

## Climate Change and Fisheries Forum 28-29 April



*Kaumaiti Travel Tou Ariki opening the forum 28 April (Photo by Celine Dyer)*

The Climate Change and USP forum entitled "Fisheries in the face of Climate Change" was officially opened by the President of the House of Ariki Kaumaiti Travel Tou Ariki on Wednesday night 28 April at the USP Campus in Rarotonga. In his opening address, the Kaumaiti reflected on traditional beliefs and values of our forefathers and their practices in the use of natural resources. How the ocean was regarded as the 'cupboard of food' for the people in terms of its richness in fisheries and marine life, and the way conservation was practiced in everyday living. They were ingenious in the ways they utilised these resources, conserved and harvested to ensure sustainability and continuity without any outside help or financial assistance.



*Participants at the climate change and fisheries forum (Photo by Ana Tiraa) 28 April 2015*

The forum was initiated by Climate Change Cook Islands in partnership with USP, to promote public awareness on local fisheries and the likely impact of

climate change on these resources considering that marine resources have long been the primary source of protein for Pacific Islanders. Yet, the impact of climate change in addition to the impacts of various development efforts such as coastal development, coastal fisheries and offshore fisheries throughout the Pacific region are now starting to play an important role in determining the availability of these resources. In recent decades in the Cook Islands, changes in marine resources were apparent especially in the long term, the loss or the decline of these resources will not only affect food security, but will also erode other aspects of our resilience to the imminent effects of climate change. Thus, the forum was designed to focus on concerns and actions from islands in both the northern and southern Cook Islands.



*Alex Olah speaking from the heart on his voyaging experience 28 April (Photo by Ana Tiraa)*

Alex Olah was the keynote speaker on the first night and spoke on his voyaging experience on the Cook Islands vaka Marumarua Atua. According to Alex, one cannot fathom the wide spread impact of manmade rubbish like floating islets in the ocean. On several occasions they caught fish with plastic in the abdomen signalling that fish is eating manmade debris. From his voyaging experience, it had opened his eyes to the condition of the oceans and the plight of its inhabitants and eco systems.

Other speakers on the first night were Dr Teina Rongo who spoke on the science of climate change and climatic shifts affecting pelagic fish movements, Joe Bridler from the National Environment Services spoke on the Ridge to Reef project, Kori Raumea from the Ministry of Marine Resources on the kiokio in Aitutaki, Julian Aupini from Mitiaro on the *maroro tu*, which is the flying fish spawning aggregation, Noline Browne Itaata Rangatira from the Koutu Nui on Raiu and finally Jacqui Evans from Marae Moana on its policy going forward. On the second night of the

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forum, the Secretary of the Ministry of Marine Resources Ben Ponia gave the keynote address. He spoke on the tuna migratory route in light of climate change and climatic shifts which accordingly is favourable to Cook Islands. During the El Nino phase the push of warm currents moves from west to east in Cook Islands waters bringing in with it the schools of tuna mainly skipjack which is the target of purse seiners. During La Nina the albacore longliners moves north to south 200kms of Rarotonga in line to the shift of the South Pacific Convergence Zone (SPCZ) which also causes drought in the Northern Cooks.

Other speakers were Simon Nicol from SPC via a pre-recorded presentation and also re-echoed Ben's explanation of tuna movement in the South Pacific. But he also gave a daunting predicament on albacore and the bigeye tuna which according to Simon's presentation will see a decline in Cook Islands by 2050. According to Simon the skipjack will retain the status quo.

Other speakers were Kelvin Passfield from Te Ipukarea Society who raised concerns on purse seining, Don Beer from the Cook Islands Fishing Association on the local fishing industry and William Tuivaga from the Strengthening Resilience to Island Communities to Climate Change (SRIC CC) and spoke on marine related projects undertaken by SRIC CC.

Overall, the forum presented an opportunity for the public to listen and ask questions on issues they were unclear and most importantly to raise awareness on the effects of climate change on local fisheries both reef and pelagic.

We thank the co-chairs Professor John Hay and Ms Mata Hetland, the Aronga Mana, the presenters, USP Campus for co-hosting the forum and lastly to everyone who came. Meitaki Ma'ata.

