

Elders' and Aunties' Experiences of Climate on Erub Island, Torres Strait

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Objective (c) Report on local stories of extreme weather events and changes
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Executive Summary

There has been growing concern over the exposure of Torres Strait Islander communities to the impacts of climate change. Across the Torres Strait region, impacts have included inundation events, high tides, less predictable winds and ocean currents, an increase in disease vectors, the loss of cultural sites, and a reduction in freshwater supplies. Some of these direct and indirect impacts of climate change have been recorded in the scientific literature, but to date there is a paucity of documentation as to how the communities themselves have experienced these changes and impacts. These 'experiences' (of changes and/or impacts) might stem from Islanders' memories, or from the present.

Memories and knowledge of events and seasonal changes have emerged in part through Islanders' ongoing and direct interaction with their land and sea country. Numerous authors refer to this knowledge using terms such as 'Traditional Ecological Knowledge' or 'Traditional Environmental Knowledge', which neglect through the attachment of the term 'traditional' that knowledge is fluid, evolving and ever-changing (Hunn *et al.* 2003: 79). The authors wish to note that while climate experiences and subsequent environmental knowledge has been established through generations, it is still continually being built upon, added to and reconstituted.

Researchers funded by MTSRF Project 1.3.1 'Traditional knowledge systems and climate change in Torres Strait' worked with Elders and Aunties on Erub Island, located in the eastern group of islands in the Torres Strait. The focus of the project was to document and record Elders' and Aunties' experiences of a changing climate, such as their memories of extreme weather events and historical environmental changes, to present day changes to their land and sea country.

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Acronyms Used In This Report

JCU James Cook University

MTSRF Marine and Tropical Sciences Research Facility

TSRA Torres Strait Regional Authority

UNDP United Nations Development Programme

UNEP United Nations Environment Programme

UNESCO United Nations Educational, Scientific and Cultural Organization

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1. Introduction

This report is one of a series presented by James Cook University on communities living in the Torres Strait. The series is part of a research project conducted under the Australian Government's Marine and Tropical Sciences Research Facility (MTRSF) program. The research described here fits within the MTRSF objective to 'report on local stories of extreme weather events and changes' – Objective (c) of Project 1.3.1 'Traditional knowledge systems and climate change in Torres Strait'.

This report documents the experiences of Elders and Aunties with climate change impacts, including extreme weather events and more subtle landscape changes. Under the MTRSF program, the project outputs presented in this report is considered 'public good' research that is end-user and stakeholder driven. Stakeholders in this research project include, (i) the Torres Strait Regional Authority (TSRA); (ii) Island Councillors and Island Managers; (iii) Prescribed Body Corporate; (iv) Elders in these communities; and (v) Locals of these communities.

The Torres Strait consists of a group of over one hundred islands that spread beyond 48,000 square kilometres (see <http://www.tsra.gov.au>). Situated between the southern coastline of Papua New Guinea and the tip of Cape York on mainland Australia, the region is home to a unique set of histories, traditions, laws and customs. Approximately 7,105 Torres Strait Islanders reside in 19 communities across 16 inhabited islands (Human Rights and Equal Opportunity Commission, 2009). By comparison, it is estimated that there are over 47,000 Torres Strait Islanders living throughout Australia (Australian Bureau of Statistics, 2006).

Torres Strait Islanders have adapted to biophysical changes in their surrounding environment for centuries. The close relationship of Islanders with their island environments and sea country has enabled them to 'read' and adapt to these changes in the landscape. These adaptations have included shifting resource bases, the building of structures such as rock walls and wind breaks, and changes to planting and cropping times. However, in more recent times, the changes experienced by Islanders as a result of climate change are at unprecedented rates. This has meant that Islanders are experiencing greater difficulty in 'reading' their landscape, including shifts in seasons, as well as animal, sea and plant life.

'Solastalgia' is an evolving concept, stemming from research conducted in Australia on communities that experience environmentally-induced distress. Research indicates that while nostalgia – a feeling of melancholy or yearning for home – is well known, there is a similar emotion felt by people who witness and experience distress from environmental change impacting on their home environment. When a home or place of significance to a person's identity is significantly affected by environmental change then the solace found in those places can diminish (Albrecht *et al.* 2007: 95-98).

This is particularly true for communities with strong connection to country and cosmologies deeply connected to and imbedded in place and the natural environment. Rapid or even slow transformations of place through human induced or natural change may diminish solace found in country, and solastalgia can emerge. The feelings of solastalgia are believed to be connected to perceptions of powerlessness because of lack of control over that change (Albrecht *et al.* 2007: 95). Experiences linked to a changing climate could create feelings of solastalgia, however if communities resist or adapt to the changing landscape then sense of place and identity can be maintained.

It is recognised that small island and rural communities are affected by weather and climate activity far more directly and often more significantly than city and urban dwellers. When livelihoods and food systems are so contingent on weather patterns, the timing of the

monsoon, seasonal changes and extreme weather events will inevitably be more pronounced (UNEP, 1999: 72). Examples proliferate of small island and Indigenous communities experiencing unusual or extreme climate and weather phenomenon. A number of climate-induced experiences have been documented by the UNESCO (2009). These have included severe droughts in Indigenous communities in Kenya, destructive storms eroding coastlines and forcing Inupiat Eskimos to relocate, and the inundation of freshwater reserves by extreme tides in the Federation States of Micronesia.

