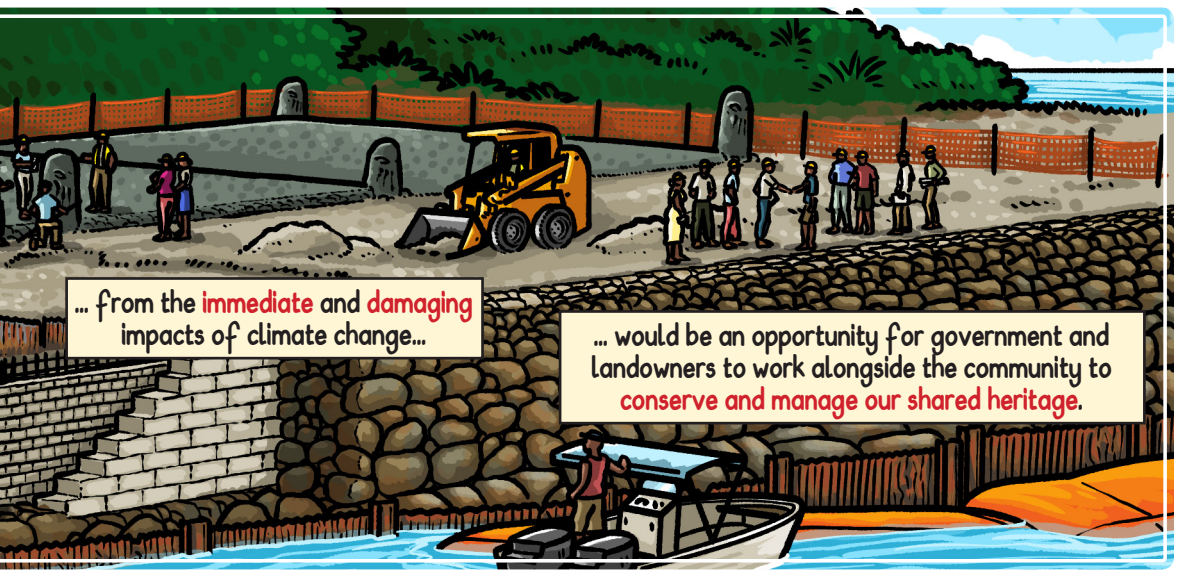



Btangch
Obadebusech
Odamelech
At this place, Odamelech called together five other gods to help build a stone bai before daybreak...
But a jealous rival used magic to play a trick on the gods, convincing them it was daybreak.


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
The gods abandoned their work, their bai unfinished...
Orrengechais
... 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 *Cheldeklel a Dilrengulbai*
B:ME-4:1 *Odalmelech*

SUMMARY

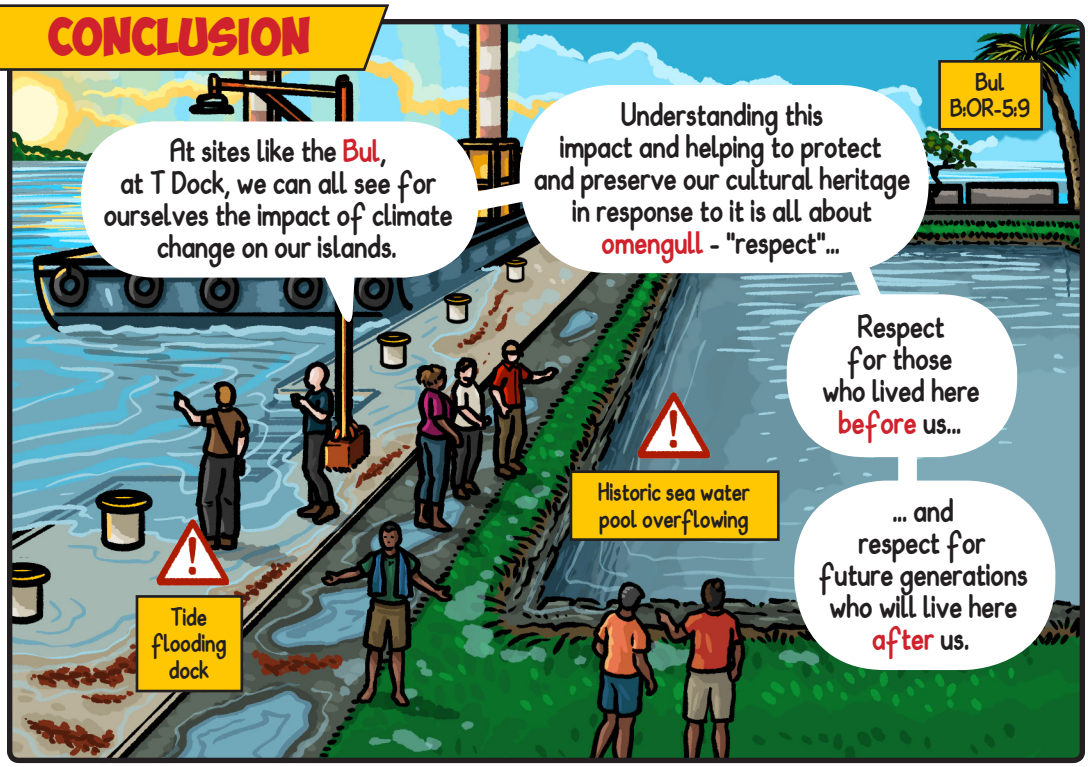
Cultural heritage sites which are at immediate threat of severe and irreversible damage or even destruction should be considered as candidates for interventions. Sites which are in imminent danger of destruction, or which are already subject to such, should be given priority for a full program of scientific 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 Cheldeklel 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 aspect 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.

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