## **Maroro Tu or flying fish spawning aggregation on Mitiaro**

Julian Aupini from the island of Mitiaro spoke about the flying fish spawning aggregation on his island which is still practiced and carried out in the traditional way. The following is Julian's account of the flying fish spawning or **maroro tu**.



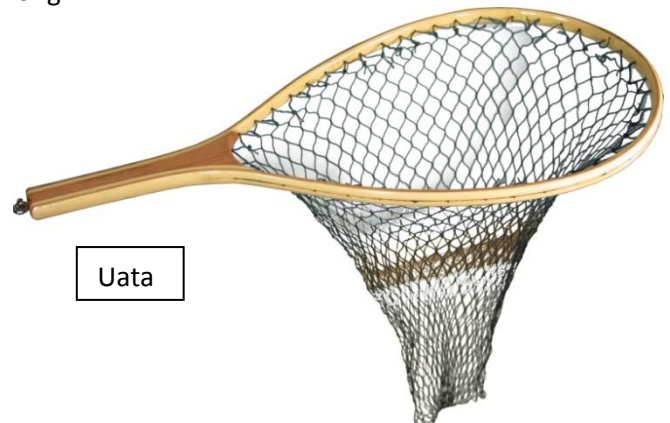
*Julian Aupini of Mitiaro (Photo by Ana Tiraa) 28 April 2015*

*Maroro tu* is a massive spawning aggregation event that normally occurs from July to December in Mitiaro. During the months of the *maroro tu*, the *maroro* would come close to shore to spawn.

The following are the moon phase when this occurs:

- 1<sup>st</sup> night, *Vari*
- 2<sup>nd</sup> night, *'Una*
- 3<sup>rd</sup> night, *Ma'aru*
- 4<sup>th</sup> night, *'Ua (Kautaki)*

Only those *maroro* that were able to release their eggs would survive, the unfortunate ones would sink and die at the bottom of the ocean. Special scoop net called *uata* are used for this fishing. These nets are attached to a wooden handle that are 4 – 6 meters long.



The *maroro tu* season always start in July on the northern exposure of the island. Here are some indicators of the *maroro tu*: overcast and at times rain, rough seas, and often large numbers of sea birds would hang around. When these indicators are

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observed, fishers would paddle out to search for the *maroro* aggregations.

## Some Rules:

During the *maroro tu* season, a curfew is imposed on the Pastors and their wife's by the *Ui Ariki's*. They are not allowed to leave their homes for at least four days.

Their job is only to pray for a successful fishing. If they disregard this rule the following will happen:

1. Sea will be rough
2. Wind will be strong
3. *Maroro* will not come close to the shore
4. Fishermen will take longer to search for the *maroro*

No powered boats is allowed starting from four nights before the *Arapo* (*Vari, Tamatea, Akaoti Tamatea, Korekore Ta'i, Akaoti Korekore*)

No beating of the *maroro* flying around. Those who have no scoop net will wait for their turn as fishermen's share the net. The load of the catch for the day is distributed for the children, women, Pastors, chiefs, elders, widows, and visitors. The second trip on return will be for the fisherman's family.

*Maroro* is not allowed to be sold. They are given as gifts for families and friends in the other islands. Powered boats are only allowed to be used four days after the 'Ua night for the purpose of trawling and other types of fishing (i.e., *Maitu, Marangi, Turu & Rakau Ta'i*)

During shipping days, the ship is not allowed to come close to shore if fishermen's are out searching or scooping the *maroro*.

This practice on Mitiaro has been going for many years, from the arrival of the missionary to now. The *mana* of the curfew and this fishery, imposed by the *Ui Ariki's* will live on for generations to come.



*Fishermen's canoes in Mitiaro (Photo by Celine Dyer)*

## Local residents walk the talk to make a difference



*Pictured here is Helen Henry next to their Nissan LEAF (Photo provided by Professor John Hay)*

Two Arorangi residents, Helen Henry and John Hay, are walking the talk about the need to slow the rate of climate change. In addition to their solar hot water heating system, they recently converted to low energy use LED (light emitting diode) lighting as well as installing ten solar (photovoltaic) panels. These panels are now providing all the electricity used in their home, as well as by their electric car - a Nissan LEAF (low emissions, alternative fuel). Any surplus electricity is sold back to TAU.