With this information in mind, this report seeks to gather Elders' and Aunties' stories of climate and weather experiences, and understand whether feelings of distress are evident in the community. This report draws on interviews with Elders and Aunties on Erub Island to explore not only the biophysical impacts of climate change but also the emotional and cultural impacts of these changes. For Islanders, the health of their land and sea country is related to their mental and physical wellbeing as well the maintenance of their cultural heritage and practices, and livelihoods.

This project worked with both Elders and Aunties on Erub Island. Little work has been assembled on the gendered nature of climate change, and as such this project goes some way in providing stories and experiences from a number of Aunties on Erub Island. These in-depth interviews with the Aunties provided different and fresh perspectives to the ways in which climate change impacts are interpreted, experienced and acted upon. As highlighted in a recent UNDP report on gender and equality, women:

'... are not passive, and can become agents of change... and should be active participants and decision makers in mitigating and adapting to climate change (UNDP, 2009: 58, 78).

This gender perspective, as presented throughout this report, brings with it insights that have the potential to enrich existing climate change debates, and discussions of impacts and experiences.

2. Methodology

This section outlines the research methodology adopted for this project and in particular the objective of documenting climate experiences. Drawing on interviews with Elders and Aunties on Erub Island, this report presents their stories and experiences of changes to their land and sea country.

A number of project phases and particular methods were employed to understand how Elders and Aunties have experienced a changing climate, including extreme weather events and other changes to their land and sea country. The main method adopted for this project component (on climate experiences) was in-depth, semi-structured interviews. Qualitative methods were deemed most appropriate and effective for this project, particularly given that qualitative methods are flexible in giving voice and leverage to those who may otherwise be silenced (Winchester, 2005). Interviews are an important primary method of capturing multiple meanings, and interpretations of a range of opinions, memory and experiences (Pile, 1992; Winchester, 2005). The in-depth interviews conducted for this project were predominately open-ended in character and more conversation-like, making them more unstructured in delivery (Rice and Ezzy, 1999; May, 1993). While these interviews were conversation-like, they remained controlled and geared towards the interviewees' research interests and overall research process (Minichiello *et al.* 1995).

The over-riding objective of this project was to safeguard and synthesis environmental knowledge in relation to climate change. The specific aims of this project component were three-fold:

1. To document details of extreme weather events – past and present;
2. To synthesis stories of changes in the climate – past and present; and
3. To analysis gender perspectives in relation to the above climate experiences (aims 1 and 2).

The methods, as mentioned above, were used over the course of the three phases of the project, which are outlined in detail below.

Phase 1: Reconnaissance field trip

Phase 1 was conducted on the first trip to Erub Island on 7-11 September 2009. This reconnaissance trip was useful in developing initial relationships with Elders, Aunties and local community members. The anticipated life of the project was twelve months and thus developing trust and rapport with community members needed to happen quite early on in the project. One of the community liaison officers in the Land and Sea Management Unit of the Torres Strait Regional Authority (TSRA) accompanied the James Cook University (JCU) research team on this trip and provided initial introductions with the Council Manager, community forum committee members and community Elders. Initial discussions about the project, including climate experiences, were held primarily with a number of Elders and Aunties who were interviewed in Phase 2.

Phase 2: Major interviewing trip

Phase 2 was carried out during the second trip to Erub Island from 25 November to 4 December 2009. During this trip, a number of in-depth interviews were conducted by one co-author with community Elders and Aunties. The material collected from these Elders and Aunties, specific to Erub Island, included memories of extreme weather events, and changes in climate, seasons and country.

The interviews conducted were in-depth and semi-structured in format and ranged from twenty to 120 minutes in length. One interview with an Elder was completed on sea country to demonstrate changes and indicators on-country. All but one interview with the Elders and Aunties was digitally recorded, and in the latter case notes were taken. Referring to Dunn's list of informant rights (Dunn, 2005); participating Elders and Aunties were asked for consent to use the digital recorder during the course of the interview. Interviewees were also made aware that if they did consent to its use that it could be paused at any stage and that they could discontinue the interview at any stage.

As with all phases and island visits, an informative poster about the project and team members was compiled and sent to Erub Island Council prior to our visit. Staff of the TSRA Land and Sea Management Unit provided feedback and assistance with the poster. The poster provided the local community with information about the project such as intended visit dates, photos of each team member, the project length, outcomes and community benefits. For example, the poster outlined the benefits of the project in the following way:

'The findings of the research will be a useful toolkit that those responsible for planning for future generations of Erub people can use as they learn to better cope with addressing climate change issues in their everyday activities. It is also envisaged that more broad-based discussions about these issues will lead to a better understanding of climate change issues as they affect other places throughout the world. Overall, the project and the team affirms the importance of oral traditions within the community, and values their traditional environmental knowledge. The project team would like to confirm that ownership of this knowledge will remain with the Traditional Owners.'

To further provide information and awareness to the community about this project, the project team was each individually interviewed on the local radio station. In both Phases 2 and 3, members of the team spoke to the local radio station on Erub Island and provided details of the project, including aims, community participation, outcomes and benefits.

