**BANKS PENINSULA WATER MANAGEMENT ZONE COMMITTEE**
**24 JULY 2012**

**A meeting of the Banks Peninsula Water Management Zone Committee was held in Wairewa Marae on Tuesday 24 July 2012 at 4.07pm**

**PRESENT:** Richard Simpson, Community Representative (Chairperson)
Donald Couch, Commissioner Environment Canterbury
Yvette Couch-Lewis, Community Representative
Iaean Cranwell, Te Rūnanga o Wairewa
Steve Lowndes, Community Representative
Councillor Claudia Reid, Christchurch City Council
Pam Richardson, Community Representative
Pere Tainui, Te Rūnanga o Ōnuku
Kevin Simcock, Community Representative
June Swindells, Te Hapu O Ngati Wheke
Wade Wereta-Osborn, Te Rūnanga o Koukourarata

**APOLOGIES:** Apologies for absence were received and accepted from Claudia Reid and Wade Wereta-Osborn.

Iaean Cranwell welcomed the Committee to the marae with a mihi whakatau and a karakia.

## 1. CONFIRMATION OF MINUTES – 19 JULY 2012

It was **decided** that the minutes of 19 June be approved as a true and accurate record.

## 2. DEPUTATIONS BY APPOINTMENT

Nil.

## 3. IDENTIFICATION OF URGENT ITEMS

Nil.

## 4. REGIONAL COMMITTEE UPDATE

The Committee will receive an update on the Regional Committee at the next meeting.

## 5. IDENTIFICATION OF ISSUES FROM DRINKING WATER AND BIODIVERSITY CHAPTERS

The Committee discussed issues from the Drinking Water and Biodiversity draft chapters of the Zone Implementation Plan. The facilitator recorded the issues raised which will be followed up and resolved at the workshop in October.

## 6. MATTERS ARISING

### 6.1 WORKSHOP AND PUBLIC CONSULTATION DATES

The Committee **decided** to hold a workshop on 6 October at Okuti Hall and hold three public meetings on 30 and 31 October and 1 November.

6.2 **COMMITTEE WORKSHOPS**

The Committee **decided** to receive the work in progress on the drinking water chapter of the draft Zone Implementation Programme developed through committee workshops. The Committee acknowledges that all chapters are still in development.

## 7. PRONUNCIATION PRACTICE

The Committee practiced pronunciation of Te Reo assisted by Iaean Cranwell.

## 10. ENVIRONMENT CANTERBURY UPDATE

This item was taken at this stage of the meeting.

The Committee received an outline from Tami Woods and Anna Veltman of the statutory obligations of Environment Canterbury with regard to the Wairewa sub-regional chapter process (refer **attached**).

## 11. IDENTIFICATION OF GENERAL PUBLIC CONTRIBUTIONS

This item was taken at this stage of the meeting.

The Committee received a public contribution from Ken Sitarz regarding water supplies at Birdlings Flat and Little River.

The meeting adjourned at 6.25pm and resumed at 7.10pm.

## 8. RŪNANGA VISION FOR WAIREWA

The Committee received an outline from Robin Wybrow and Wayne Alexander of the link between the Selwyn Waihora Zone Committee and Banks Peninsula regarding Wairewa and Waihora lakes (refer **attached**).

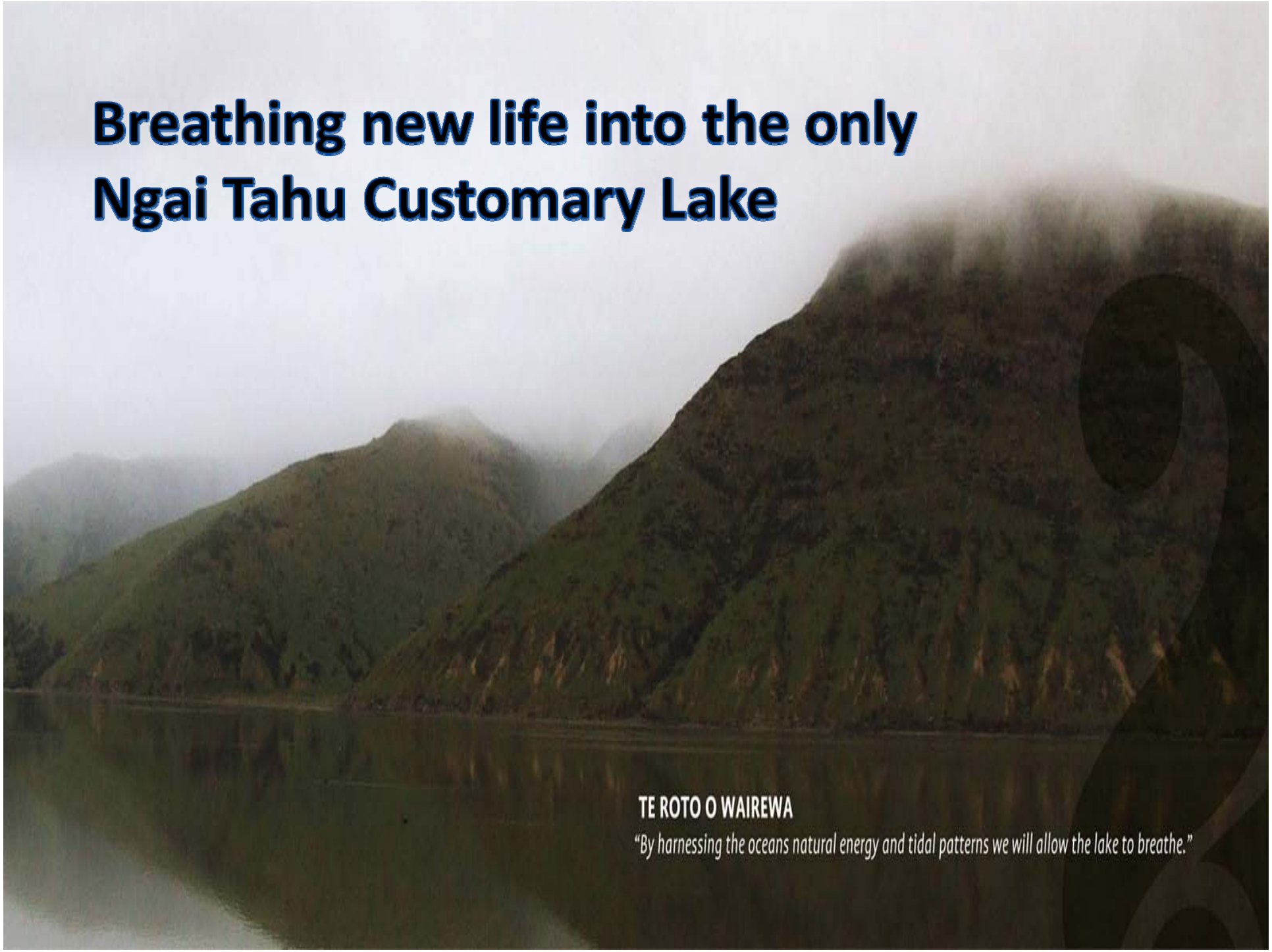
## 9. CHIRISTCHURCH CITY COUNCIL MANAGEMENT RESPONSIBILITIES OF WAIREWA

The Committee received a presentation from Graham Harrington outlining the current responsibilities of Christchurch City Council which were inherited from Banks Peninsula District Council to manage the flooding and drainage issues related to Wairewa/Lake Forsyth. The Committee also received an outline of the nature and purpose of current relationships with the Wairewa Rūnanga and other organisations having an interest in Wairewa/Lake Forsyth (refer **attached**).

The meeting concluded at 8.27pm.

**CONFIRMED THIS 21ST DAY OF AUGUST 2012**

**RICHARD SIMPSON**
**CHAIRPERSON**


Breathing new life into the only
Ngai Tahu Customary Lake
TE ROTO O WAIREWA
"By harnessing the oceans natural energy and tidal patterns we will allow the lake to breathe."

# Mako claimed Wairewa

Mako claims Wairewa at a hui of rakatira at Kahutara, held to hear first hand accounts of Tamakino and Kaiapu (survivors) who as you know escaped overland & took note of various kai

**“Inland a pillow for my head on the shores a rest for my feet”**

Direct Reference to Mahinga kai

# Mahinga kai

**Wairewa has always been about mahinga kai it was the currency of the people it is how we derived our mana and why our ancestors Mako and Te Ropuake settled in our takiwa**

# However

- Forests removed 1860's (despite Mautai's actions)
- Lake closed prematurely 1880's
- Tipuna complaining about Tutae o Te Taniwha (Nodularia Spumigena algae) after lake closed
- Fisheries began to die confirmed 2005

- On top of this …….


