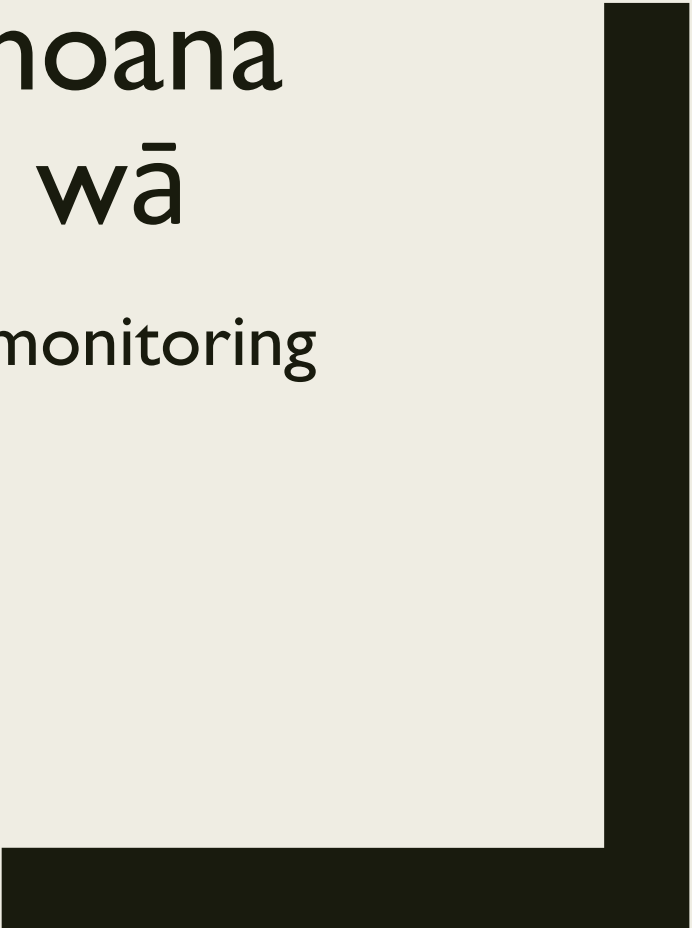




# Whakarongotai a te moana Whakarongotai a te wā

An iwi-developed fresh approach to monitoring  
mana whenua values

*Mahina-a-rangi Baker*  
*Te Kōnae Ltd.*





Ko wai au?  
Who am I to do this work?



# The need for a fresh approach to monitoring of mana whenua values

- National Policy Statement on Freshwater Management
  - *National Objectives Framework and water quality limit-setting process*
  - *‘Te Mana o te Wai’ concept*
  - *Identification of mahinga kai as a national value*
- RMA Resource Consent Framework
  - *Māori customary use and mahinga kai included in regional plans*



# What are the attributes of mahinga kai?

- Ability to catch a range of plentiful species for long-term harvest in certain places
- Safety to harvest and eat
- Providing food for the people
- Transfer of knowledge on catching, preparing and storing
- Ability to practice tikanga Māori (Māori customs)
- 'Wai tapu' identified as an additional value