Phase 3: Follow-up interviews

Phase 3 included the third fieldtrip to Erub Island on 17-21 May 2010. The trip involved further consolidation of the climate experiences material and stories collected in Phase 2 through conduct of interviews. In total, eight Elders and five Aunties were interviewed during fieldwork in Phases 2 and 3.

A series of theme-based questions were assembled prior to the interviews and referred to during the interviews. Questions were asked in whichever order was necessary to maintain the flow of the interview. The first theme broached in interviews was the direct and indirect impacts of climate change. This involved Elders' and Aunties' knowledge about historical and current changes in the environment, which can assist in our understanding of the exposure of communities to climate change. Questions in this theme included:

- What knowledge or memory do you have of any past extreme weather events?
- Have you noticed any local changes to the environment (land, sea, animals) over the years?
- What are the impacts of these changes in the environment?

As mentioned earlier, this project was also interested in the gendered nature of climate change, and specifically the perspectives of how women experience climate change. Indigenous knowledge research to date has predominately focused on knowledge held by men. This project sought to recognise that both ways of knowing complement each other and

are essential to the continuing vitality of Indigenous knowledge systems. In this theme, the following questions were asked of both Elders and Aunties:

- Do women have their own area of expertise and own modes of knowledge transmission on Erub Island?
- Do women have different views on the impacts of climate change, as well as adaptations to changes in the environment?
- Are/were women the primary gatherers of food on Erub Island?

Other interview questions revolved around visions for the future of the Erub Island community.

The three project phases and visits to Erub Island helped to ensure that the majority of Elders on Erub Island were interviewed and could share their stories and experiences of extreme weather events and other environmental changes to their country. Likewise, for the many Aunties also interviewed, their stories too are now documented and can be shared with others throughout this report.

3. Results and Discussion: Experiences of Climate

This section details the experiences of Elders and Aunties with climate impacts, changes and extremes on Erub Island. The research is significant. By using the voice of local peoples, we are able to better understand the exposure of communities to change, along with their sensitivity to this change, which takes into account existing forms of community adaptation and resilience. The quotes that are presented throughout the following chapter provide accounts of Islanders themselves on Erub Island who have witnessed changes to their land and sea country, and continue to negotiate this experience.

3.1 Changes and extremes: Elders' perspectives

As documented in the literature, there are a host of impacts that may arise as a result of a changing climate, such as increased frequency and severity of storms leading to flash flooding, rising sea levels and diminishing freshwater supplies, coastal erosion and ecosystem changes, the bleaching of coral reefs, an increased intensity of bushfires and droughts, and changing patterns of sea animals, plant life and birds. As evident from the following discussions, a large number of these impacts are included in Elders' descriptions of their experiences with climate change.

Before providing details of these documented changes, this section attempts to chart past extreme weather events on Erub Island. One event in particular was discussed during an interview with an Elder and is described here. Staff of the TSRA Land and Sea Management Unit requested that the research team establish whether Elders had any knowledge of a tropical cyclone that tracked through Erub Island in 1923. One TSRA staff member provided information about the cyclone based on the writings of Blunt in 1969. According to this work, the Douglas Mawson Cyclone 'moved on a looped track through Torres Strait very close to Western Papua. Darnley Island experienced tremendous northwest winds which practically destroyed the settlement and 4-5 foot banks of living coral were dashed up by the waves on the northwest side of the Island'.

In all interviews, knowledge of the 1923 cyclone event was asked of Elders and Aunties. One Elder in an interview recalled details of this cyclone that he knew of from his mother's accounts, noting:

'There was a big cyclone and my Mum told me, I was a kid ... I wasn't born, my mamma I think was a youth at the time. They got a big cyclone which threw all the fish and everything up on the beach. All that, something like a tsunami, but not that big, but all the life in the sea. What happened the big birds and fish and the shark were never seen before, all up on the beach, you see, and this was great, the bigger wind in their days ... My mum born in 1910, she was somewhere round thirteen years old, so I think in 1923.' (Elder, pers. comm., 2009)

The same Elder also reflected on other extreme events in the Torres Strait region:

'My days, twice we've had this. We got, twice when I was at school, I am school age, you know, somewhere 11, 12, 13 years, we got a heavy second enforcement. We had all the boats in Thursday Island and they all up on the beach, all the big boats in the harbour, thrown them up on the beach, ripped down the side, yeah, she gone. Just then, another one. And then when in my days now the boat, I already in a shipwreck was east from Yorke Island. That's the biggest cyclone, was twice in that time, in my time. That one in 1952, other one in 1948. Well, sometimes they root them up, all our garden it will blow in, all

this sort of things dry up all our gardens. Because we're just an open island to the sea, so exposed ... Especially that part, say this area from here you've got a value that's salty air from down there and that burn all new plants, all this banana dry and you have to wait for next monsoon again, for next wet, wash away all the salt and everything, and you got to, I think, right up in the hill, but further up is safe from the salty air. But from this area right round, you can see all the leaves and everything get dry from the wind. Well, we got nothing, nothing to, we just live same as we always did, but where you lost anything, that was lost.' (Elder, pers. comm., 2009)

Another interview with an Island Elder revealed that he had little knowledge of the 1923 cyclone; however he spoke of another storm in the region:

'No, we never, we can't talk cyclones but, I think they keep it down there because up in the Torres Strait they never keep diary but, year after year when they work on a trochus boat year after year they made a song. They keep the, when they come back they teach the song and the younger people will know the song and it's just like keep the diary, you know. We know through the song. When it come to our time the thing happening again we say, 'Oh, our father been, that's why they make the song about that!' The only cyclone they ever talk about most is the one that damaged all the pearling fleet down at [Princess] Charlotte Bay in early 1900[s], I think... One of my uncles, young fella, he was in that mess up there but got out of it. One of our lady from here, amazing, she swim there and save few lives. The story been handed down. We know all about it. Just lately somebody discovered a graveyard in Thursday Island. It was in the Torres News about it.' (Elder, pers. comm., 2010)

This project sought to better understand the changes that Elders had witnessed in their environment and how they responded to these on Erub Island. These experiences predominately revolved around changes in seasons, winds and tides. One Elder described his experiences in relation to the greater number and intensity of king tides and overall changes to the beachfront, especially vegetation and mangrove communities:

'The beach went up to the church before the king tide. The king tide a few years back, 1979, morning high tide, heavy monsoon weather, wet season, king tides, rough wind, sand and rocks all pushed out. The government then did a survey, I think, of the matter, they put in a seawall but you can't stop it, it didn't work, as when we get a big tide, it's all gone out again. Took a few years but eventually all back out to sea, the seawall... Twelve years living in this house, a lot different, lot of sand gone out, rocks washed up onto beach, more coconut trees, twelve years ago there was more plants and trees. We got money from Landcare a few years ago, we tried to plant mangroves here and they grow and the kids come along and play in water and pull them out, die out. That was the end of the project. Need to plant more double skin bark tree [gee tree] as grow in both saltwater and freshwater.' (Elder, pers. comm., 2009)

The Elder went on to describe the difficulties in reading the seasons on Erub Island as a direct consequence of local environmental changes:

'The wet season sometimes starts early now [October/November/December] but sometimes starts late now [January/February]. I am a bird watcher. The sandpiper all way from Siberia, same number each year, gets here August or September and migrates again in April. Red-beak seagull, same numbers each year, all year round. Frigate birds come when North West Koki wind getting stronger, there getting less but then every now and then, more. Not as many

turtles around right on the beach have to go out to the reef.’ (Elder, pers. comm., 2009)

From this Elder’s accounts, it appeared that reading landscape indicators for shifts in seasons was becoming more difficult. The Elder also made mention to the decline in numbers of frigate birds and also turtles right on the beach.

A similar sentiment was presented by another Elder, who also made note of the unpredictability of seasons and changes in wind patterns and tides. Moreover, he described the worry he has for the change in local environments, seasons and landscape indicators. He is quoted at length:

‘I can remember when I used to go to school back in, between 1950s and to the end of 1960s, and usually we, on the seasonable change, we get the north-westerly blow for three months and when it change back to south-easterly for nine months. But during the changes you can get the really low flat, calm weather, then before we get more rollers coming in from the north-westerly, because on the south-east side we’ve got all the reefs and the Barrier Reef. But it is a worry when I came back here to live, back in 1986, that’s when it really stand out to me and I was really worried about how the land can be bashed by the rollers coming in from the westerly. And it’s really chew the road, some of the area down near, down where we live, the wave just lying on the road and just hitting it really hard. And sometime, some of the year, you don’t get that much of a high wind and it’s a worry. Even the south-easterly wind, June/July, usually is the main force of south-easterly at the time, can be really squally. We can get thirty to forty knot winds from south-easterly, but only short swell. Not like from the north-westerly, like the rollers coming in. But on high tide, on June/July, we know this. I think the last time we experienced that the roof of our church, the All Saint Church, was blown over and the wave just hitting it; pick up all the pumice stone on the road. And that’s when we knew the tide seems to be getting higher and higher. But to know about the global warming, which, in those days where the older generation usually know this, if there going to be a change, they know the current will be changed, or the water become murky, or there’s lot of build up with a south-easterly. North-westerly, you can get a big clouds coming over, but he seems to be quickly to finish, but on south-easterly there’s two kinds. If you’re talking to some of the older generation, there’s bigger, like a seasonably crop. When the north-westerly finish we get the south-easterly rain coming in... Yes, I think when I move back I noticed even those mango trees; there are lots and lots of fruit in them. And that’s where the, at the time when the north-westerly coming in, the rollers just hitting the road... It is a worry when you come back here to live and north-westerly was blowing, I think about, might be thirty, forty knots, and the rollers coming in pounding on the beach, and the look at the side, all the trees all wind burned, this sort of thing... When it change we got the north-westerly is on current, like a surge coming in, and when it’s high wind you can really notice it. On a very high tide, I think month of February and March, when we expect the highest tide for the year, and since we’ve been here it’s getting really close, really close to four metre tide.’ (Elder, pers. comm., 2009)

Another Elder explained his experiences of a changing climate as a ‘puzzle’. For this Elder, reading the country, and in particular the seasons, was becoming more difficult and as such he referred to this as a puzzle. He explained:

‘Well, to be honest we can see changes in this community especially the climate-wise thing, it changes really rapidly. The big tide coming in... it’s normally before quite some time back. The weather pattern and it’s not there like we expected.