125 years of this


lead to this


and this

# Recent Back Story

- 2000 BPDC wanted to renew their consents to mechanically open lake
- We understood we needed solutions including more control over lake levels, water temperature, turbidity, salt water incursions And Fish recruitment (didn't have a clue how)
- BPDC agreed to put consent on hold until we explored options including permanent opening (no clue how to).
- Hooked up with Wayne Alexander and Charles Mitchell who had an idea how we could achieve this
- Applied for and got our own set of experimental consents

# And began

# Implementing a bio-engineering solution


Using this as an anchor


And utilizing existing basalt rocks


They just keep appearing courtesy of the tipuna

# and the new ko of Rakaihautu

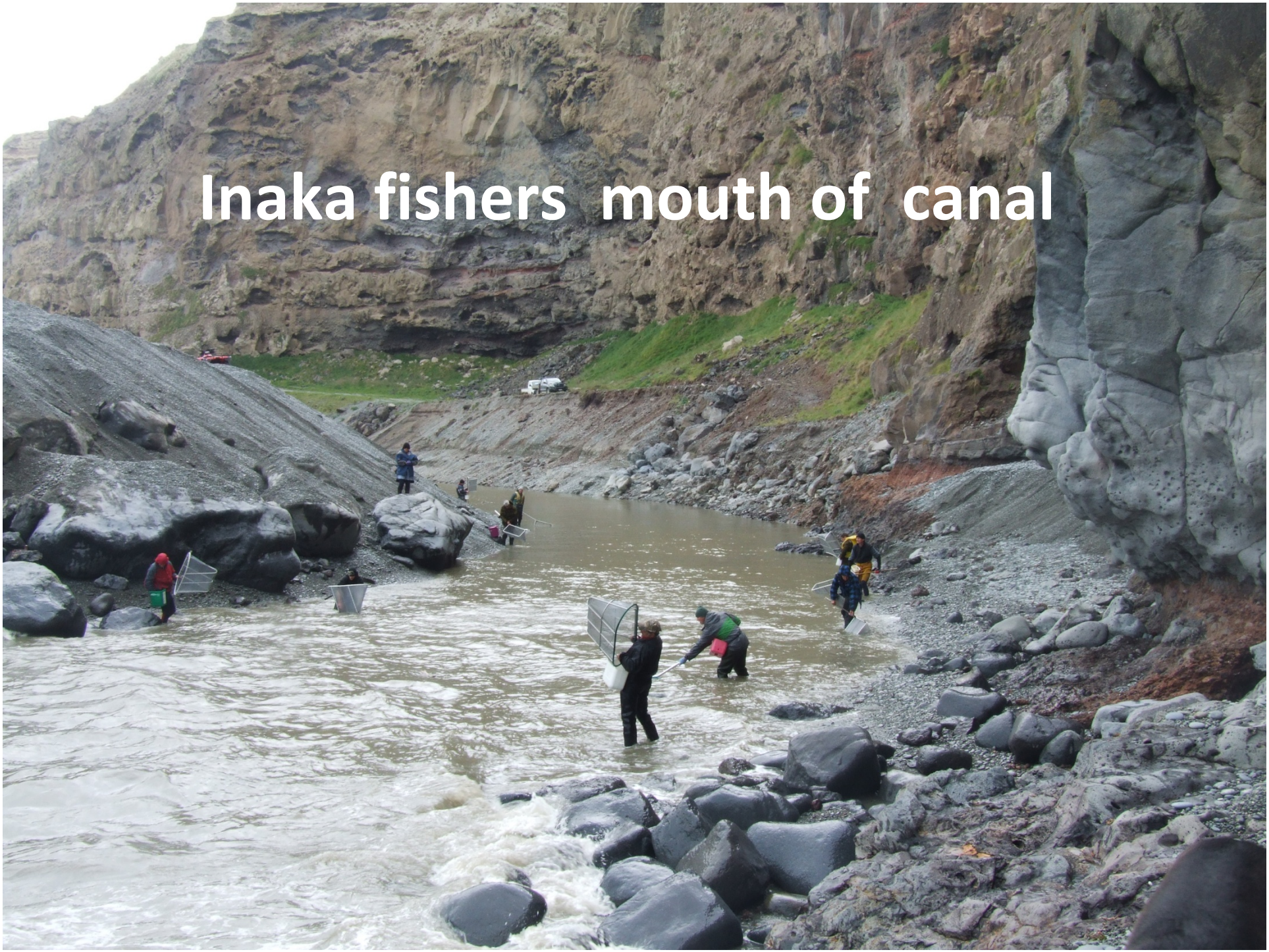

We built a proof of concept rock groyne

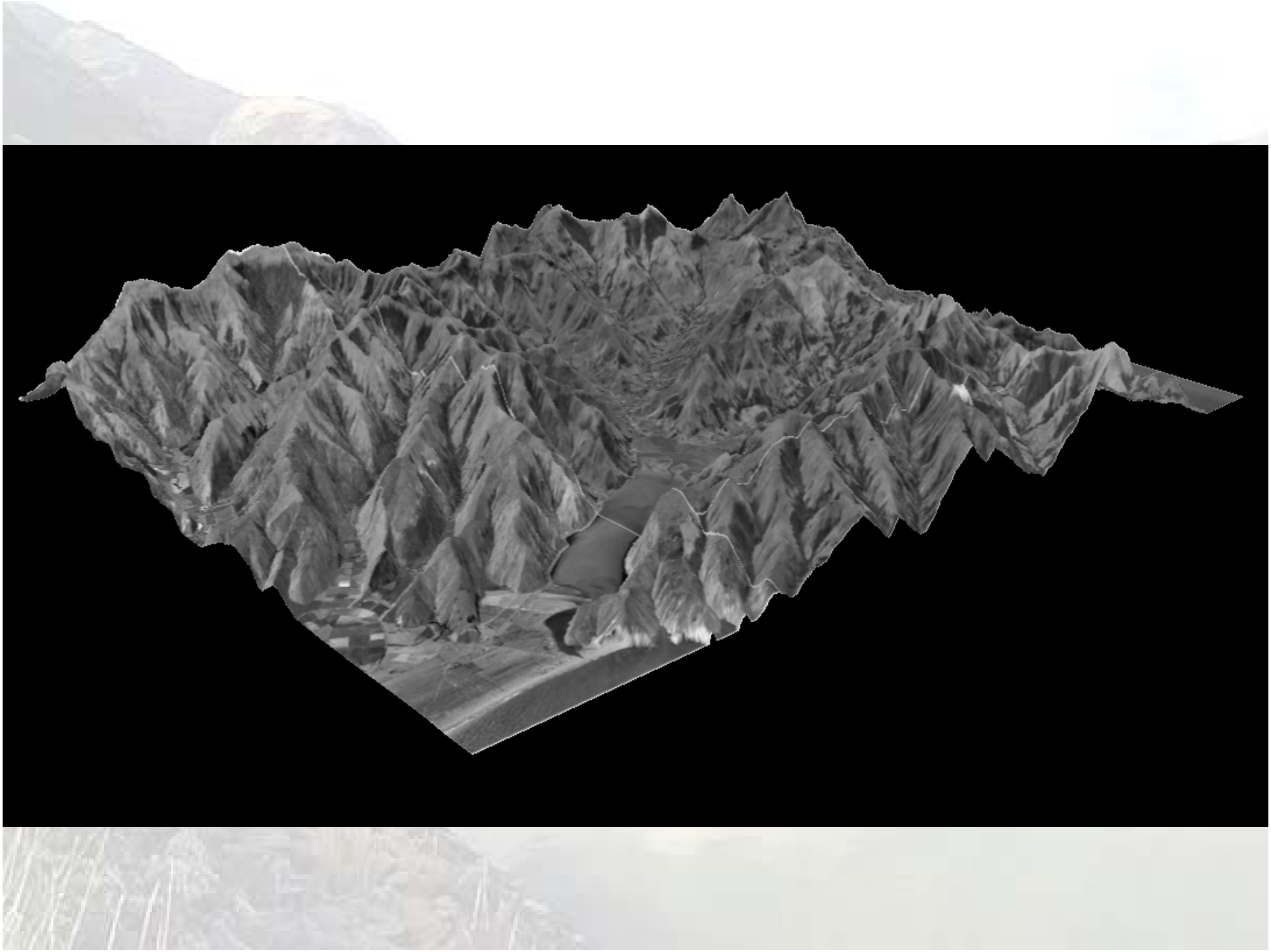

And a 600 metre canal
connected to the lake

**It was a big job but we ended up with**

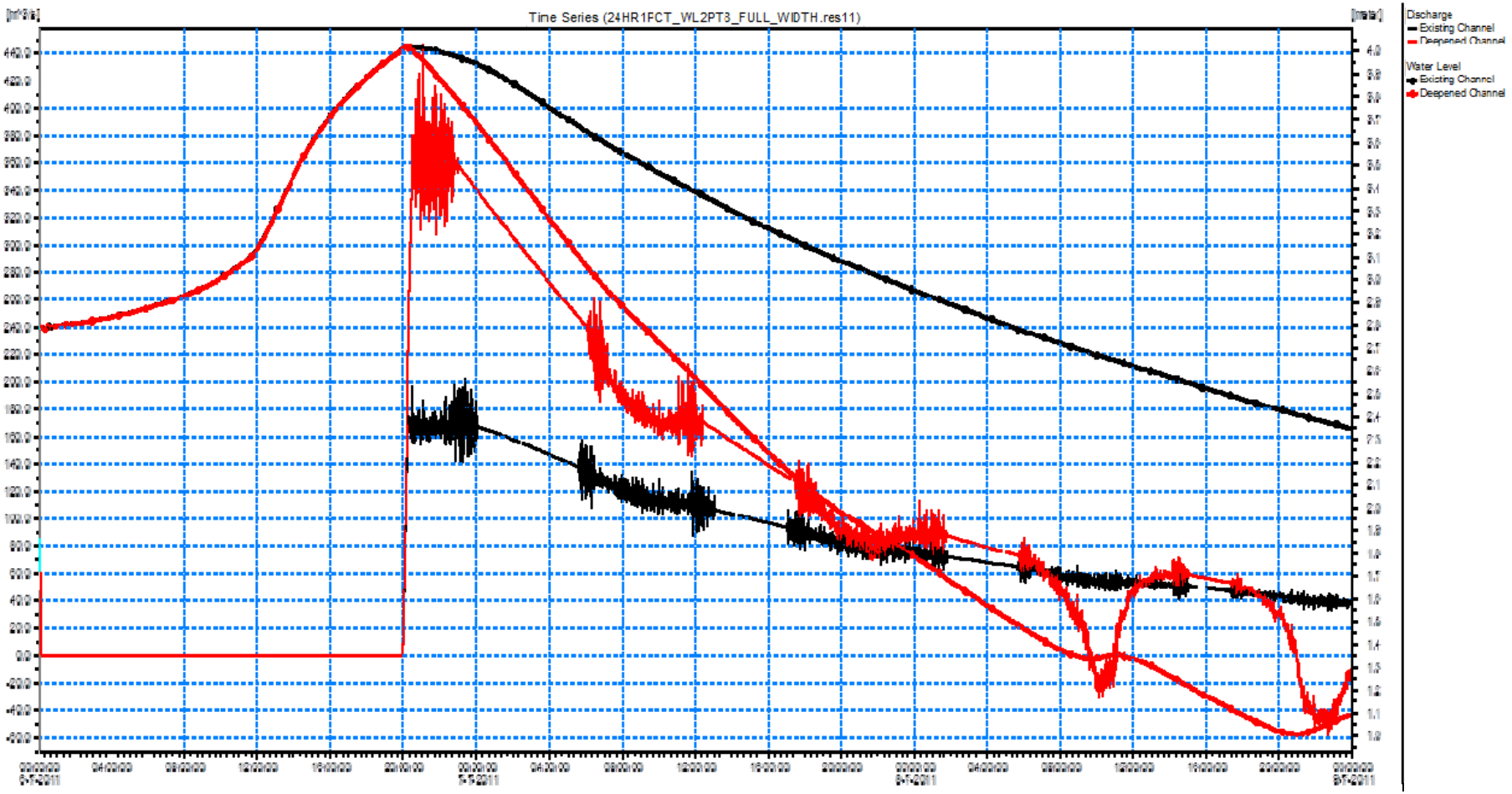
# NZ's longest manmade fish passage


First ever lake level control mechanism


Inaka fishers mouth of canal



# Wairewa Canal in 100 year event



# Why did we Intervene?

- To give affect to kaitiakitanga and rangatiratanga (rather than lip service)
