



Te Kao



Motukaraka



Pawarenga



Te Hiku o te Ika
Rangatahi Ringa Raupa
Noho Taiaro 2016

Project overview

Support: MBIE, NSC Deep South, \$250,000 over 2 years; Whariki Research Group

Contract: Te Hiku Iwi Development Trust



Research team:

Community researchers

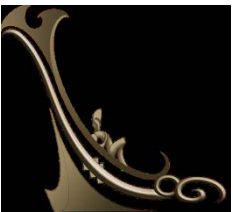
- Te Kao: Kevin Wilton, Robyn Pako, Errol Murray, Rangimarie Rameka
- Pawarenga: Samuel (Hank) Dunn, Sam Tecklenburg
- Motukaraka: Len Neho, Jackie Thompson, Lisa Waipouri

Other researchers

- Kaio Hooper (NgaiTakoto), Troy Brockbank (Te Rarawa, Ngati Hine, Ngapuhi) Helen Moewaka Barnes (Ngati Hine, Ngati Wai), Tim McCreanor (Whariki) Elaine Moriarty (ESR), Christian Zammit (NIWA), Wendy Henwood (Te Rarawa)

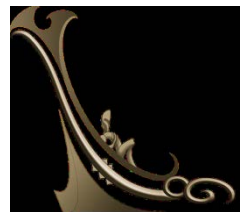
Te Hiku o Te Ika (Far North) context

- 3 small isolated, rural communities;
Pawarenga, Te Kao, Motukaraka
- Maturanga Maori and kaitiakitanga practice
- Roof and tank drinking water supplies
- Integrity of household infrastructures



What we know

- A global rise in average temperatures is altering weather patterns worldwide
- Driven by increased carbon dioxide, produced by human activity, in the upper atmosphere



Why climate change matters in Te Hiku

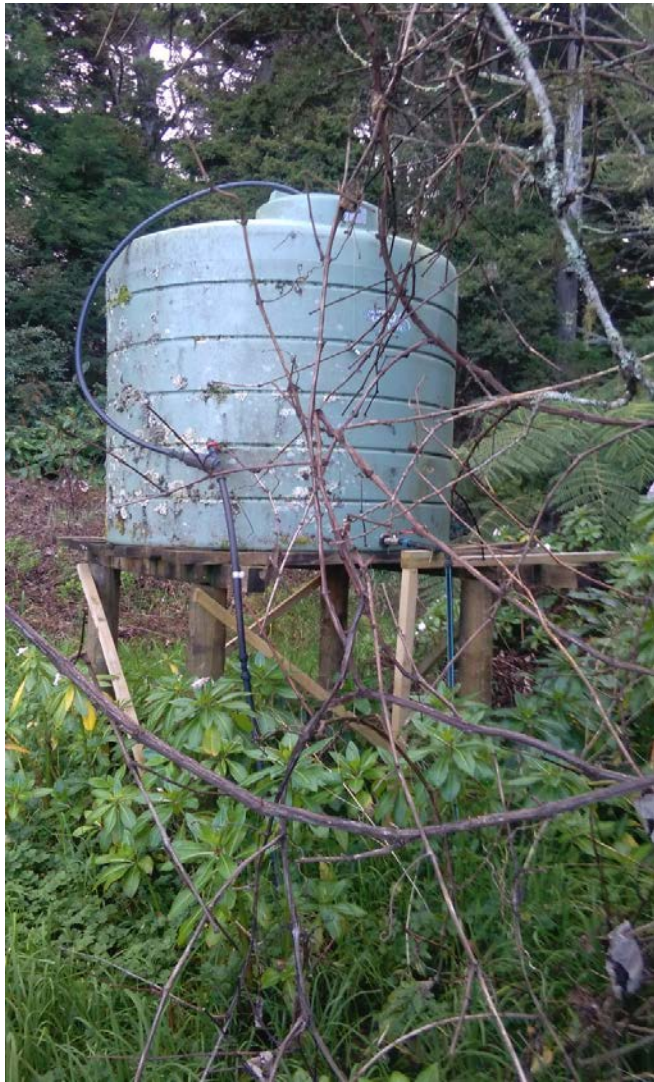
- More extreme weather predicted; higher temperatures, drought, storms, flooding, erosion, sea level rise
- People, land, waterways and species at risk
 - Water shortages more common
 - Microbial human health risks elevated
 - Community viability under threat
 - Wider environmental change
- Preparation
 - Understanding of supply systems, pressures & threats
 - Actions for water quality, supply and sustainability



Our methods – local data

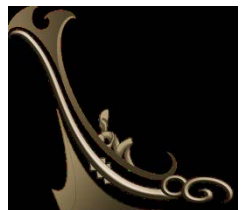
- Scenario modelling (NIWA)
 - daily rainfall and temperature data
 - linked to NIWA national Virtual Climate Station Network, to correct projections to local conditions
- Household water/infrastructure survey
- Hui and interviews with kaumātu
- Field sampling for E.Coli – Compartment Bag Test





What we've learned

- Increase in annual volume of roof available water (up to 20%) projected by end of century for most extreme scenario
- Water availability dependant on roof water system design, household occupancy
- Water is taonga, part of the people and land
- Mātauranga Māori and kaitiakitanga practices
- Knowledge of weather, water management
- Change isn't new in Te Hiku; people are resourceful



Key outcomes to date

- Better prepared for climate change
- More knowledge about water sustainability
- Increased research capability and capacity
- User friendly E Coli test started to guide model development
- Networked learnings with other communities

