



PARTICIPATORY COMMUNITY-BASED TSUNAMI RISK ASSESSMENT FOR THE CHATHAM ISLANDS

Kristie-Lee Thomas, Assoc. Prof. Thomas Wilson, Dr. Kate Crowley, Prof. Tim Davies, Dr. Matthew Hughes, Helen Jack, Dr. Emily Lane, Dr. Darren King, Prof. David Johnston, Dr. Graham Leonard



UC **NGĀI TAHU RESEARCH CENTRE**



RESILIENCE
TO NATURE'S
CHALLENGES

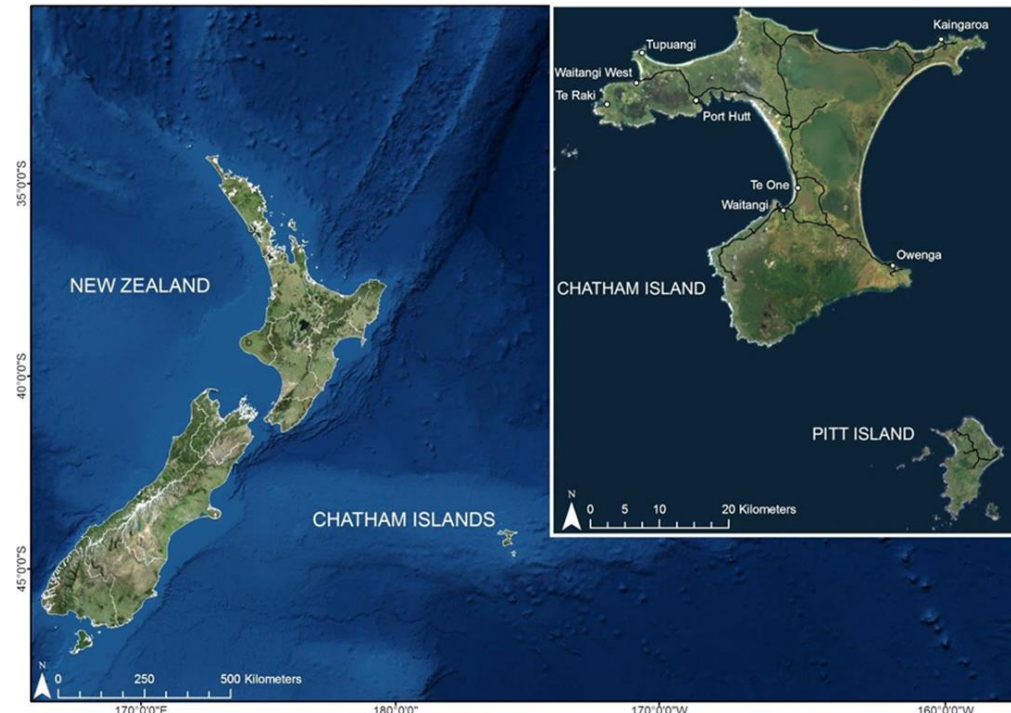
Kia manawaroa
– Ngā Ākina o
Te Ao Tūroa

National
Science
Challenges

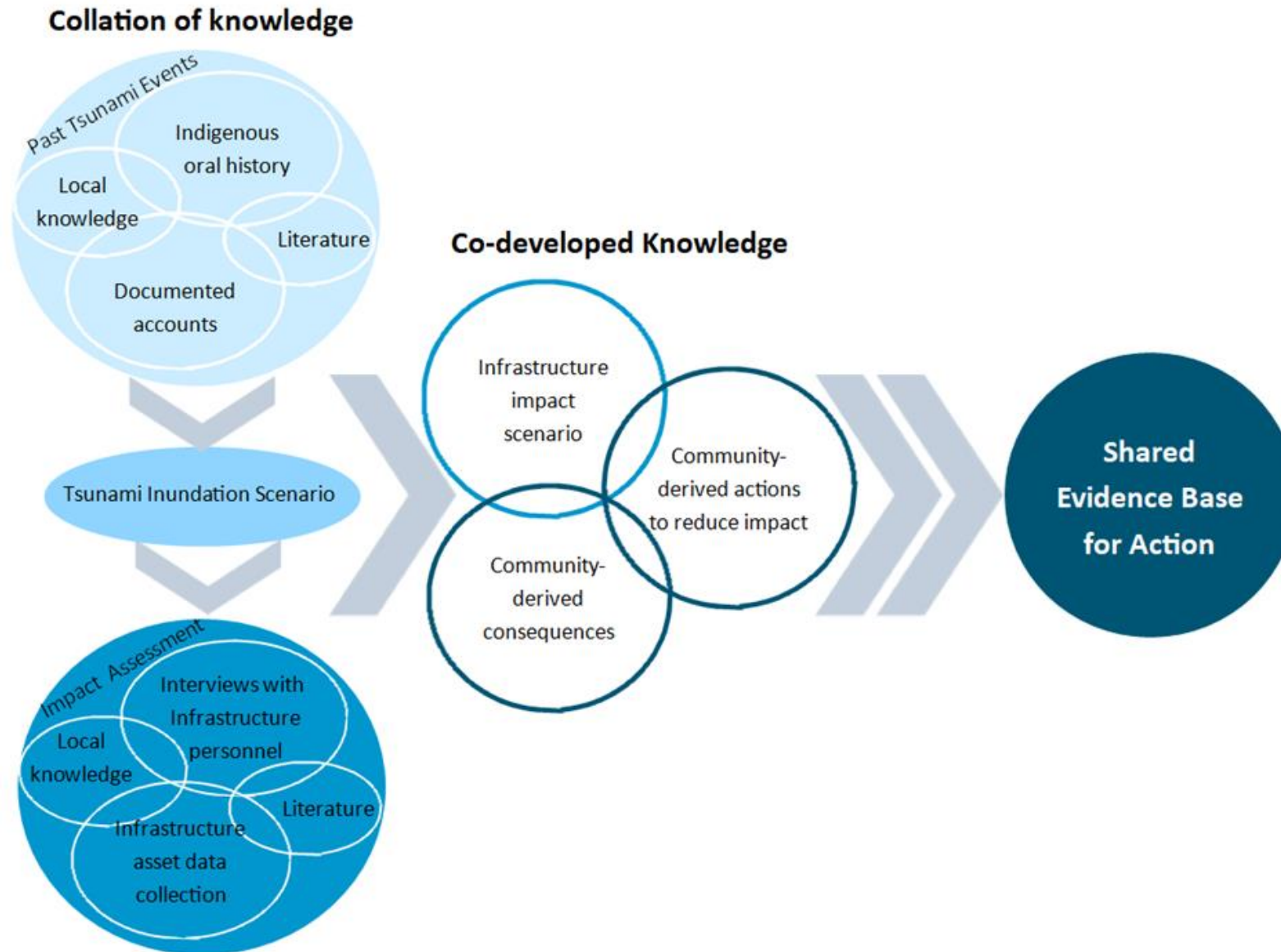


BACKGROUND

- Population 600, 58% Māori, tight-knit community,
- Fishing, farming and tourism, economy dependent on infrastructure
- Isolated
- History of tsunami
- DRR initiatives limited by lack of knowledge around risk/impact
- What information do you need? What outputs would be useful?



RESEARCH OUTLINE





PARTICIPATORY LEARNING AND ACTION

Involves a suite of approaches to enable local stakeholders to analyse information, to plan and to act; and is a process from, with and by the community (Chambers, 1994).

HE AWA WHIRIA: A BRAIDED RIVERS APPROACH

“Where [indigenous and Western streams of knowledge] are able to blend and interact, and in doing so, facilitate greater sociocultural understanding and better outcomes for indigenous individuals or groups”