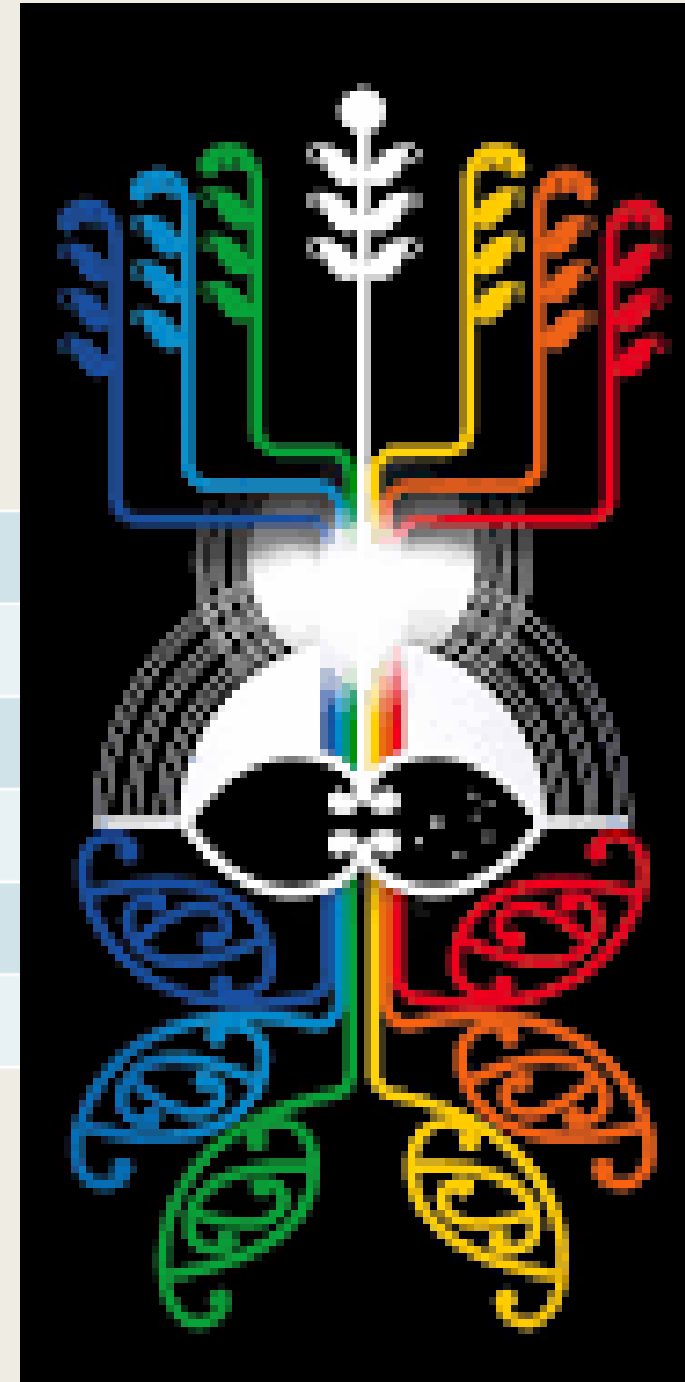




# Hua Parakore – a kaupapa Māori framework for foodscape planning

(Hutchings et.al., 2011)

MAURI	Healthy energy flow and life force of catchment system
TE AOTŪROA	Natural rhythms and patterns of the environment
MĀRAMATANGA	Quality knowledge and technology used to manage the system
MANA	The social security of the community and authority of the iwi
WAIKUA	The spiritual and emotional well-being of the people
WHAKAPAPA	The identity of the people and their connection to the water



# Whakarongotai Index of Catchment Health

*Whakarongotai a te moana  
Whakarongotai a te wā*

*As you listen to the tides of the sea  
So should you listen to the tides of the time*

In 2014 we conducted a study to identify 73 different attributes of catchment health according to the Hua Parakore Framework.





# Prioritising attributes for monitoring

How do we prioritise which attributes for monitoring across the following range of different planning contexts?

- Input into the Environmental Monitoring Plan for the developing of a Global Flood Protection consent
- Post-construction monitoring for 18km Expressway project
- Piloting a monitoring framework for Greater Wellington Regional Council







## Methods for prioritisation of attributes

1. Use an influence matrix
2. Designate iwi experts to decide



# Methods for prioritisation of attributes

## 1. Influence matrix (Vester in Cole et.al 2007)

- Rank each attribute according to the influence that they have over each other attribute
- Apply algorithms to influence matrix to categorise attributes as either: active, critical, buffer, or passive attributes
- Select attributes based on the degree of influence they exert or are influenced by others.