- CONTROL YOUR OWN DESTINY OR SOMEONE ELSE WILL…… Nobody else was doing anything except draining our lake
- Wanted to save Te Roto o Wairewa and the fisheries in the only Ngai Tahu customary lake
- Didn't want to leave the problem to the next generation
- Had done our share of replanting
- ***Can't have Ki uta Ki tai without a connection to Takaroa*** So we needed a solution in scale with the problem
- Because Ngai Tahu have a history of action and innovation

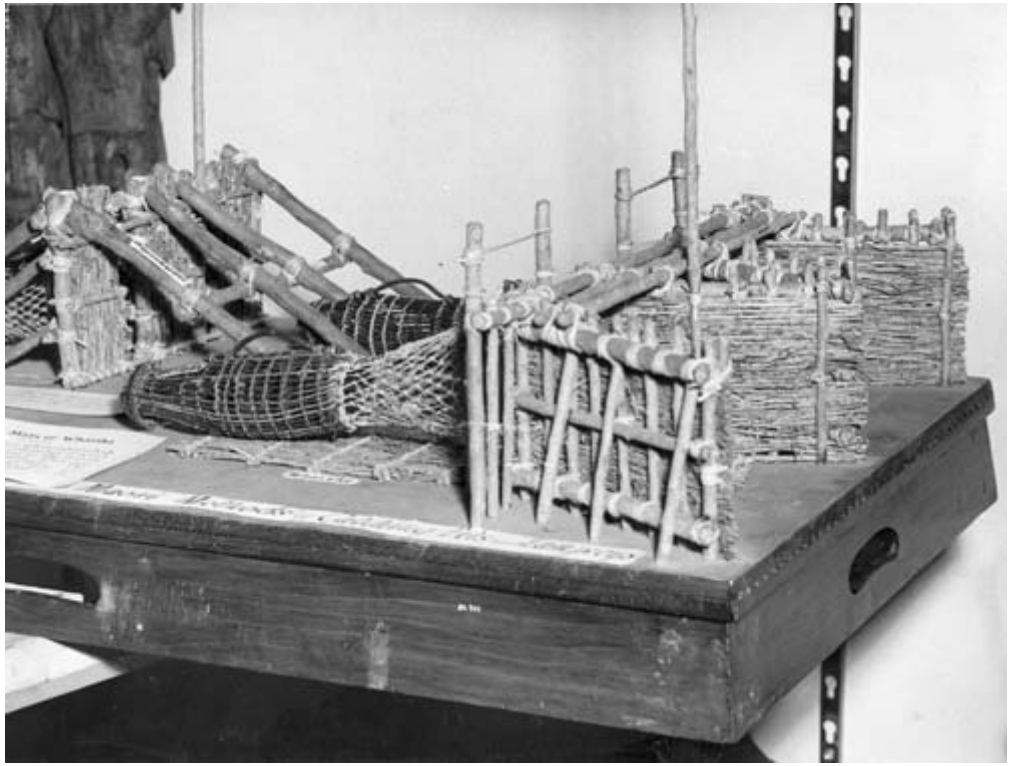
# For Ngai Tahu

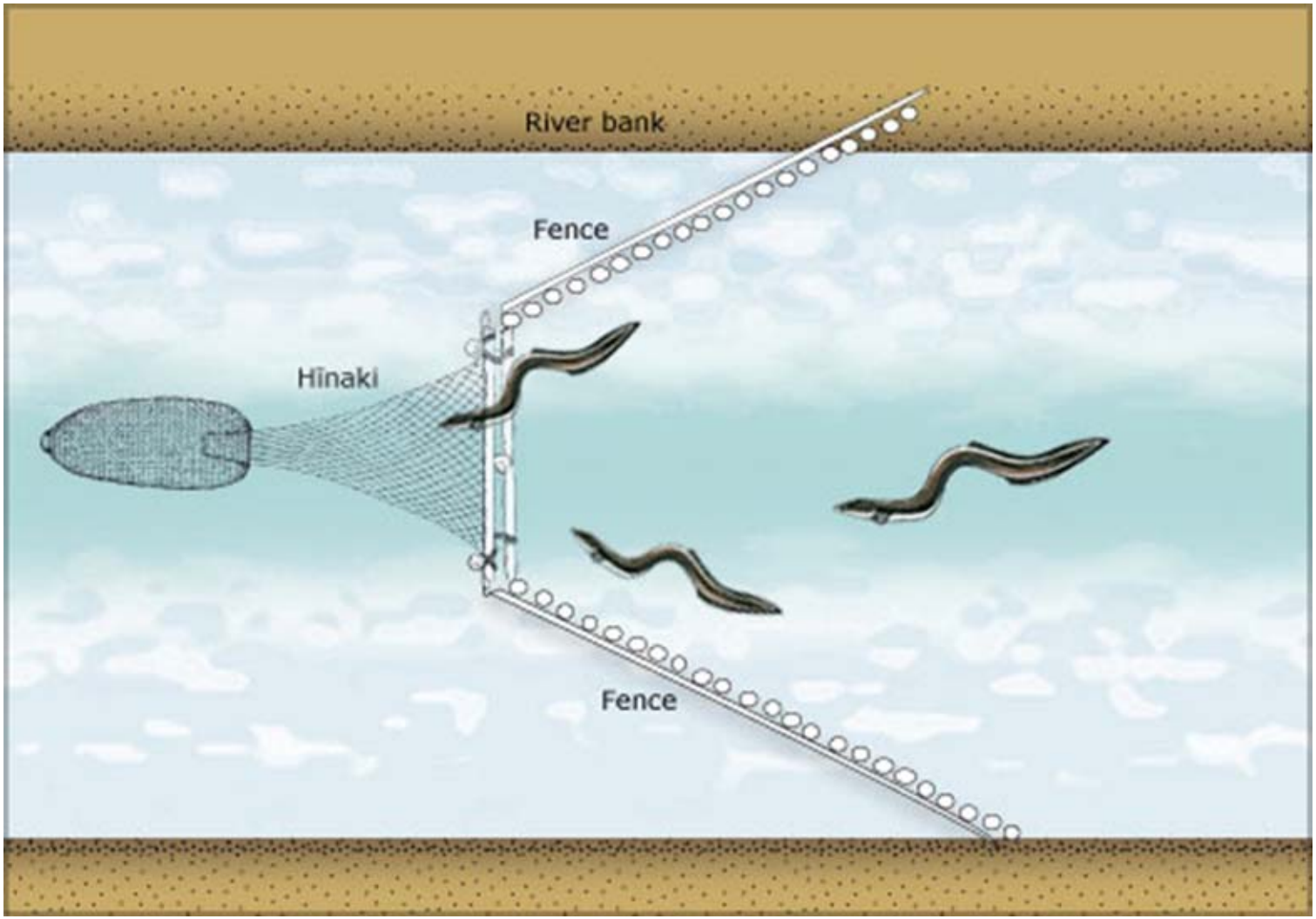
Creating something better for those who follow is nothing new

- Tü-te-raki-whänoa caving valleys and creating Banks peninsula
- Kahukura and his cloak of vegetation
- Marukura stocking the waterways
- Rakaihautu and his magic ko

# Diverting waterways to catch fish

OR Building structures in river, streams and lakes like pa heke tuna, pa heke kanakana




River bank
Fence
Hīnaki
Fence

# Mahinga kai

- Working the food was a full time job
- Innovation and adaptability was the key to a full stomach

# Wairewa drains modern response to environmental conditions

# Taking action

Maru Kai Tatea said

***"Äkuenei, i te ata ko taua takata anö, ä, i te awatea pea ko taua takata anö"***

- (Often quoted as, "A bird tastes just as good today as it will tomorrow.")