Macfarlane, Macfarlane & Gillon, 2015, p.52

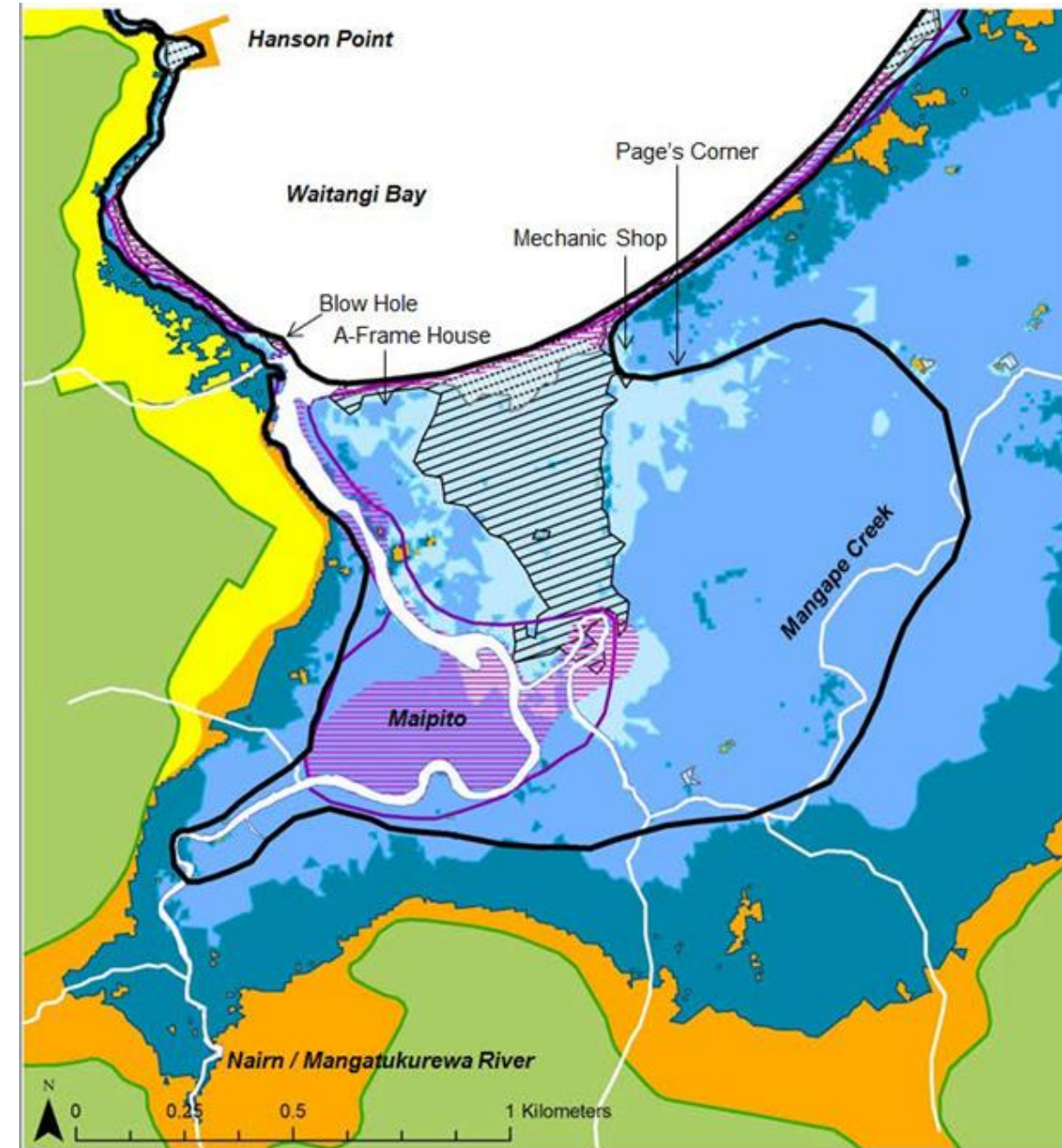
“potential for creation of new knowledge that can be used to progress understandings in both worlds, in order to represent better outcomes for all”

Steering Group of the Social Policy Evaluation and Research Unit, 2018.