It's no longer there, so it's become a puzzle where when I grow up I knew in certain time of the month that's where the beginning of the wet and when it finish. It's no longer there. And we saw the changes in the reef that I can see because I'm very attached to the reef. I'm probably the only person that spent most of their time out in the sea. Even the area surrounding reef on the island you can see what's the effect, especially in the coral and there's a lot of activity with the tide underneath. A lot of places that where you expect that the grass come back on, it's not come back on, it's all filled up with sand. So for these [sorts] of things that are happening in nature there is very little that I can think of that we can do. That's out at sea. Maybe in the land that we can do something but if I'm talking about the wet weather, the wet monsoon weather, I can't control that. It's not there but maybe to reshape the road or reshape the land formation, I can do with a machine but things like that it's not there anymore. So they probably don't have explanation for that, but I think what the really effect now in a lot of the island around the Strait is the climate that have to change, that changes. It's really changing. And when I'm saying it's changing, I'm not saying it changes in five, six years. It's kind of changes in every year. You can see there it's getting faster and faster.' (Elder, pers. comm., 2010)

The Elder continued sharing his experiences of the weather now being more like a puzzle by providing examples of crops and winds arriving at different times now, compared to the past:

'Even the other day I was doing something and it ... sort of clicked in my mind, I see this particular little fruit, it's like a melon. This is a very small one that we normally eat. It comes up in certain times of the year. You rarely see it. When I grow up this is something that it's up and as soon as soon as it's the monsoon it's all over the place and ... [in the] last five years it's just disappeared. It's not there. Why it causes that little fruit to be not there, I don't know. It's probably something to do with temperature... So with this climate change thing it, sort of, put[s] everything out of, like it's not there anymore, you expect something to happen and it shouldn't, it's not there. Then it's unusual for what is supposed to happen in that one, then it happens. Like, for instance, this year in the north-west, the north-west went right past, right past this time it's supposed to be, supposed to be stopped. For instance, say, November, December, January, February, March, [these] five months normally plays a really good north-west time weather-wise and the south-east wind blowing, that north-west wind going way past that time which I find it unusual. Now, then you expecting it's supposed to be in the south-east but it's not there. It's only lately it turns back to south-east where this, for instance, this north-west wind when it comes in, we do have the wet weather but it's not there. Totally different from 2009 where you had similar wet weather and we had a lot of water in the dam because three times in one year the dam filled up. Now, for the last fifteen years the dam never actually filled up because we never actually got the rain there. We do have the rain, they went for some reason it's not falling where the dam is supposed to be. That's why I don't know what the weather [is] doing. They got their mind of their own. They just go, I'm talking about the north-west time. If you're expecting a good wet then you find out that in some area of the island you get really wet and on the other side of the island it's not there. So I don't know. So it is a puzzle.' (Elder, pers. comm., 2010)

For one Elder, changes in the weather pattern have been going on for the last fifty years or more, and these changes and patterns are part of the earth cycling.

'The weather pattern, it's looked like going back about fifty years ago. The weather change again. Probably the cycling of the, you know, the earth cycling. When I was a young boy, the weather was like this; wind, the tide and the rain,

but since 1960 or [19]61 it started to change. Like when we get the monsoon season, and now before the monsoon season we have very calm weather, which we call ... 'naiger', and it comes from the north, that north-east wind. It's never been rough. Some days the weather, the sea very calm, glassy, there's not any wind or waves or anything. It's like you put a grader through there and graded it up. But from 1961 it's never been like that it's always been a change from the south-east stronger wind, a little bit of [...] calm, and then we get that north-west coming in. And now it's been like this, strong wind, rain squall, and until [...] if I come back to about January, February month, when it started changing back to south-east, it never get calm, it just blows straight from the west and come from the east again, strong wind. Now, this here, we've got that same weather like we have before about 1960, before 1961. It was calm, greasy, the boat couldn't sail, they float. My first job, like in 1947, I was crew on a cargo boat, taking cargo out to them islands. We get that sort of weather, you know, the boat no motor in it, and on calm days like this and sometime we come long side the island we couldn't get there, the tide change and we drift away from the island. So, what we had to do is put a dinghy out and try to pull the boat to the island so they can get their supply. From that time onward, it[s] never been like that until they get motorboat. Now, it come back to the same like before, 1940 up to 1960, [19]61. That weather [has] changed. The tide also, in that time, south-east wind will get high tide during the night-time. You get the high tide, not much of a king tide. But, now the king tides started during the night in the south-east wind, we get the big tide during the night. But, in the north-west season, monsoon season, we get a big king tide during the day... Sun rise now, in a few weeks' time, the sun will rise a bit further south and keep on like that. The wind come[s] from south, cold wind during the month. Winter now and the sun move towards the north. We call that 'jai wind'. That's come from south. If it come[s] from east or southeast we call that 'sager'. If it come[s] from the north, the northeast we call that 'naiger'. If it come from the west or nor' west we call that 'koki'. It's going around, every year, like that. That's why it's cycling, going around.' (Elder, pers. comm., 2010)