## 2. Iwi identify single or multiple experts to prioritise attributes

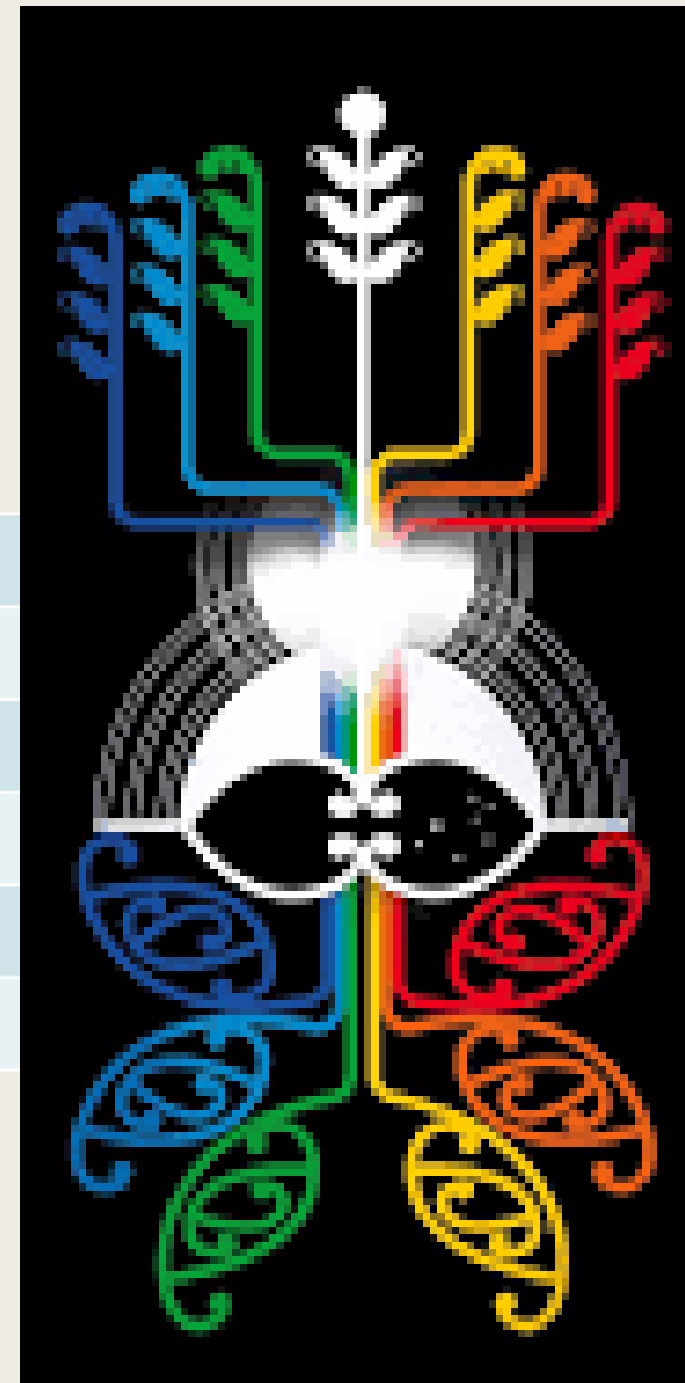
Master Active Rank Passive Rank AND AND Rank QS Final