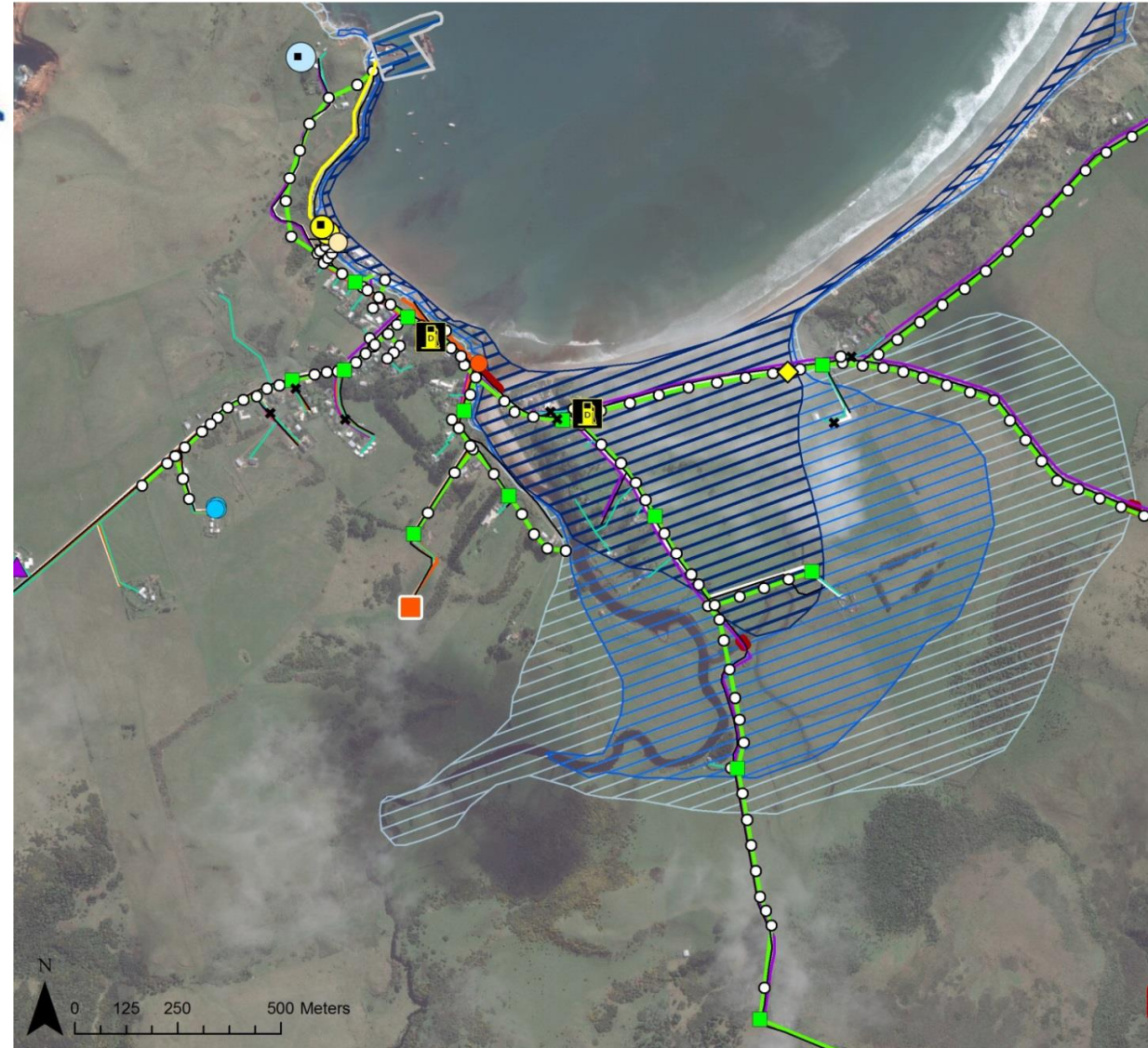