This Elder went on to describe other indicators for changing seasons in the landscape such as weather birds. Reading signals in the tides was also of paramount importance for this Elder, as outlined here:

'Oh yeah, when we [see] sorts of birds come up here, coming in a group or something. We know the change of the weather, you see them birds come out here. Like the manawin hawk. They fly right up in the air there, right up. We know that's good weather right up there but, if they're down here lower, you know there's strong wind. They all the time around, you know. They sort of weather bird... Like they said now, global warming, the tide rising. But this year going back to round about 1961, in the [1940s], in the mid [1950s], to [1961] [...] in the change now it just sort of come up to that mark and went back. Now it start[s] to go back to before days. We got the big high tide in the calm day, with the big high tide they bring the boat right up near the beach here to clean the bottom of it. Clean one side and next day, leaning on the other side and cleaning the other side. Next day big tide, they took it out again. We call it in Creole, 'strong tide, slack tide'. When strong tide, we get that big high tide and when slack tide more or less neap tide. It's only come after that tide during the night and during the day, [...] it] seems to be in the same mark and the reef doesn't dry right out. It's always got water on it. That's why they call it neap tide... Especially when you want to go see the fish trap you've got to wait for the spring tide. The spring tide go right out... That's something we learned from the older people, like local knowledge. They watched that, too. The spring tide. It's a good tide for them to go out on the reef, walk out there and pick up shell. Once the coral died the shell

come up and sit on the dead coral and have a feed out of the dead coral. Mostly trochus shell or ornament shell like this. [Those] shells seems to come back again. From the time onward, I said '60 like, before there's plenty out here and from then on you can't find even shell on the grass. Conch shell we used to, plenty out here and the spider shell [because] they good for [eating]. You go out there, you get a basket full on the reef, on the grass here. But, since then you go out there, there's nothing there. See the change on the shell. Now they start to come back again... Well, I don't know, like they said, global warming and all [those] sort of things. You study the bible and you talk about all those things. It's been happening long time ago and it seems to come back. That's why I said it's cycling. It might take hundred years, more, but it's happening.' (Elder, pers. comm., 2010)

The Elder in his interview pointed to a tree on his property where the high tide water mark has come to.

'That's the high water mark when I come here. High tide mark. I was here in late 1980 and since [then] I started to build that thing there, we got these tree grow up there with a two coconut in the front there and where it is there now, I say it's a good ten metre claim or ten or twelve. That dingy there, it's about ten, eight metres and we still got plenty.' (Elder, pers. comm., 2010)

Another Elder described how in this generation there have been a number of environmental changes, especially in relation to tides, sea level rise and an increased frequency of storms. He provided the following account of the changes that he has witnessed:

'When the water [rises] they get a storm through how many times through how many hundred years. But when the water rises up, that's where the difference is. The storm that comes through the ages are the storms that actually help create, but the water was at a level where it was stationary for a long time. When water [rises] in the short time the generation can see it changes quick. Whereas previous generation[s] hardly [saw] change because [there was] no greenhouse effect. The water was nice and clean, and air too... The winds are actually going on much longer into December or November, strong and the erosion is, you can really see the difference, the island [coast has receded] back to where the people live and the actual sea level will rise where there was [once] only inland. Now, the last time with the seawater was running down the main street on Erub and that's unheard of in our ancestor time. That was a couple of years ago. It comes through the drain and then the main street, where you live. One guy had a beautiful lawn that he gave up to the sea. He was planting a lawn and he was on the frontier. That didn't happen before. So, we knew now that scientists are definitely telling the truth, there's a rise in the sea level, because we see the changes. The whole world of cay and the islands are sinking themselves, too much the rise in the level. That's going to make a lot of difference in a lot of islands in the Pacific and some of them are disappearing now... We got, king tide come right here inside the sandbar and me and Florence come back from PNG, I told her. We no go straight [to] Darnley so we just come out to Daru to the Bobo Island in front of Daru which is directly east, that's the course. And we come Bramble Cay and sure enough, all them low parts water then come in and lifted some things but birds eggs were all over the place. But the ones that survived were on the higher bits, as you can see all the high bits... Normally the animals have some sense, they can sense things abnormal in the weather and they will clear themselves to, they've got some warning system of their own. It'd be great everybody with warning system, right down to ants... The only thing I would know if the birds start singing because we've got a language for that. As soon as the

place starts going like this you know you've got a big, high waves come.' (Elder, pers. comm., 2009)

This section has revealed a number of Elders' experiences concerning changes to their island, land and sea country, including memories and knowledge of extreme weather events such as the 1923 cyclone that tracked through Erub Island. Other experiences noted by Elders were in relation to changes to seasons, tides and landscape indicators. One Elder in particular noted these changes in the weather and climate as a puzzle, making it difficult to read their land and sea country. As noted earlier in this report, the experiences of Aunties on Erub Island were also important to capture in order to provide fresh perspectives on the impacts of climate change. This report now turns to a discussion of the views and experiences of Aunties in a changing environment.