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE																																																																																																																																																																																																																																																																																																																																																																																																																							
1		Pollution	Heavy metal contamination	Dissolved oxygen	Availability of shellfish for consumption	Wateriness available for consumption	pH level	Usefulness of fish	Contaminant levels in flesh	Abundance of species	Abundance of mahinga kai available for consumption	Taste	Palatability	Wholesale availability for consumption	Site of mahinga kai	Efficiency of harvesting	Presence and cover of native vegetation	Food is available all seasons	Decision making is informed by TAKW monitoring	All generations know where to source mahinga kai	Our people have access to new knowledge and resources	Rahui are upheld by Crown agencies	How much mahinga kai is harvested	Access to mahinga kai spots	Development	Members of iwi engage in self governance	The Maori Norm governs environmental decisions	Kai is shared	TAKW have positive working relationships with Treaty Partners	The environment is calm, safe and conflict free	People are able to practise tikanga that protects themselves e.g. karakia	All people of TAKW know their whakapapa to the environment	All people are connected to the environment	Active sum	Passive sum	Absolute Numerical Difference	Quotient score	Multiplier score																																																																																																																																																																																																																																																																																																																																																																																																																																										
2	We have authority over natural resource use	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	5	1	3	3	1	3	5	3	4	5	4	5	5	4	0	1	3	1	5	4	3	4	5	5	2	4	5	1	3	3	179	42	137	4.26	7518	Active																																																																																																																																																																																																																																																																																																																																																																																																																								
3	Decision-making is informed by TAKW monitoring	4	4	3	4	4	4	4	4	2	2	4	4	3	4	4	4	4	3	3	4	3	2	3	2	2	5	4	3	4	4	3	5	5	4	2	2	1	1	5	4	2	4	5	5	0	4	5	1	3	2	167	44	123	3.80	7348	Active																																																																																																																																																																																																																																																																																																																																																																																																																							
4	Development	5	5	5	5	5	5	5	5	4	5	5	5	5	4	5	3	5	5	5	5	0	1	5	1	1	1	1	5	5	4	2	2	2	5	0	4	4	2	3	5	5	5	5	4	3	5	5	3	5	4	193	61	132	3.16	11773	Active																																																																																																																																																																																																																																																																																																																																																																																																																							
5	Te Atiawa are part of the governance of natural resource management	4	2	2	3	3	2	2	1	2	3	3	3	2	2	3	2	4	3	4	2	5	2	2	2	2	5	5	3	4	5	4	5	5	3	0	0	1	2	5	3	0	5	5	5	0	4	5	0	2	1	142	54	88	2.63	7668	Active																																																																																																																																																																																																																																																																																																																																																																																																																							
6	Our people feel they can influence environmental decisions	4	2	2	2	3	2	2	1	2	3	3	3	2	2	3	2	4	3	4	2	4	0	0	0	0	5	4	3	4	5	4	3	5	2	0	1	1	0	5	3	0	5	5	5	0	4	5	0	2	1	127	54	73	2.35	6858	Active																																																																																																																																																																																																																																																																																																																																																																																																																							
7	Rahui are upheld by Crown agencies	3	2	2	4	4	3	2	2	1	1	3	3	1	4	3	2	4	1	3	0	1	3	0	1	2	0	4	3	1	1	2	2	5	0	5	0	2	4	5	1	5	5	4	5	4	3	0	4	1	125	54	71	2.31	6750	Active																																																																																																																																																																																																																																																																																																																																																																																																																								