- Basically ***Don't put off to tomorrow what you can do today. Or: Strike while the iron is hot***

# What's next for us

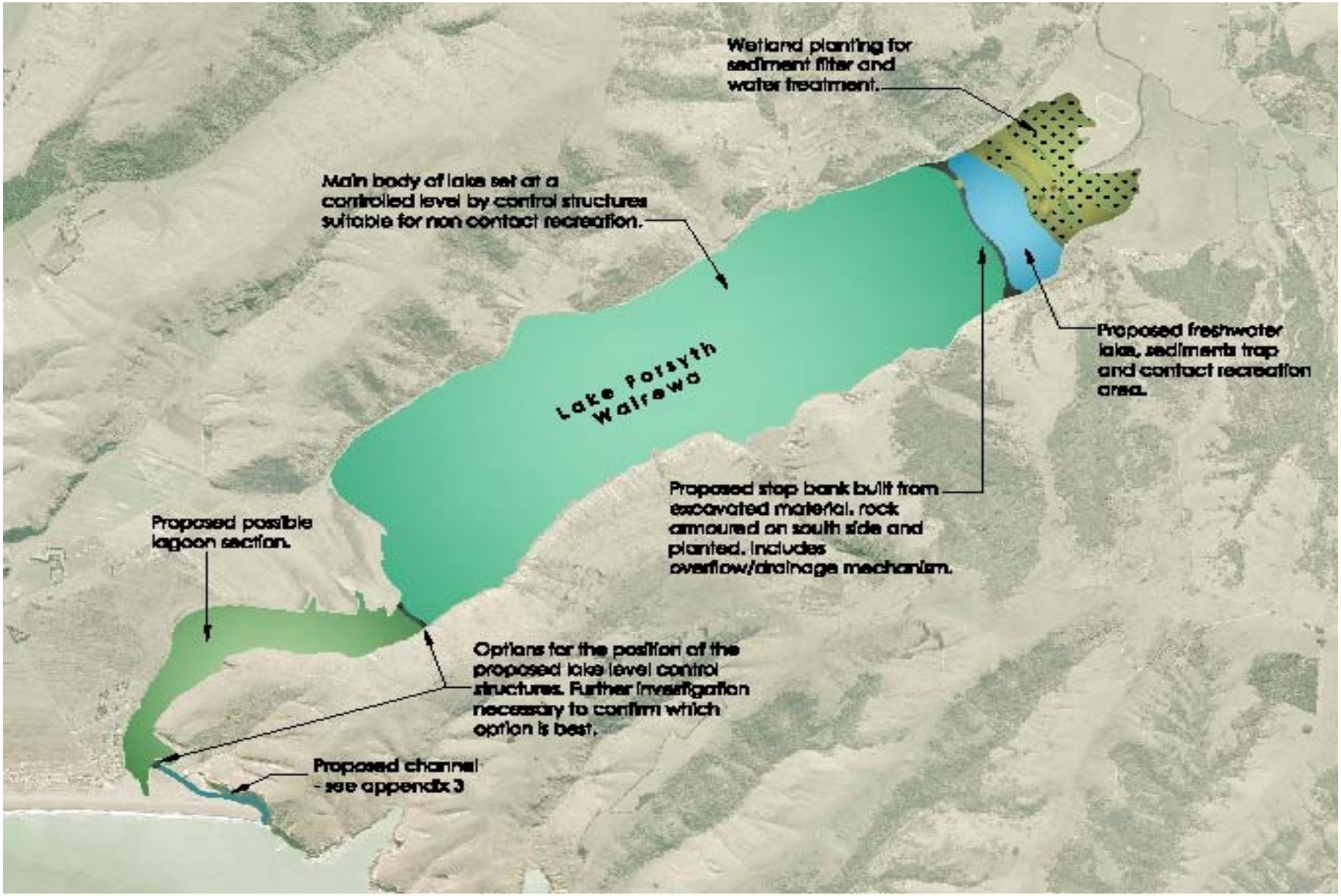
- Up until now we have only been playing with half a deck of cards
- Maintaining momentum
- Managing fear = resistance to change
- Consents joint CCC or otherwise