3.2 Different perspectives of change and impacts: The experiences of Aunties

This section explores the gendered nature of climate change. In doing so, this report attempts to engage with the ways in which the relationship between nature and society are differentiated along gender lines. Drawing on interviews with a number of Aunties on Erub Island, it is hoped that their knowledge and voice brings new and different perspectives to the ways climate impacts and changes are understood, experienced and responded to. Such a perspective has the potential to enrich existing debates. The ways that climate change affects people and places are outcomes of how decision-making concerning climate change is bound up with various constructions of difference such as gender. This section thus seeks to engender these climate change experiences and give them leverage to add to the dominant narratives concerning climate impacts and changes.

Based on interviews with Erub Island Aunties, it was clear that through different and various experiences, they too were witness to and negotiators of climate impacts and changes. For one Aunty, her experiences of climate change were linked through her art. As an Erub Island artist, she spoke passionately about her identity being intimately linked with her art, which was a reflection of her surrounding environment that she noted was changing. She explained:

'Well, my art work is so important for me. Like, when I was young I did interesting drawing and all this but because you were young but as I grow old, I get mature, when I start to do my artwork now. And it's like [an opening] for me to really get into my culture, like my identity, where I come from, but it's all about my artwork. Most of them are like from the sea. Well, you remember we are sea country. We live on the island surrounded by sea, and I took some of my artwork from the land... Because like a long time ago, like my husband share to me and we know that we used to hunt for turtles [...] close by on the reef, but now you can't find nothing, like you have to go further out to the other big reef and hunt for turtle. Very seldom but you cannot get turtle in close to the island, I think I believe, because like they got engine dinghy now. Maybe they, the engines scare the turtle away or some other thing [affects] them... I love the coral. I walk in the midst of the coral and I see them on the beach. I go out and take picture of the coral... Yeah, I memorise now, what did I see outside. The tide is getting [...] higher now. We used to have the shells. There's not much now. Like octopus [...] for instance [...] we used to go out and collect octopus but it's really hard now to find octopus and for the shell as well. Like for clam shell or spider shell, all other ones it's really hard.' (Aunty, pers. comm., 2009)

The Aunty continued to share her experiences in relation to her sea country, particularly changes to and respect for sea life such as clam shells.

'We used to have the shell before but no more now, or maybe because people like in our island culture, you have to just take it [but] leave some for the next day or for someone or leave there to go on, because if you take everything there's no one left to go on... If not much but we still have to promote like what we have. It's maybe a climate change. It might be the water getting [hotter], or people as well, like not going to be respect anyone, you take as much as you can, then you don't leave anything back. Like some people in greed way they take everything but our culture is 'take enough and leave enough for the next day'. That's the way you preserve [...] things] for the next generation. Like before time we [only had] pulling dinghy. We ate turtle maybe three times a year but now, when you got dinghy now, people can go out take as much as they want... You have to go out, but

even you walk on the reef, on the edge only once to find, not one now [clam shells]. You have to go outside to this other reef, you have to go out, then you find them, but the big ones are still there but, we don't eat the big, big ones. Like we keep, leave it there. We only eat a good size one because they're huge, leave it there. But some time when I go out on the reef, I walk on the reef I could see the big clam shell. Sometime when I look at them, I always [think to myself,] 'there's someone here beside me'. I always walk close to them saying, 'excuse me'. Yeah, I usually like that and I, oh I could see like, when I out on the reef I really enjoy myself, look all the beautiful creature, the sea creature there. For the clam shell, I always say, 'excuse me'. Then I pass. It's really huge. You can sense there's something there, close to you. You have to say, 'excuse me' like you pass on their pathway... I have respect for them. They were just sitting there, the big clam shell, huge one... No, like we always admire down to, even we live on the land but you admire down to the seas.' (Aunty, pers. comm., 2009)

For another Aunty, her experiences of climatic changes and impacts were based on her recreational activities mainly on the reef and sea. As she explained:

'Before time on the reef, we live from the land and the sea, when we go out to the reef we had plenty of clamshell, the shells that we eat from. Now it's so hard to find the shells, and the dead corals and things like that. When I was young, when we used to go out on the reef, we sit in coral, this so lovely white with pink top, lovely colour. But now, when you go out, you see changes, all the coral is dry. It's not nice anymore. Out here, even when I went out diving with my husband, we used to go diving for trochus shell; out on the Barrier Reef run out where that Missionary Reef is, we even found lots of dead shells and coral. All them big corals, the sharp pointy one, they just looked so nice and purplish colour, lovely colour when you dive down to see. But now, there's lots of dead coral. Even the tides are different, tides now are different. They make you move back to the hills now; you don't want to stay down here no more. We used to live down the beach and you don't want to move, you just want to stay there.' (Aunty, pers. comm., 2010)

The Aunty went on to describe how difficult it has become to read her landscape and seasonal indicators. She described how it was not only harder to do now but that it was also causing sadness and distress:

'[We] used to [read landscapes]. But now it changes, you have to guess now. Everything changes, make it so hard. Even old people, they sat and talk, every time we sat, they my people. 'Like for the wind, sager now right, or still koki?' You never know, it just change like that. Even the tide, the tide was so short. Things go so fast then it's coming short, you can't tell whether it's here long. Like before, you can know what's gonna happen. So hard now, sort of guessing now all the time, right, left. Right come through here 2000 is sort of getting worse. I think it start changing in the 1980s, the changes start... Even the tide, even the season. Sometime you always know, like August, September you know, differences, all the leaves start to fall off. Then sometimes it come early like now, the leaves are changed. All my place is all just, I don't know whether from the wind though. Usually changes are going for the summer time, things start to change, but now everything sort of [goes] so fast... Sometimes sad at home, think about the good old days. We always talk about the good old days. Now everything is so, even the trees, you can see changes in them, too. Even the fruits, like before, when the mangoes are like, we haven't had mango season. The leaves have turned down they start to grow flowers and then their fruit, all that's before this, when they fruit the finish they go next. Like you can eat mango until December the next year, but

now, as soon as they get their fruit they fall off and finish. We now wait for our next season to come. This year is different, we still got mangos on the trees, something to do with the season, it sort of changes a lot.' (Aunty, pers. comm., 2010)

Another Aunty described her experiences of climatic changes and impacts through a different lens to the Aunties discussed above. This interviewee explained the changes that she had experienced based on the impacts on her property, such as encroaching high tide marks.

'Yes, when I was young we used to go further out on the beach, you know, the beach was right out, OK, like I indicate to you about the Hammond tree, the road down there, it used to be in the middle of the village sort of thing, you know. Hammond tree we call it, like this one here [...] but now, it change a lot and the water comes right in, right up to the back door, I mean, my laundry and the back step in the house [...] We [used to] walk all the way out to where the rocks [are]. Yeah, we can't do that anymore. When I was young, you know, so now, because if it's going to still come in, up to the house and that, where would I go? I would leave all of my life at the house but I don't want to.' (Aunty, pers. comm., 2010)

For another Aunty, memories and experiences of high winds and tides were very worrying for her. She explained:

'When I first come, the first king tide when [my husband] built the house. The first [king tide came] at night. Early part, after tea, Bully say, 'Big tide tonight'. He went to sleep. So I can't go to sleep [because] I was a bit frightened, you know... The first one come, there was big wind, I couldn't sleep, I just sit there at the window and watch it until it dropped; that's the first one... When we built there was a strong wind and that pumice stone come on top of that cement there because that was only open. The pumice stone, you know that on the beach there, them light thing that floating. That's the name of it, pumice stone. They're very green, with the green grass on it; I don't know where they come from, from right underneath there or what. That beach was full. They tried to do a trench, make a long trench and bury them. It really [frightens me], and I sad, you know... That's the first one. The beach rough that night but [Bully] went to bed, but I was a bit worried, you know. I want to see tide when I go. He not coming in the house. Come under the veranda there and the cement, going across there. In the morning all the pumice stone everywhere, you can't walk... I can remember once here, every Christmas the wind was like the whirly wind. Oh, you must have that whirly wind, between Christmas and New Year. You must have that. Last year wasn't that bad but the tide, the tide is so bad, the king tide. The last king tide was here, can't remember, this year some time, a few months ago I think. The one I think where we been affect, [because] the island went right up to the road there. I can't remember what month but I can remember it was this year [2009]. That's the biggest one... He always said, you know, 'Christmas time we will get a king tide'. Well Christmas we get king tide then but this one was, the start that tide. The first one come and take all the coconut from out the front [...] The second one come, we had to build a sea wall now will all the bags, sand bags. He didn't put much tyres, but this time now, the white fellow was here he put them tyre on the pallet; after that big tide... I think this year was the biggest one. A bit frightening, you know. He put [sandbags] before that tide for the first one. The second one washed away the sand bags. Yeah, and the coconut, coconut tree out the front, it was just ready to have a fruit and the big tide come and take it all out, big tree... This big tide, that's from when that ice melt or something. We call it global warming.' (Aunty, pers. comm., 2009)

The experiences of a changing climate were different for the Aunties on Erub Island in comparison to the Elders. For a number of Aunties, there was sadness and distress associated with these experienced changes to their land and sea country.

4. Conclusion

The purpose of this report was to begin the task of bringing together the voices and experiences of Elders and Aunties on Erub Island, Torres Strait, concerning climate changes and impacts. This report presents these experiences as memories of extreme weather events, and changes in seasons and country. This report has also focused on the gendered nature of climate change. In this vein, this report has drawn on the voices of women to present new perspectives on how climate change impacts are experienced, enacted and responded to.

The close relationship of Islanders with their land and sea country has meant that they can provide knowledge and/or memories of extreme events and changes to the climate and country. One Elder provided an account, passed down from his mother, of a cyclone that tracked through Erub Island in 1923, causing severe devastation. In terms of changes, the experience of Elders was largely concerned with changes in seasons, particularly less predictable winds, and high tides and inundation events. For some Elders, the 'puzzle' of the current climate was challenging for Islanders to continue reading and understanding their land and sea country. On the other hand, the Aunties who took part in the interviews provided different experiences of climate change impacts. For one Aunty, there was sadness, as she felt that her identity was changing. She explained her identity as directly equating to her art, and the inspiration for her art was from her surrounding natural environment, especially her sea country, which has been changing. For her, the solace and self-identity that she gained from her natural environment was diminishing as her land and sea country changed (Albrecht *et al.* 2007). Other concerns and experiences from the Aunties included rising tides, but also the sadness of changing sea country, particularly coral and animal life. These experiences provide new and different perspectives on the many and varied impacts of a changing climate and other associated changes to land and sea country.

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