8	Pollution	4	5	4	4	4	3	5	5	4	4	4	3	4	3	1	4	3	4	3	4	0	3	3	0	3	1	0	4	4	1	2	0	0	4	0	3	3	3	5	4	5	3	4	1	4	4	1	4	3	150	81	69	1.85	12150	Critical																																																																																																																																																																																																																																																																																																																																																																																																																								
9	Heavy metal contamination	5	5	0	4	4	2	5	5	4	2	4	3	4	3	1	4	3	1	3	3	0	3	1	0	3	1	0	2	2	3	2	0	0	2	0	2	2	1	1	5	3	5	1	4	0	3	2	0	2	2	117	71	46	1.65	8307	Critical																																																																																																																																																																																																																																																																																																																																																																																																																							
10	Dissolved oxygen	3	3	4	4	4	2	5	3	4	2	4	3	1	3	2	3	5	4	3	4	0	2	2	0	2	0	0	3	4	0	0	0	0	4	0	2	2	2	2	2	3	0	2	0	2	0	0	3	2	108	66	42	1.64	7128	Critical																																																																																																																																																																																																																																																																																																																																																																																																																								
11	Contaminant levels in flesh	1	1	1	3	3	0	0	1	1	1	3	1	2	3	3	1	0	5	1	0	0	3	5	2	3	1	1	5	0	1	2	3	2	5	2	3	4	5	2	1	3	0	2	5	5	4	1	3	5	5	114	79	35	1.44	9006	Critical																																																																																																																																																																																																																																																																																																																																																																																																																							
12	TAKW have positive working relationships with Treaty Partners	2	2	2	3	3	3	2	2	2	2	3	2	1	2	3	2	3	2	2	3	5	2	2	4	2	4	5	3	5	3	4	5	5	3	0	0	3	0	5	2	1	3	5	5	0	4	5	0	2	2	135	99	36	1.36	13365	Critical																																																																																																																																																																																																																																																																																																																																																																																																																							
13	Intergenerational participation in gathering kai	1	1	1	1	1	1	1	1	1	2	1	1		1	1	1	1	4	1	1	0	5	5	4	5	2	1	3	0	0	3	2	2	4	3	1	2	2	0	0	3	1	3	5	4	4	1	4	4	4	101	90	11	1.12	9090	Critical																																																																																																																																																																																																																																																																																																																																																																																																																							
14	All people are connected to the environment	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	3	3	2	4	4	0	4	1	0	4	2	1	4	1	1	4	1	0	2	1	1	2	4	2	1	5	1	5	2	2	2	3	127	121	6	1.05	15367	Critical																																																																																																																																																																																																																																																																																																																																																																																																																							
15	Abundance of mahinga kai available for consumption	2	2	3	1	1	3	0	0	1	1	2	2	1		1	1	1	3	5	0	5	0	2	2	0	2	0	3	4	0	0	1	0	1	5	0	5	3	3	3	1	0	2	0	4	0	4	0	0	4	3	87	111	-24	0.78	9657	Critical																																																																																																																																																																																																																																																																																																																																																																																																																						
16	The environment is calm, safe and conflict free	0	0	0	3	3	3	3	0	0	3	2	2		3	3	2	0	3	0	1	0	1	0	1	0	2	2	3	0	4	3	0	3	4	3	1	3	3	4	4	5	3	5	4	5	2	0	2	4	103	134	-31	0.77	13802	Critical																																																																																																																																																																																																																																																																																																																																																																																																																								