# Vision

- People get scared of vision and solutions outside their current thinking

- We are solution driven and focused on the lakes

# OVERVIEW OF THE FOOD BASKET



# potentially three levels

OCEAN

ESTAUARY

NON CONTACT RECREATION

CONTACT RECREATION

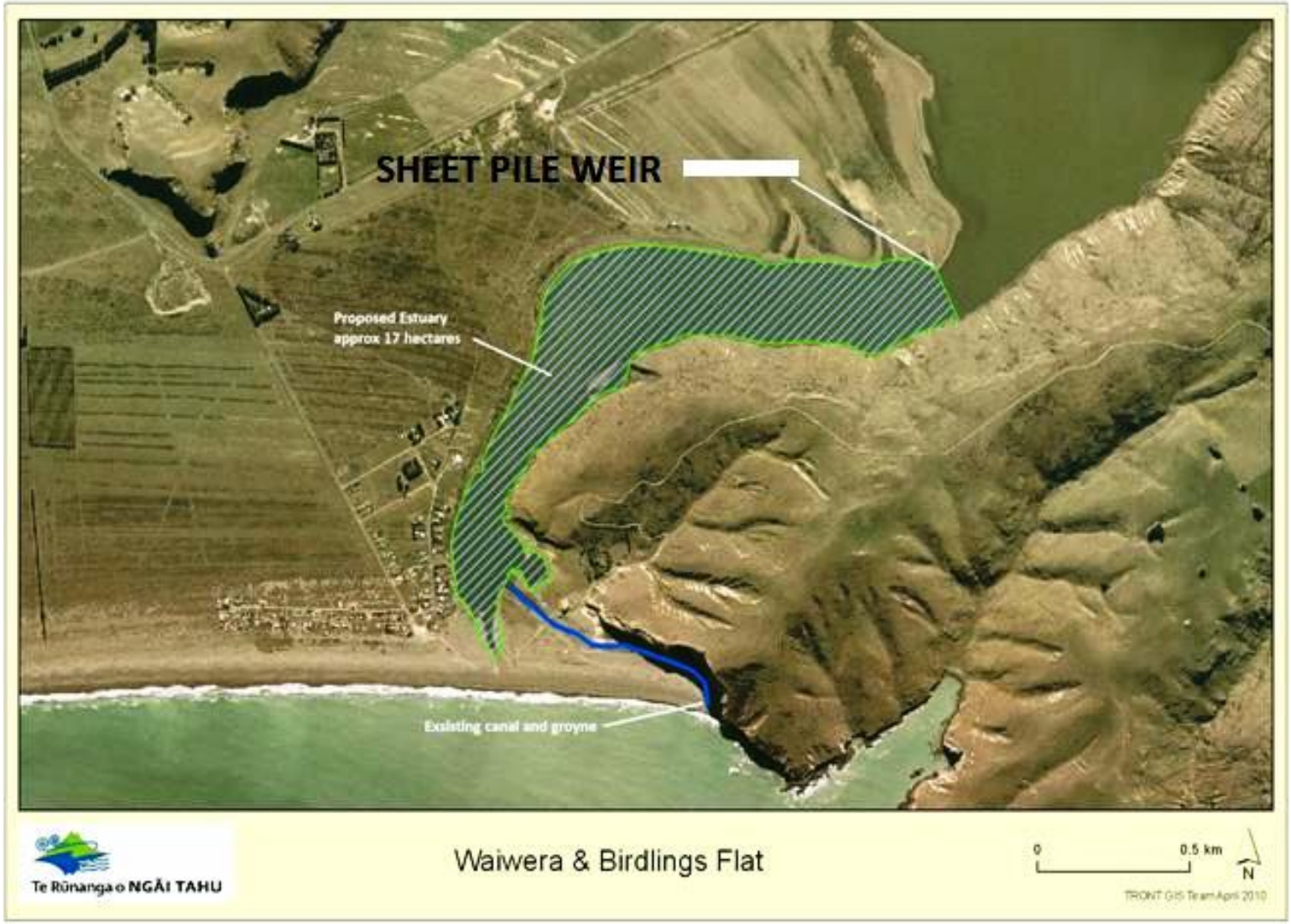
# ultimately a lake in three levels

1. top – contact recreation

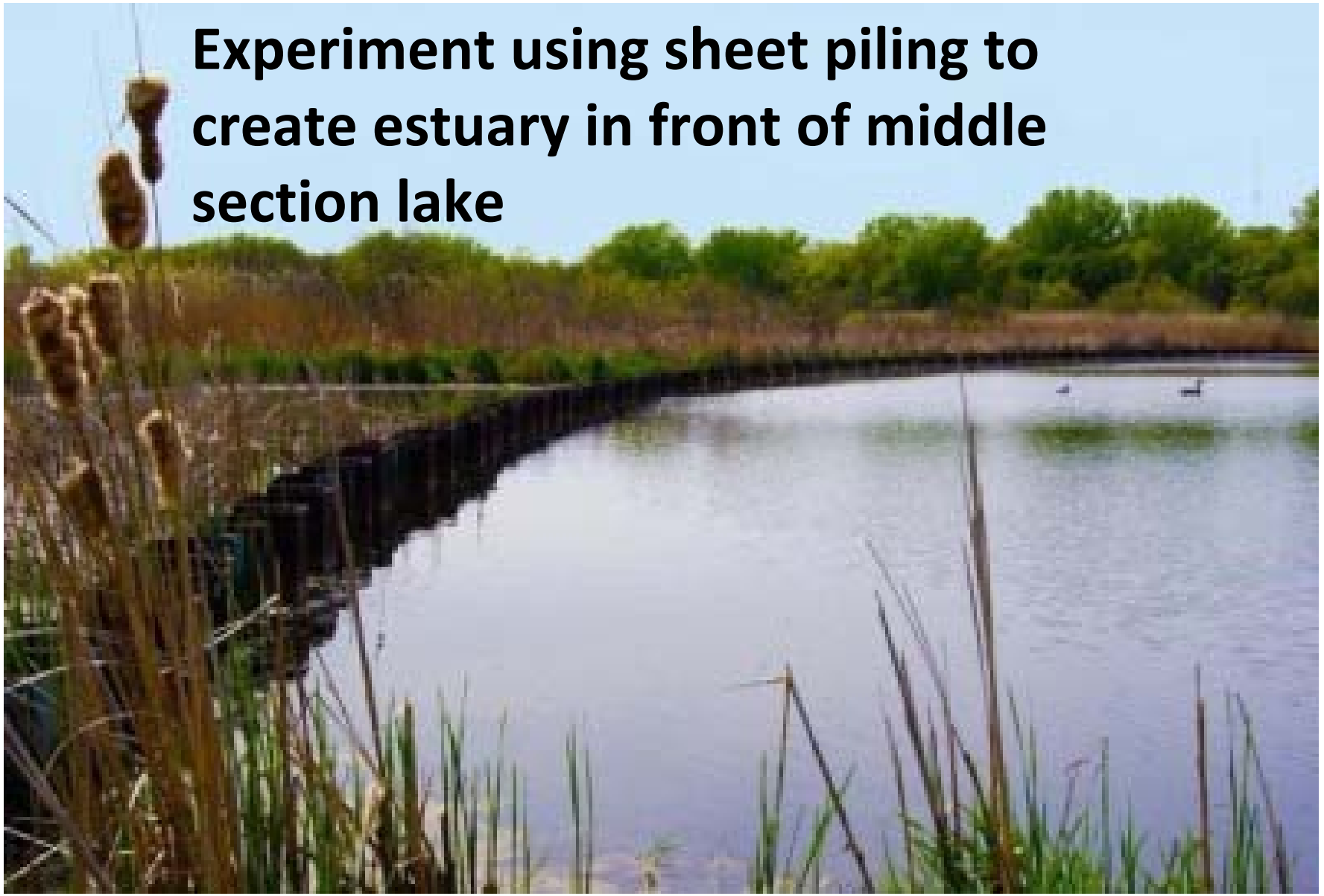
2. middle – mainly non contact recreation
   - algae management
   - growing good algae
   - controlled release of food into the ocean
   - creating thriving fishery

3. bottom – tidal estuary, recreation and associated fishing

# 17 Hectare Lagoon

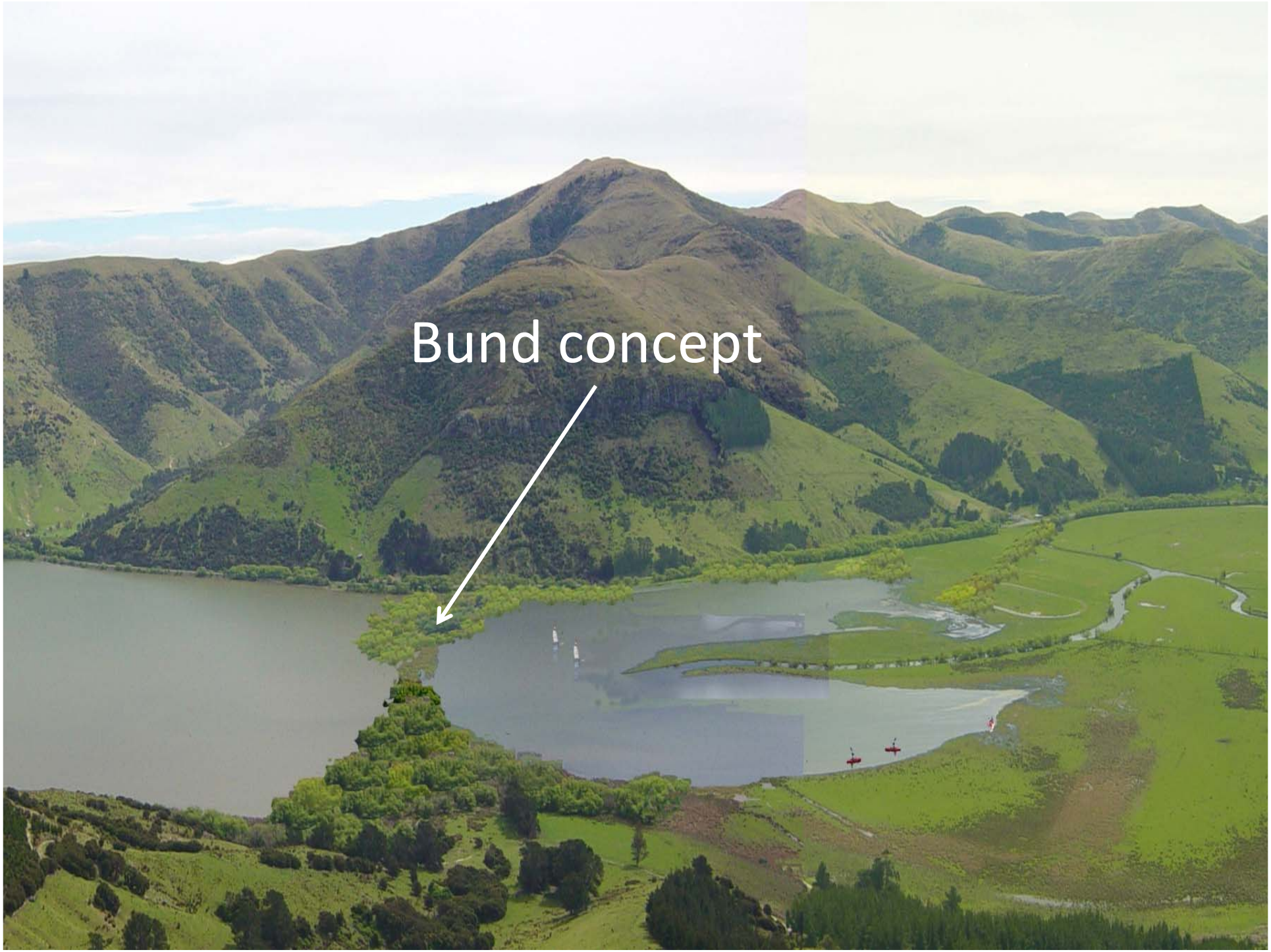


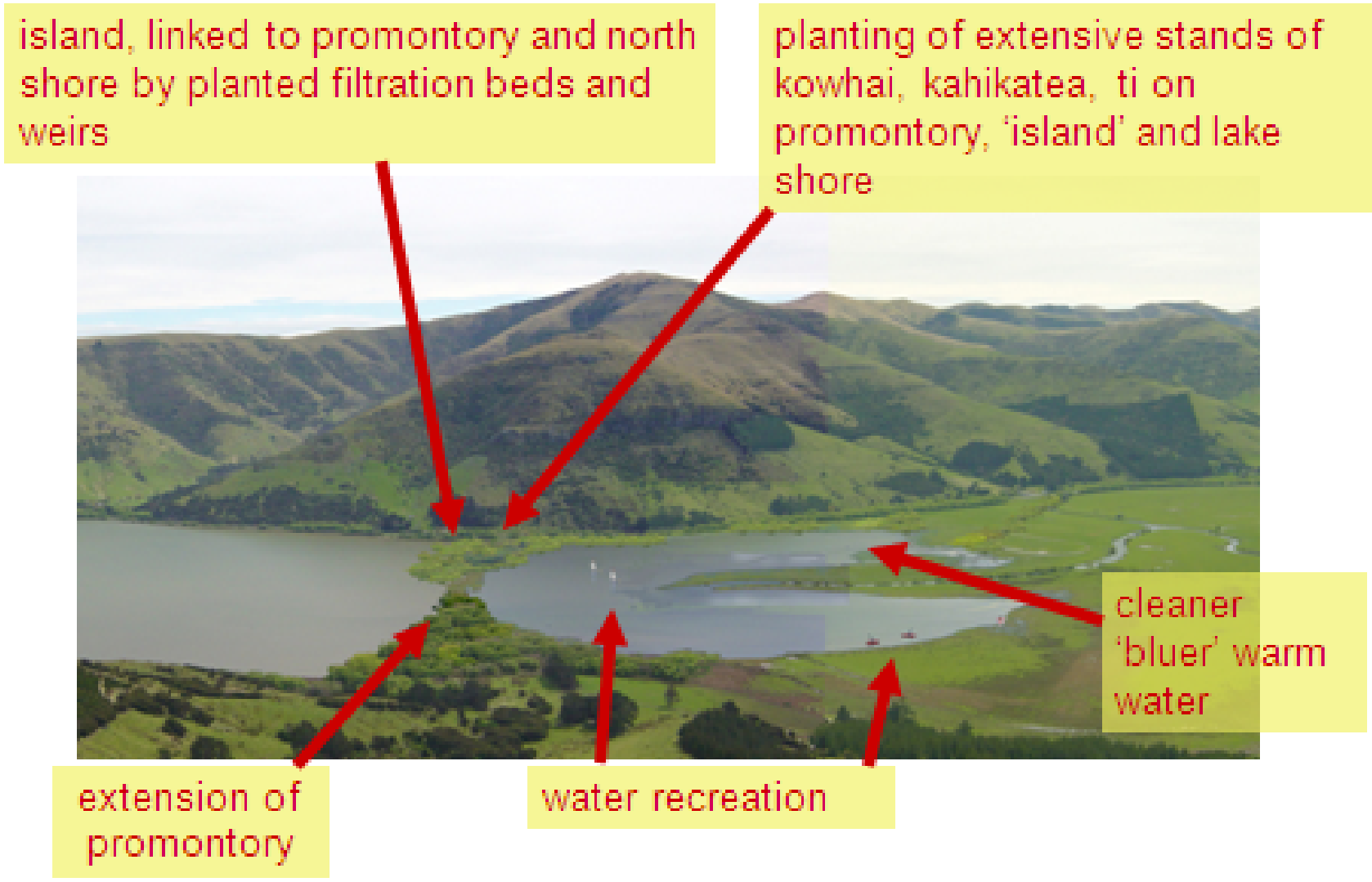
# Next Step- South End of Wairewa experimental Poranui Weir


Experiment using sheet piling to create estuary in front of middle section lake

# If that works create NZ'S first lock

Top end of lake prior of contact recreation bund


Bund concept


island, linked to promontory and north shore by planted filtration beds and weirs
planting of extensive stands of kowhai, kahikatea, ti on promontory, 'island' and lake shore
cleaner 'bluer' warm water
extension of promontory
water recreation

# The new infrastructure

- provides us with greater options for managing the destructive blooms and help us alter the chemical composition of the aquatic environment.