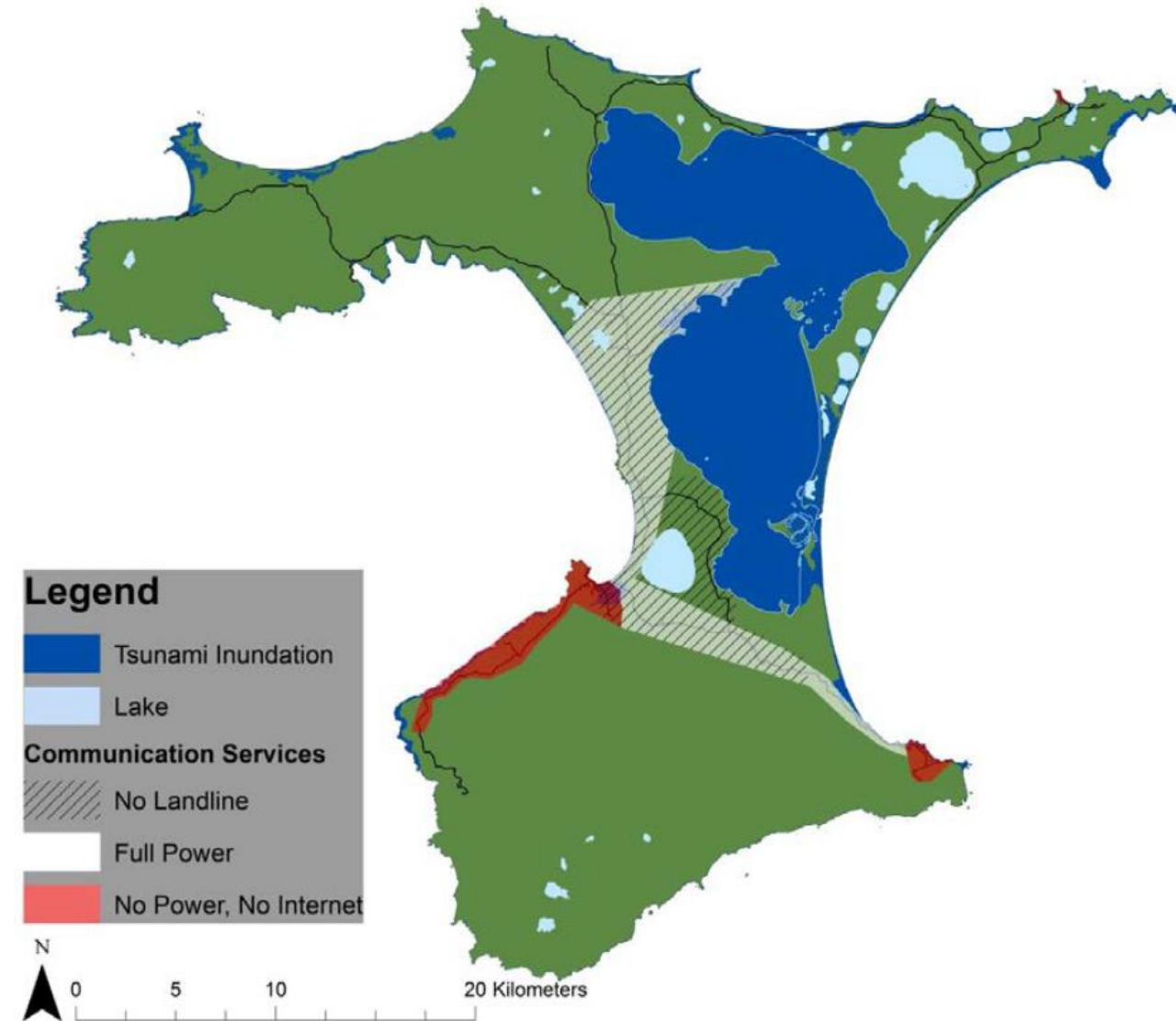
TSUNAMI INUNDATION SCENARIO