17	All generations enjoy harvesting and eating mahinga kai	2	2	1	2	2	2	1	0	1	1	2	2	1		2	2	2	1	2	1	2	2	0	2	0	3	0	0	3	0	1	2	0	0	5	2	3	4	3	0	0	4	0	1	5	0	5	1	0	2	3	82	116	-34	0.71	9512	Critical																																																																																																																																																																																																																																																																																																																																																																																																																						
18	How much mahinga kai is harvested	1	1	1	1	1	1	1	1	1	1	3	2	1		1	1	2	2	1	1	2	0	2	2	0	2	0	1	5	0	1	1	0	0	3	0	2	3	4	2	0	2	3	0	5	0	3	0	0	4	4	75	144	-69	0.52	10800	Critical																																																																																																																																																																																																																																																																																																																																																																																																																						
19	People feeling stressed	0	0	0	2	2	2	0	0	0	2	2	0		2	2	2	0	3	0	0	1	1	1	1	1	1	2	0	0	3	2	1	2	0	0	3	0	3	4	1	5	1	5	5	1	0	0	1	70	172	-102	0.41	12040	Critical																																																																																																																																																																																																																																																																																																																																																																																																																									
20	Good self-esteem	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	2	1	1	1	1	2	2	1	1	2	4	2	2	1	2	0	2	1	3	1	2	3	1	3	1	5	1	1	0	0	69	197	-128	0.35	13593	Critical																																																																																																																																																																																																																																																																																																																																																																																																																							
21	Our people have access to new knowledge and technologies	4	4	4	3	3	2	2	2	3	2	3	1		3	3	2	1	1	2	1	0	2	0	3	1	2	0	1	0	1	0	1	0	1	0	1	0	1	1	0	3	0	3	0	3	0	0	2	0	0	0	72	29	43	2.48	2088	Buffer																																																																																																																																																																																																																																																																																																																																																																																																																						
22	Iwi roles are filled with diverse range of ages and genders	2	1	1	2	2	2	1	1	1	1	2	2	0		2	2	2	2	1	2	1	3	3	3	0	3	0	0	1	1	1	5	2	1	1	5	0	0	1	2	0	0	2	3	5	4	5	1	0	1	1	84	36	48	2.33	3024	Buffer																																																																																																																																																																																																																																																																																																																																																																																																																						
23	All people of TAKW know their whakapapa to the environment	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	2	2	2	0	2	3	1	1	3	1	2	2	2	1	1	1	0	2	1	2	1	1	3	5	4	5	2	3	1	5	81	39	42	2.08	3159	Buffer																																																																																																																																																																																																																																																																																																																																																																																																																					
24	Access to mahinga kai spots	1	1	1	1	1	1	1	1	1	1	4	1		1	2	1	1	5	0	3	0	3	3	0	3	0	0	4	2	2	3	1	1	5	0	5	3	2	5	2	4	5	0	5	0	5	0	2	4	4	102	58	44	1.76	5316	Buffer																																																																																																																																																																																																																																																																																																																																																																																																																							
25	All people are able to practise tikanga that protects themselves e.g. karakia	1	1	1	2	2	1	1	1	1	1	2	1		2	2	2	1	2	1	2	0	1	1	1	1	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	4	0	5	5	4	4	5	4	3	1	4	88	53	35	1.66	4664	Buffer																																																																																																																																																																																																																																																																																																																																																																																																																						
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# Hua Parakore – a kaupapa Māori framework for foodscape planning