- this involves adding or subtracting salinity and controlling depth at critical times to alter amongst other things turbidity and temperature.

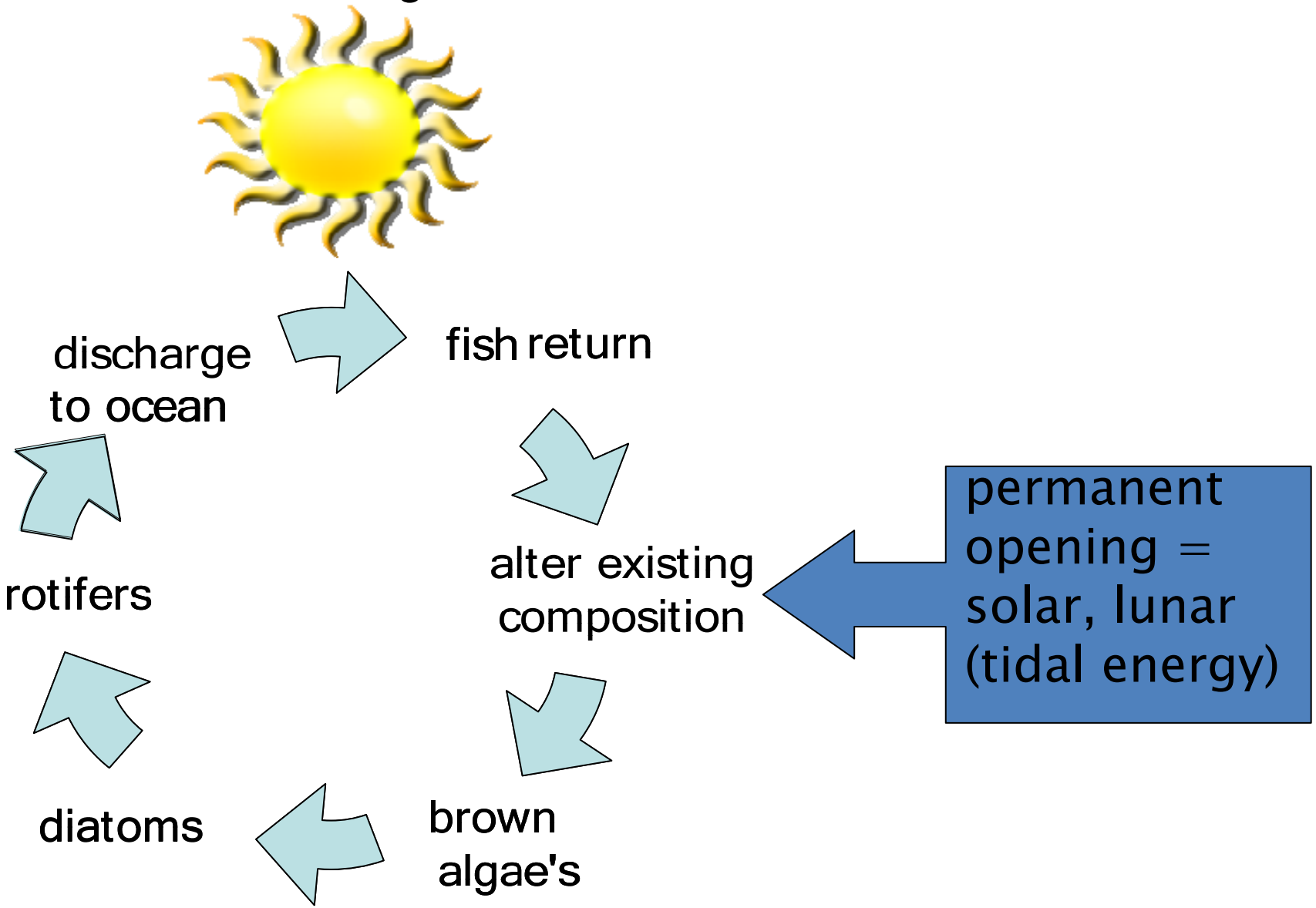
- By manipulating these and other factors we aim to cultivate other algae such as brown algae *(Phaeophycea) ,* Diatoms & Rotifers.

# Feeding the table of Takaroa

*“this is an important and key concept of the project it represents a contemporary expression of a key ngai tahu cultural value, manaakitanga.*

*by producing and releasing food to the ocean protected by our Mātaitai nature will return to us a hundred fold revitalizing the lake and its fisheries for generations to come”*

# reconnecting the food chain –the basics




WAIREWA
Waters Rising
HOME
OUR PROJECTS
TE AO HOU
ABOUT THE PROJECT
CONTACT
Make a difference
Help bring the Southern Right Whale back to Banks Peninsula
by supporting the rejuvenation of Wairewa Lake Forsyth
What's wrong
In 2011 the first Southern Right Whale seen in living memory was spotted off Banks Peninsula's southern bays. Yet in the 1800s our bays were like a giant nursery for Southern Right Whale cows and their suckling calves.
By 2025 we want to have recreated this wonderful marine environment. It's audacious. It's exciting.
And we want it to involve you in encouraging the return of the rarest of whales; the Southern Right. It's your chance to, quite literally, feed these magnificent mammals and ensure that Banks Peninsula becomes THE place for female Right Whales to raise their calves.
How can I help
It's easy. All you need to do is 'purchase' a cumec (cubic metre) of Wairewa Lake Forsyth. In that cubic metre is literally millions of phytoplankton. Phytoplankton is the food of the krill, which, in turn, is the food of the Right Whale.
YOUR OWN
CUMEC
Your Cumec will assist us in rejuvenating Wairewa by 'opening the gate' between the lake and the sea to unlock the bountiful phytoplankton to restore the natural ecosytem.
In doing so we will also create an environment for all the many forms of sea life to return in the numbers that once made the area the food basket of Canterbury.
Why did it happen
Since the 1880s Wairewa Lake Forsyth has stagnated as gravel blocked its natural connection with the sea.
As a result it has become a bit like a giant compost heap where the phytoplankton (algae) dies and clogs the lake, rather than being the catalyst for a wonderful food chain.
Your involvement in the rehabilitation of Wairewa Lake Forsyth is an opportunity to do something that may never have been done before anywhere in the world, and the return of the whales and their young calves will be the most visible sign of recovery.
Wairewa Opening 2010
Share
More info
Wairewa - Lake Forsyth
Wairewa
Its happening right now
We are using the natural power of tides and solar energy to breath new life into the lake and the surrounding ocean.
We have already created New Zealand's biggest manmade fish passage, a 600 metre canal terminating in a basalt rock groyne against the cliffs at Birdlings Flat.
This canal and groyne have become the only method by which the lake levels are now managed ending a 130 years of uncontrolled drainage.
We are now on our way to constructing a weir in the lakes lower reaches which will create a 17 hectare lagoon behind the former barrier beach
HOME
ABOUT THE PROJECT
RESEARCH LIBRARY
HISTORY
OTHER PROJECTS
CONTACT
© Wairewa Rūnanga, Takuahi Research & Development Ltd.
Join Mailing List:
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras
email address
SEND
You can help:
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras sodales ullamcorper arcu eget aliquet.
DONATE

# benefits so far

- Its cheaper  and  takes less time only effective method for 1 in 100 event
- we can control lake levels
- We can control salt water incursions
- Able to Open in dodgy conditions
- Eradicating cyno-toxic blooms
- Water quality improving –fresh water by Australian standards
- Lake evacuates more gently eco-system doesn’t go into hyper shock
- Fish passage and recruitment improved

# MAYBE THERE'S A BIGGER PICTURE FOR OUR LAKES AND THEIR FUTURE


WELCOME TO CANTERBURY LAKES DISTRICT
Approx. 200 billion litres of
degraded water on Canterbury's door step

# Ko tahitaka Strength in unity

# Te Waihora

# &

# Te Roto o Wairewa

# united we stand divided we fall

# Canterbury V5 Competition

From Whitebait to Whales

**Te Ao Hou won the competition**

**Projects capable of generating $100million of revenue for the Canterbury region within five years and $1billion or more within 20 years**

# Canterbury V5

Idea by Rod Carr and John Key

Judged by

Ruth Richardson

Sir Keith Turner

John Judge

# From the Whitebait to the Whales

Is a project concept that involves the potential to proactively

- ✓ stamp our cultural and economic authority over our valuable lakes
- ✓ manage the lake levels in Te Waihora and Te Roto o Wairewa
- ✓ increase fish passage and resuscitate the mahinga kai
- ✓ create opportunities for nga runanga

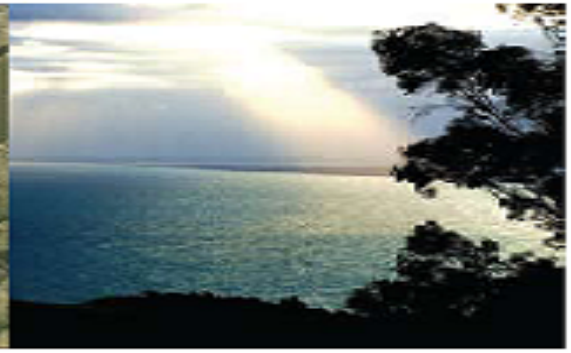
## SUSTAINABILITY

# TE AO HOU – THE WORLD OF LIGHT

CANTERBURY V5

Te Ao Hou provides the key to mitigating the negative impacts of Canterbury's agricultural water use practices on downstream environments.