- Collation of information
- Converged Māori knowledge, local knowledge as well as scientific knowledge
- Overlaid inundation modelling, ROT model, evacuation zones and historical inundation



INFRASTRUCTURE IMPACT SCENARIO



COMMUNITY IMPACTS & ACTIONS TO REDUCE IMPACT

- EOC workshop and community workshop
- VCA brainstorming - how loss of service would impact the community and what actions could be taken by various people and organisations to reduce these impacts either now, or during a distant tsunami warning.

**Shared
Evidence Base
for Action**

People	Resources	Communications
All area coordinators can communicate across multiple channels (including access to satellite phones)	Set up a secondary power generator in Waitangi	Run exercises and drills especially for new emergency personnel, public and area coordinators.
All households know where safe areas are and that each household has a plan including for pets and for school children/family members on mainland New Zealand as well as a pre-packed go-bag	Assess capacity of welfare centres, their access to resources and how long they can be self-sufficient for (including without mains power, landline and mains water)	Have a process to regularly check all communication channels are functioning (e.g. testing VHF and sat phones regularly)
Households and businesses to store their own bulk fuel (this is starting to happen due to recent delays)	All organisations and businesses should have a plan prepared for evacuating staff and mobile/valuable equipment or assets as well as contingency plans for operation without mains electricity, water and landline.	Undertake a regular stocktake to check repeaters have sufficient power e.g. solar or backup generators and fuel for these.
Establish population census in crisis including the monitoring who is on and off island with passenger lists (possible issues around confidentiality), including visitors.	Generate an inventory of resources on island (emergency accommodation, people/skills, fuel, heavy moving equipment, vehicles available for evacuations etc.)	Undertake an education campaign to make sure everyone knows what the communication approach will be during an emergency so that telecommunications are not overloaded. This could include a single channel (such as a designated Facebook page) which can be used by the community to coordinate resources and actions during a warning and in response with information posted regularly to update family and friends.
Put in place plans to assign back-up/deputy area coordinators and emergency response personnel to provide over-worked people with rest.	Pre-position emergency kits (water, shelter, food, clothing, fuel) in safe zones and on isolated islands/areas. (Council moving to new site – opportunity to relocate bulk fuel	Families with children at boarding school have a plan for communication loss and support system (relatives who can retrieve children from boarding school)



KEY LESSONS LEARNED

- Wealth of Māori and local knowledge which significantly improved current understanding of tsunami hazard and provided understanding of exposure, vulnerability, impact and community capacity to respond.
- Important that local/tangata whenua researchers are involved who understand local history, context and have relationships with people.
- The braided rivers, participatory, community-based approach brings knowledge together to form a well informed, useful and usable risk assessment which is more likely to be used to inform community-led DRR.

Tēnā koutou/Thanks!!

- Funding greatly appreciated from RNC Rural, Ngāi Tahu Research Centre, EQC and RiskScape (NIWA and GNS SSIF).
- Thanks to our stakeholders and the Chatham Island community who put so much of their time into contributing
- Also to my brilliant crew of supervisors!

Contact: k.thomas@gns.cri.nz