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WAIKUA	The spiritual and emotional well-being of the people
WHAKAPAPA	The identity of the people and their connection to the water



# Mauri:

## Healthy energy flow and life force of the catchment



### *Attributes*

- Heavy metal pollution
- Abundance of mahinga kai

### *Methods*

- Watercress survey for presence, abundance and metal contamination
- Pre- post- construction fine sediment assessment
- Relative abundance fish surveys as per NIWA Protocols 2014



# Te Ao Tūroa: Natural rhythms and patterns of the environment



## *Attributes*

- Efficiency of sourcing mahinga kai
- Food is available all seasons

## *Methods*

- Iwi survey:
  - *Catch per unit effort*

# Māramatanga: Quality knowledge and technology used to manage the system



## *Attributes*

- That decision-making is informed by iwi monitoring.
- All generations can identify mahinga kai species

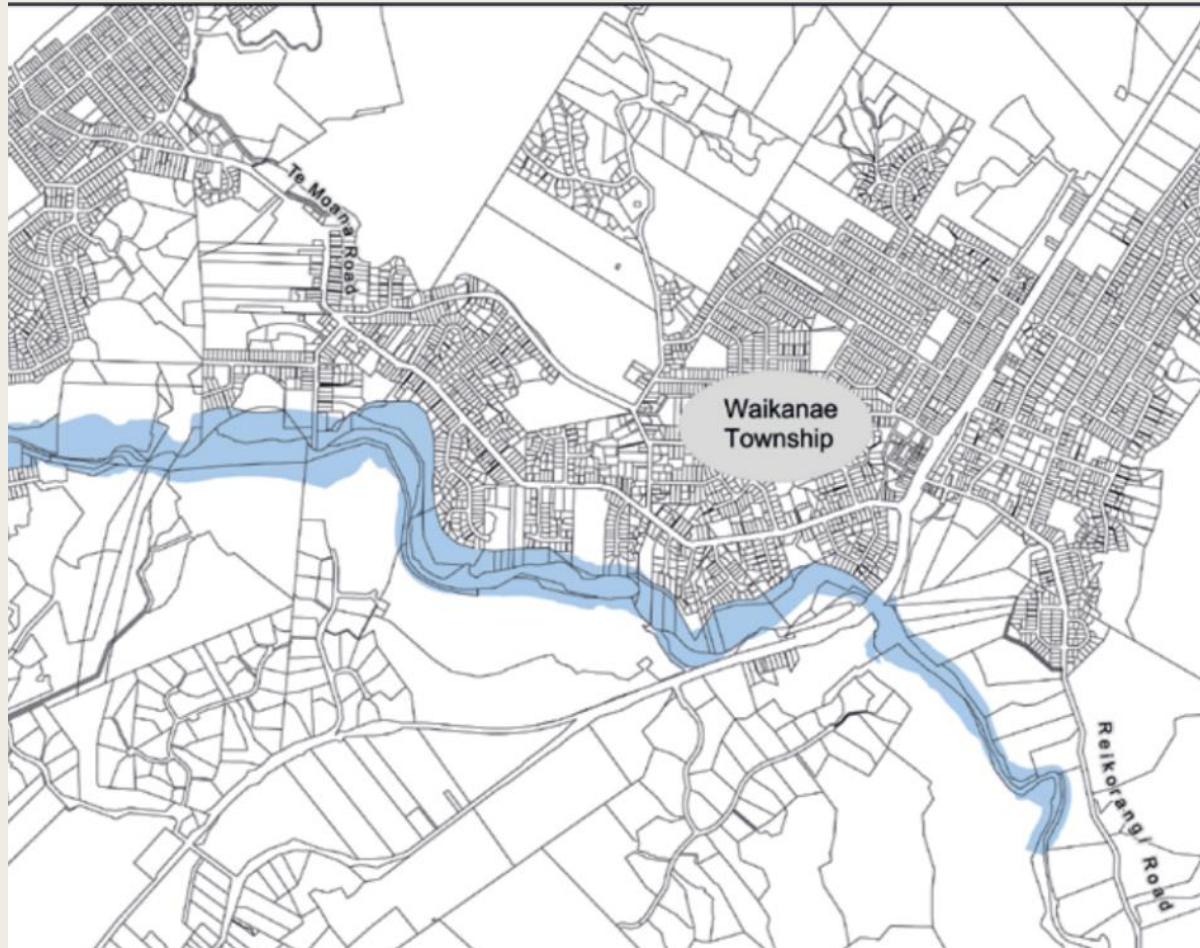
## *Methods*

- Develop adaptive management regime that uses iwi generated data
- Iwi survey
  - *Testing identification of species*



Mana:

The social security of the people and the authority of the iwi



### *Attributes*

- The iwi have authority over resource use
- The scale of development

### *Methods*

- Tiriti Audit Framework for local government
- Mapping developing on floodplain

# Wairua:

## The spiritual and emotional well-being of the people



### *Attributes*

- The environment is calm, safe and conflict-free
- The self-esteem of the people

### *Methods*

- Iwi Survey:
  - *Environmental Distress Scale (EDS) Survey (Higginbotham et.al. 2007)*



