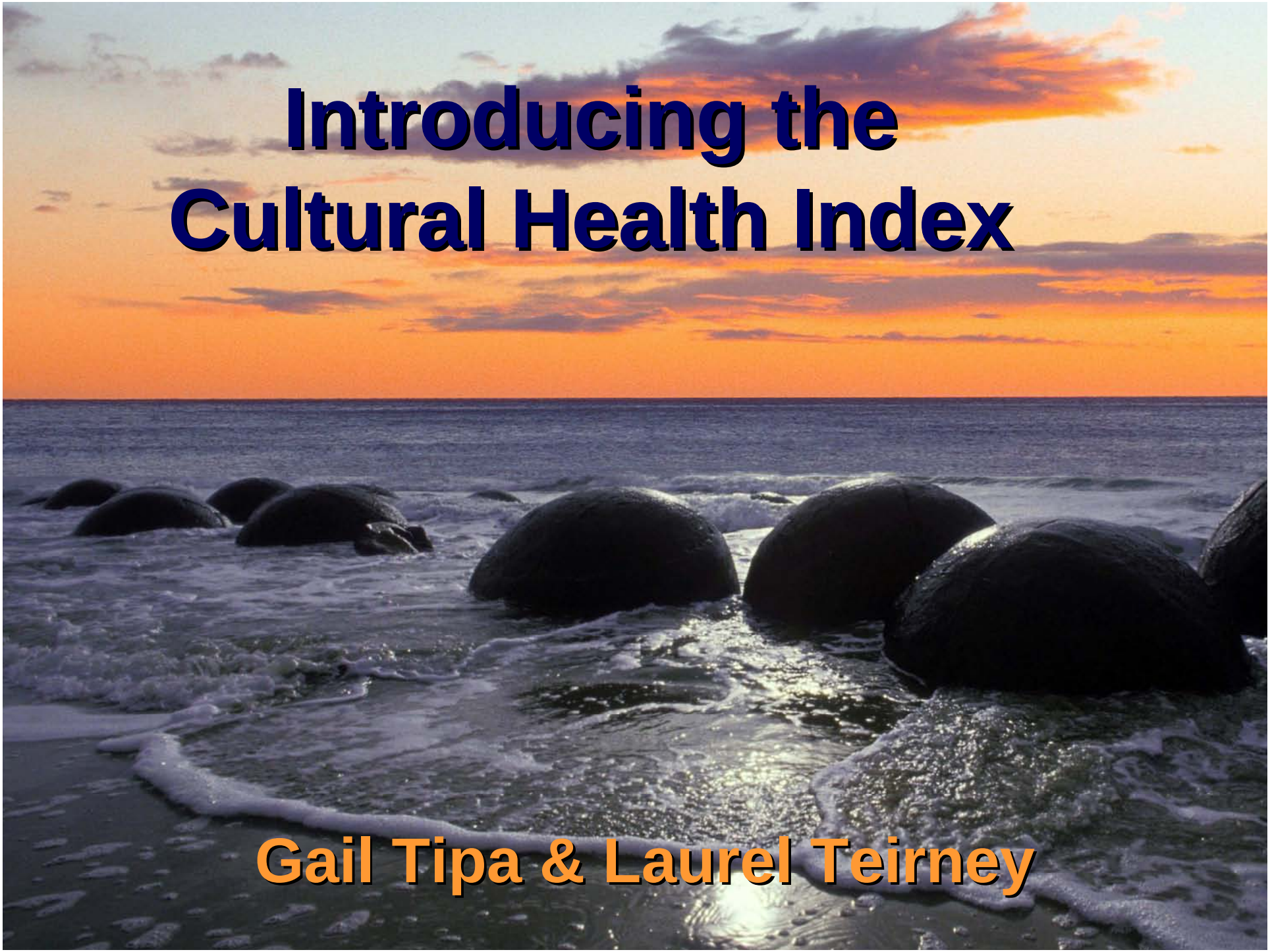

Introducing the
Cultural Health Index
Gail Tipa & Laurel Teirney

Overview of presentation

- Background
- Developing a Cultural Health Index
- Implications for coastal management