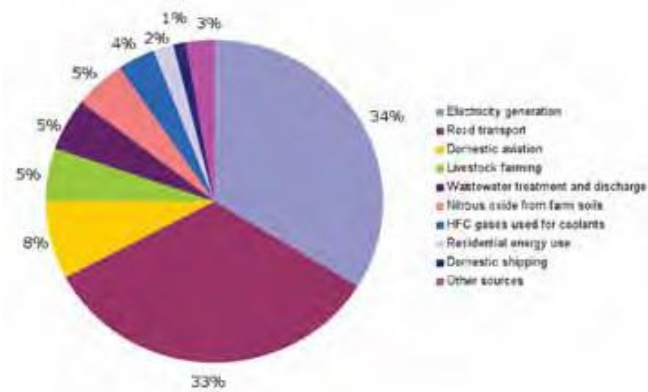
The LEAF uses electricity stored in lithium ion (Li-ion) batteries. These provide power to the electric motor that moves the vehicle. A fully charged LEAF can travel for about 160 km, which makes it ideal for use in small islands such as Rarotonga. The charging process takes up to ten hours if the batteries are fully discharged. The vehicle system can extend the vehicle range still

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further - energy created when the vehicle decelerates, or travels downhill, is stored in the Li-ion battery . This is called regenerative braking.

The LEAF is considered to be an "environmentally friendly vehicle" because, while being driven, it does not emit exhaust gases such as carbon dioxide and nitrogen oxide. But it is environmentally friendly only if the batteries are charged using solar energy, and not electricity from the grid. In Rarotonga the latter requires the burning of diesel fuel to power the generators, resulting in the emission of greenhouse gases.

Maybe the electric powered car is something that Cook Islands could investigate as a future alternative to fossil fuel in order to reduce our greenhouse gas emissions since road transport is the second highest emitter to electricity at 33 percent and 34 percent respectively as shown in the pie chart below.



Source: 2006 Second National Greenhouse Gas Inventory

## Women in Science workshop



Pa Enea female students learn about science (Photo by Ana Tira'a) 20th April 2015

The Women in Science (WISAT) program was again held this year on the 20th April. Climate Change Cook Islands participated as one of the facilitators and spoke on the science of climate change. The female high school students from the Pa Enea had the opportunity to ask questions and seek clarification in the science discipline if they wish to pursue a career path in this area. Ana Tira'a, Director of Climate Change Cook Islands was on hand to provide information on climate change and science.

## 50 Days 50 Years Cycle Galore



Gearing up at the starting line of the event 30 April 2015 (Photo by Ana Tira'a)

Enthusiastic cyclists gathered at the Punanganui Market on Thursday afternoon 30th April for the start of the mini cycle event. All sorts came with all sorts of novelty cycles, the thin and thick, the high and lows, new and old, fast and slow, which of course brought the papas, mamas, families and individuals together to enjoy a fun cycle experience.

The next event is planned for the 12th May at 830am. This is your once in a lifetime opportunity to get to cycle on the airport runway. So make a date and be there!.

## Kura-Kuriri

William Tuvaga is off to Samoa from Friday 8th May to Friday 15th May to attend the Pacific Climate Change Roundtable meeting.

The Rauti Para team of Dr Teina Rongo, Mitchell Tutangata and Celine Dyer is off to Manihiki and Rakahanga on the 12 May to deliver on the Rauti Para project.

Ann-Marie Roi is off to Samoa on the 9th May for training with UNDP.



*Ms Jacqui Evans presenting on the Marae Moana policy (Photo by Ana Tiraa) 28 April 2015*

**Till next time... KIA MANUIA!**

**More photos from the forum...**



*Some of the public on the first night 28 April 2015 (Photo by Celine Dyer)*



*Co-chairs Professor John Hay and Ms Mata Hetland (Photo by Ana Tiraa) 28 April 2015*



*Noeline Browne Itaata Rangatira presenting on the Rau'i (Photo by Ana Tiraa) 28 April 2015*