- Innovative technology combines waste run-off from irrigation with Canterbury's largest solar panels to restore valued ecosystems.
- It will connect Lake Ellesmere to Lake Forsyth's hard sea outlet via a 4 km canal to a shared tidal estuary.
- Fish migration pathways will be restored and food sources for aquaculture and coastal fisheries wil be created which will ultimately attract Southern Right Whales back to Canterbury shores, the ultimate success indicator.

## MISSION/VISION

To prove to Canterbury and the world, that a shift from old sun (fossil fuels) to new sun (solar, wind, hydro, biomass, tidal, wave power) is not only possible but very profitable for our environment and economy. The project converts waste nutrients into zooplankton, the universal living fish food, to drive aquaculture (whitebait, eels and other fish) and tourism businesses.

## CANTERBURY

Te Ao Hou is the key to re-establishing Canterbury's water based food chain. It is a world leading sustainable model of holistic environmental management of Canterbury's resources. This will provide confidence to Canterbury's residents that their valuable water resources are being probably utilised and protected now and for future generations.

## BENEFITS/IMPACT

- Our project provides an international advantage in marketing clean-green agricultural and aquaculture products alongside numerous employment opportunities, sustainable increases in agricultural production, tourism attractions and an Olympic quality rowing venue.
- Te Ao Hou brings reliable lake controls, flood protection, improvements in water quality, biological productivity and recreation and competition infrastructure.

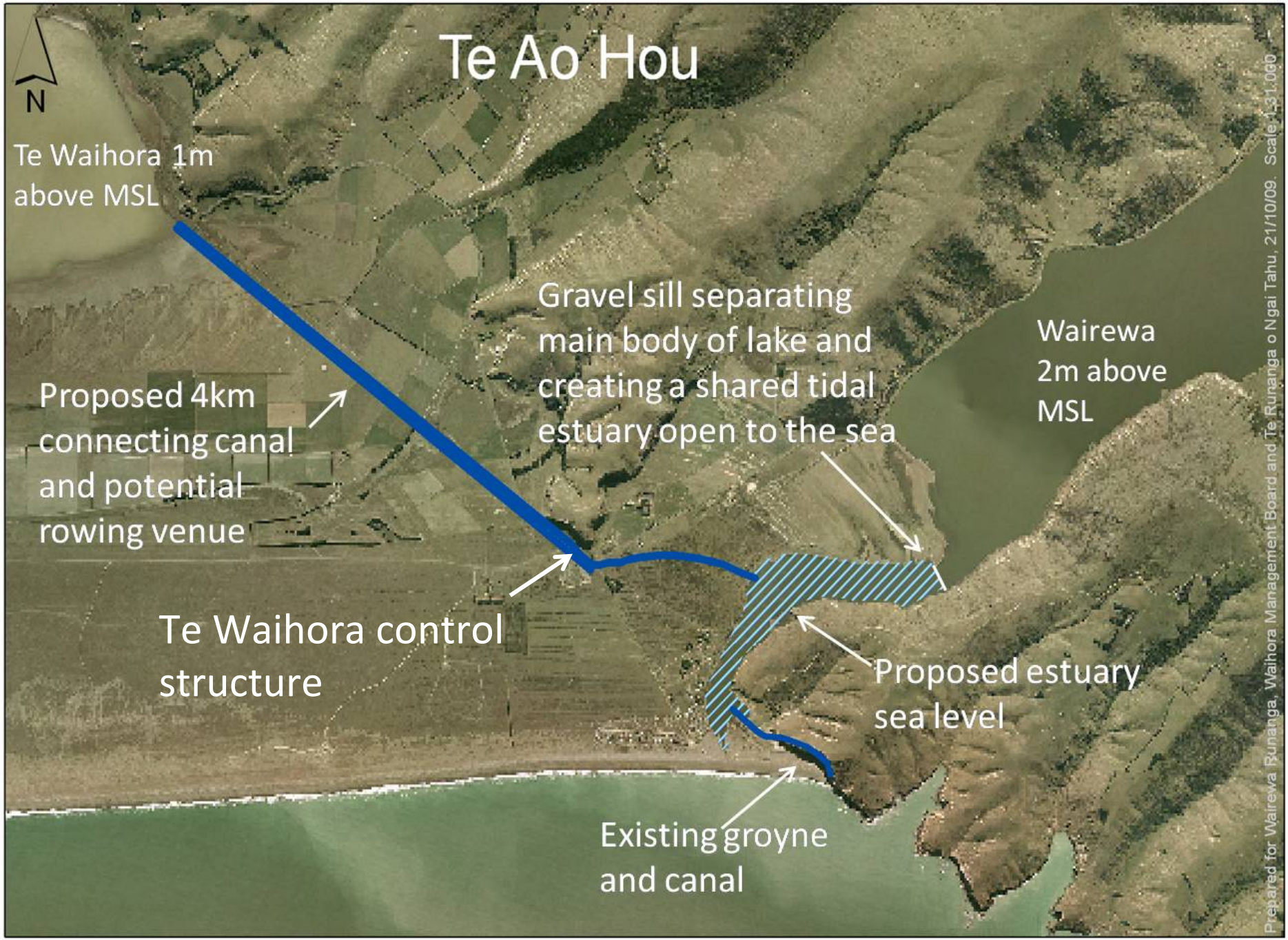
The Canterbury V5 initiative is supported by:

ccc

UC UNIVERSITY OF CANTERBURY

Building mainland business

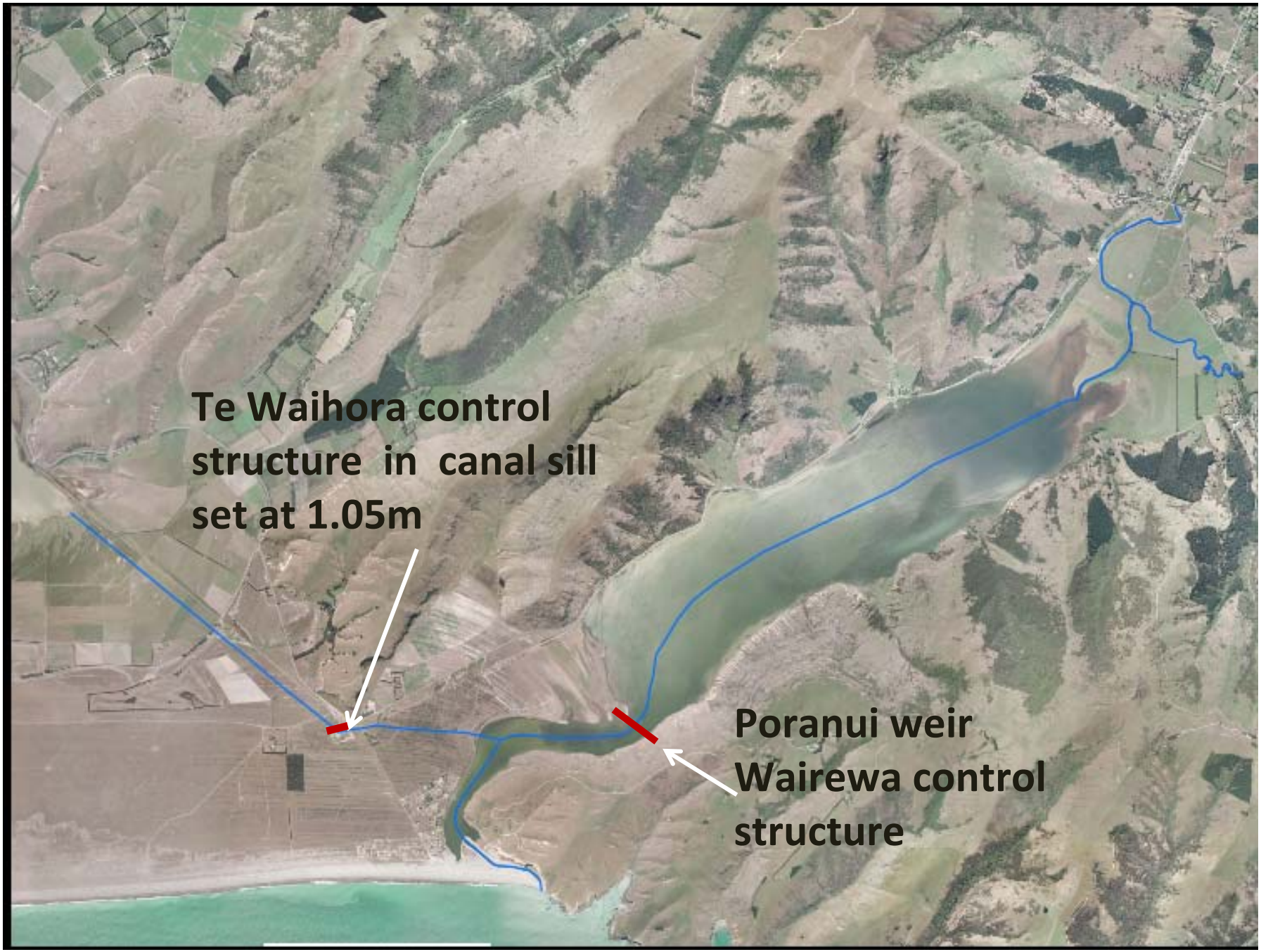
CANTERBURY EMPLOYERS' CHAMBER OF COMMERCE


Te Ao Hou
N
Te Waihora 1m above MSL
Gravel sill separating main body of lake and creating a shared tidal estuary open to the sea
Wairewa 2m above MSL
Proposed 4km connecting canal and potential rowing venue
Te Waihora control structure
Proposed estuary sea level
Existing groyne and canal
Prepared for Wairewa Runanga, Waihora Management Board and Te Runanga o Ngai Tahu, 21/10/09. Scale 1:31,000