Participation in management

- facilitated & structured yet inclusive
- Maori participate as themselves
- values knowledge and uses qualitative & subjective assessments
- is safe with results defendable

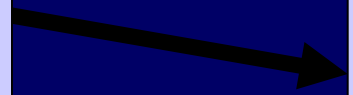
Objective

Design a cultural health index (CHI) to assess stream health from a Maori perspective by combining cultural knowledge and western science

Selection of indicators

ORIGINAL 30 INDICATORS

- Unpleasant odour
- Birdsong
- Visible flow
- Riparian vegetation
- Sediment on bed
- Foams and oils
- Stock presence
- Fish diversity
- Fish health
- Headwater activities
- etc.
- etc.
- etc.



REDUCED TO 19 TO DEVELOP THE CHI

- River shape
- Water clarity
- Bank condition
- Flow visible
- Flow audible
- Water quality
- Riparian vegetation
- Takes and discharges
- Channel works
- Riparian margin
- Land use
- Smell
- Bed condition
- Sediment on bed
- Land-water continuity
- Mahika kai - birds
- Would you fish here
- Fish safe to eat
- Water safe to drink

Study design

- **River selection - Taieri & Kakaunui**
  - Significance to runaka
  - Traditional knowledge
  - Stream health information
- **Site selection**
  - Different stream sizes
  - Traditional sites
  - Mix of land uses
  - Taieri River 30 sites, Kakaunui 16 sites

Gathering data

- At least 5 members in team

At each site

- **Rate overall health**
- **Rate each of the 19 indicators**
- **Rate access to site**
- **Rate would you return?**

46 sites assessed

- **List mahinga kai birds & plants**
- **Sample mahinga kai fish**

Other data collected

- Data using other stream health measures
  - MCI
  - SHMAK

Cultural Health Index

COMPONENTS OF CHI	VALUES
1. Status of site	e.g. pa, kaika, nohoanga
2. Valued uses & species	Cultural use / Mahinga kai
3. Overall health	Mauri

1. Site significance component

Iwi answer two questions:

- Is the site traditional (A) or not (B)
- Would you return and use the site in future (1) or not (0)

Four combinations

A-1 A-0 B-1 B-0

2. Cultural Use / Mahinga Kai component

Four factors rated 1-5 and averaged

1. Number of mahinga kai species
2. Proportion of historical mahinga kai species still present
3. Site accessibility
4. Desirability of returning to use the site

3. Overall Health Component

Objective 1: achieve **minimum** number of factors for effective measure

Objective 2: select factors that are highly correlated with **overall health**

19 Factors

- River shape
- Water clarity
- Bank condition
- Flow visible
- Flow audible
- Water quality
- Riparian vegetation
- Takes and discharges
- Channel works
- Riparian margin
- Land use
- Smell
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The five indicators

1. Catchment land use
2. Use of riparian margin
3. River channel modification
4. Flow
5. Water quality

McRae's Creek

- Modification of catchment 5.0
- Modification of riparian margin 5.0
- Modification of river channel 4.25
- Flow visible 5.0
- Evidence of pollution 5.0