# Whakapapa:

## The identity of the people and their connection to water



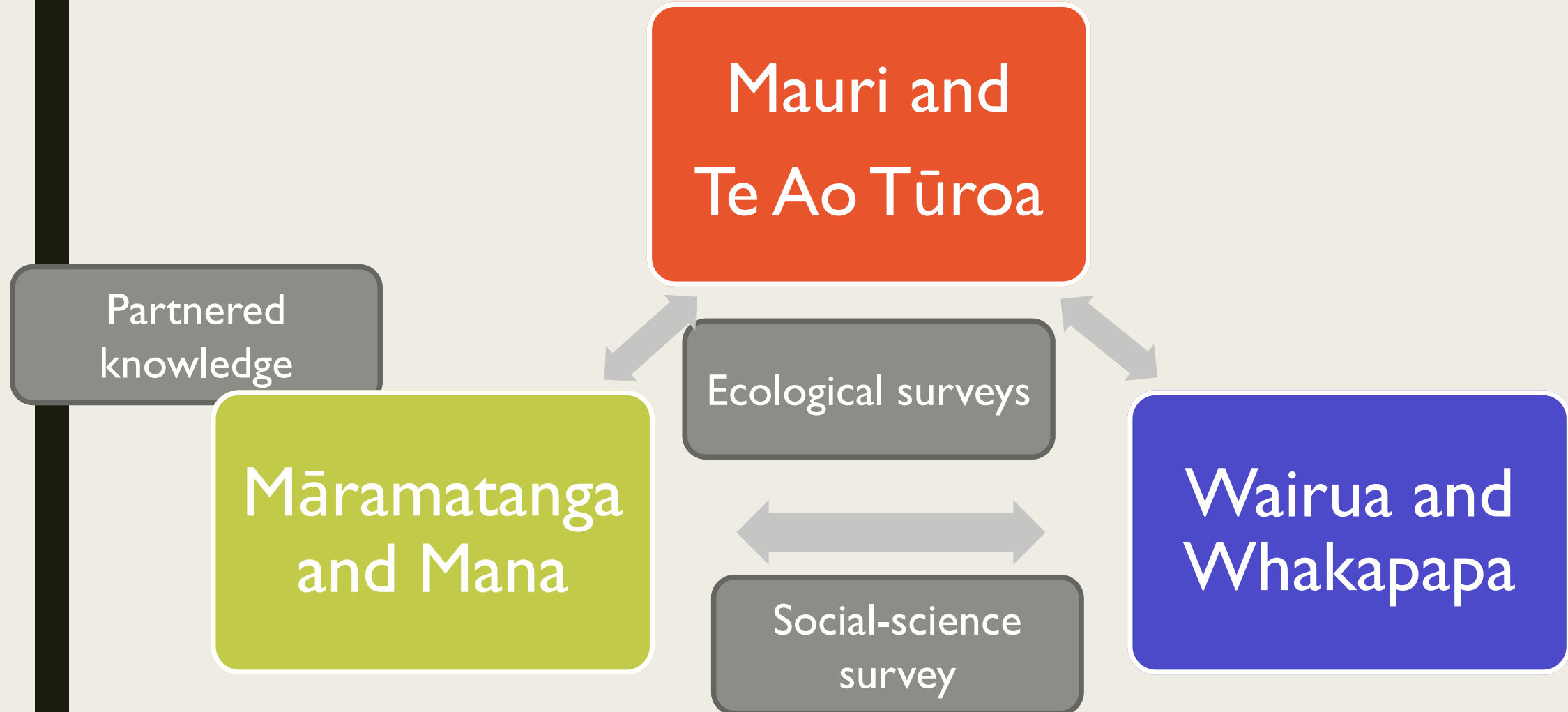
### *Attributes*

- All people are connected to the environment
- All generations enjoy harvesting and consuming mahinga kai

### *Methods*

- Iwi Survey

# Next steps: Modelling catchments





# Key learnings

- A mātauranga Māori (Māori knowledge) approach is helpful to identify the range of integrated values that comprise socio-ecological systems which all require consideration, analysis and management.
- Framing Māori values and interests as merely 'cultural' is inaccurate, instead a transdisciplinary approach is required
- It isn't just Māori who have a need to have a wider range of values considered, analysed and managed
- Current NPS ecosystem health attributes are often not systemically critical
- Social and economic attributes and methods for monitoring not well-defined
- System dynamics is a well established western scientific discipline which has a lot of crossover with mātauranga Māori methods of system analysis

# Key learnings

- The use of frameworks such as Hua Parakore can only be applied by Māori for Māori
- The protection of data sovereignty is crucial for the success of the framework
- Resourcing the heuristic development of the framework required a leap of faith from Councils, consent holders and Māori organisations.
- Implementation of the framework has meant that iwi monitors who previously were passively involved in monitoring are now recognised for their expertise.
- White supremacist views still exist about Māori knowledge, scientists and experts.
- There seems to be a gap between the planning world, and those Māori who have necessary technical expertise and solutions to planning problems.





# Whakarongotai a te moana Whakarongotai a te wā

An iwi-developed fresh approach to monitoring  
mana whenua values

*Mahina-a-rangi Baker*  
*Te Kōnae Ltd.*  
*[mahinaarangi.baker@gmail.com](mailto:mahinaarangi.baker@gmail.com)*