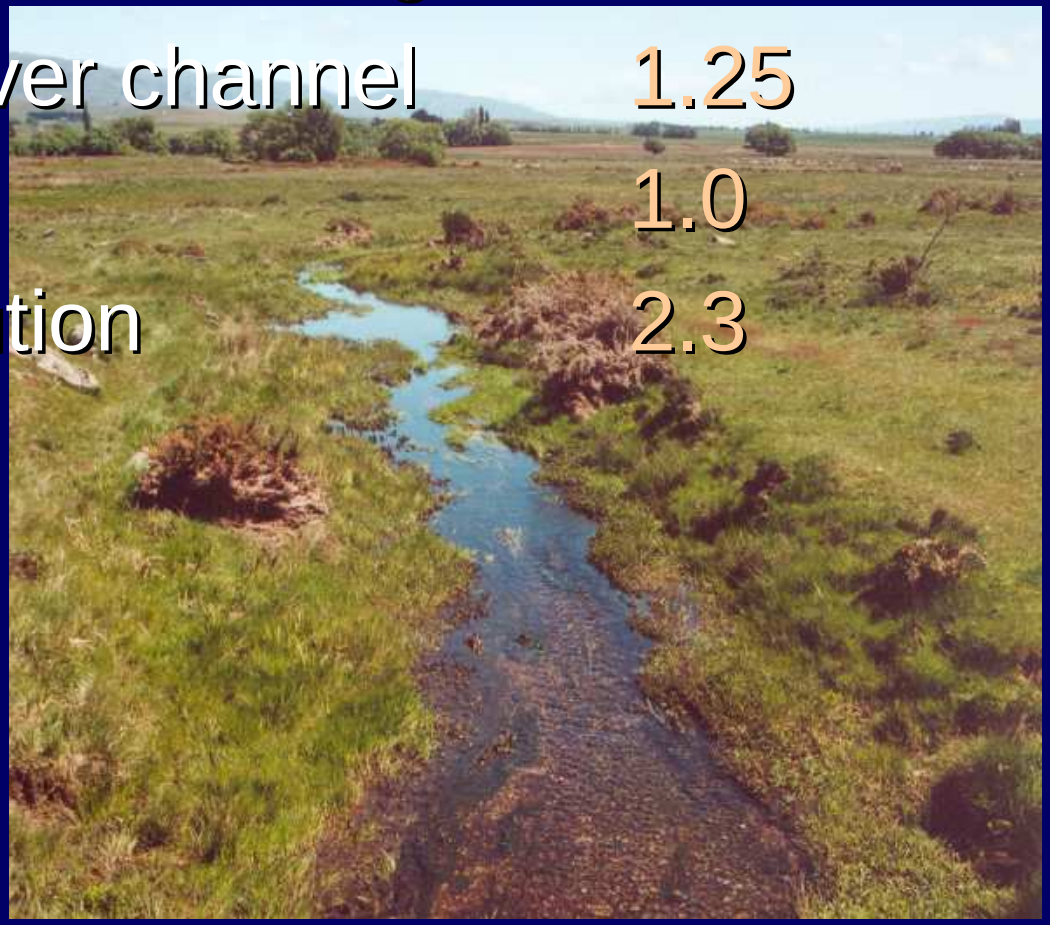
AVERAGE

4.87

Hog Burn

- Modification of catchment 1.0
- Modification of riparian margin 1.0
- Modification of river channel 1.25
- Flow visible 1.0
- Evidence of pollution 2.3

AVERAGE 1.31



How does component 3 (the cultural stream health measure) rate?

- A credible measure of stream health (correlated with MCI)
- Also correlated with extent of land development in the catchment
- Valid for tributaries of different sizes (small streams to large rivers)

Bringing all three components together

McRae's Creek - B-1/2.9/4.87

Hogburn

A-0 / 1.38 / 1.31

Validating the Index for wider use

- **Different river type/same iwi**
  Ashburton River/Arowhenua runanga 31 stream sites assessed
- **Different iwi/similar river type**
  Kahungunu/Tukituki River 30 stream sites assessed

Total of 107 stream sites assessed

What did we find?

Three Cultural Health Index components

1. **Cultural status component confirmed**

2. **Mahinga kai component widened to "cultural uses" - not solely mahinga kai.**

3. **Cultural stream health component expanded**

Three new indicators added to Cultural stream health component

1. Catchment land use
2. Riparian (river margin) vegetation
3. Use of the riparian margin
4. Riverbed condition/sediment
5. River channel modification
6. Flow and habitat variety
7. Water clarity
8. Water quality

Implications for the coastal environment

- We already use the CHI to assess sites
  - in tidal reaches of rivers
  - at river mouths
- Only some indicators are specific to rivers and streams
- The research design can be replicated for other areas – harbours, coasts, lands

Getting started

- Who is this to empower?
- How are you going to use your data?
- Risk management?
- Who can help you? What partners
- Management of data collected

Putting the CHI into practice - implementing the index

- Guidelines available on how to use
- Training sessions on how to apply
- Tangata whenua creating teams.
- Using results to diagnose issues
- Developing indices for other areas

+ MANAGING THE POLITICS