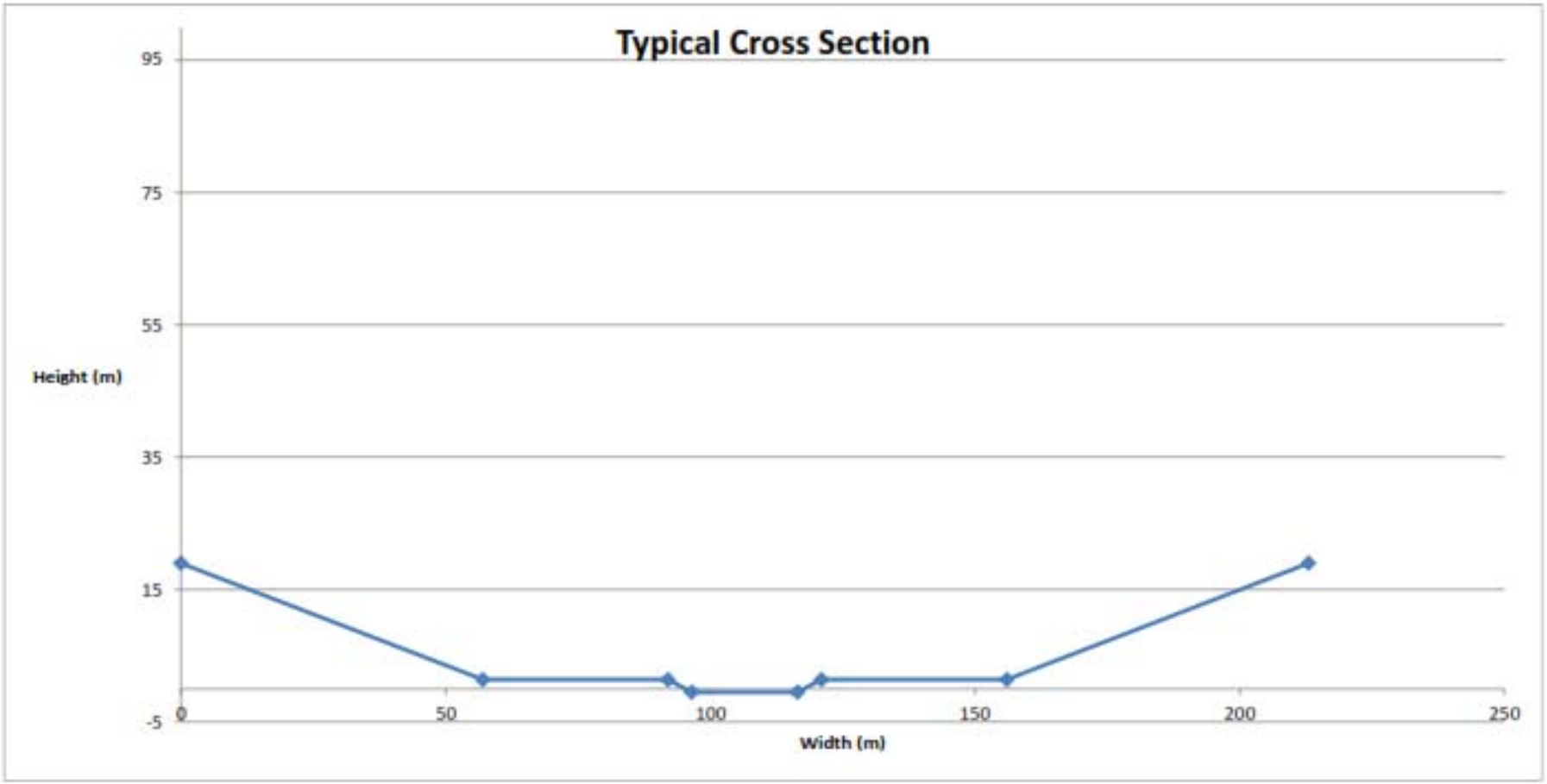
# What's the modeling telling us so far

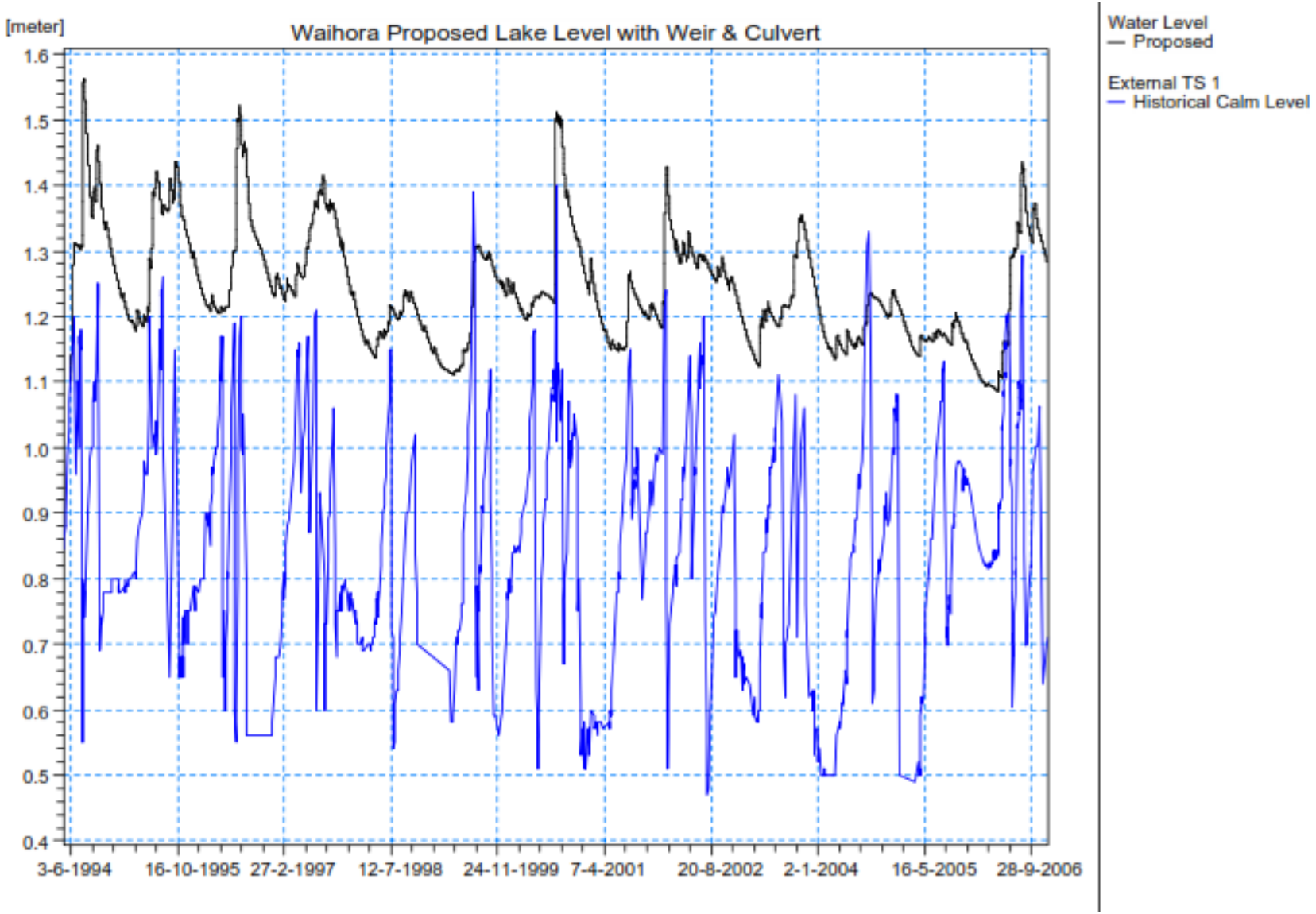
Greg Whyte DHI Consulting

DHI is an independent, international consulting and research organisation.


Te Waihora control structure in canal sill set at 1.05m
Poranui weir
Wairewa control structure

# CROSS SECTION CANAL




[meter]
Waihora Proposed Lake Level with Weir & Culvert
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
3-6-1994
16-10-1995
27-2-1997
12-7-1998
24-11-1999
7-4-2001
20-8-2002
2-1-2004
16-5-2005
28-9-2006
Water Level
Proposed
External TS 1
Historical Calm Level

# What's next for modeling

- Model with 20% more water
- Shift the Te Waihora sill down from 1.05 to .75
- Bio-modeling now that we are set up to9 model water volumes we can now model what that water contains

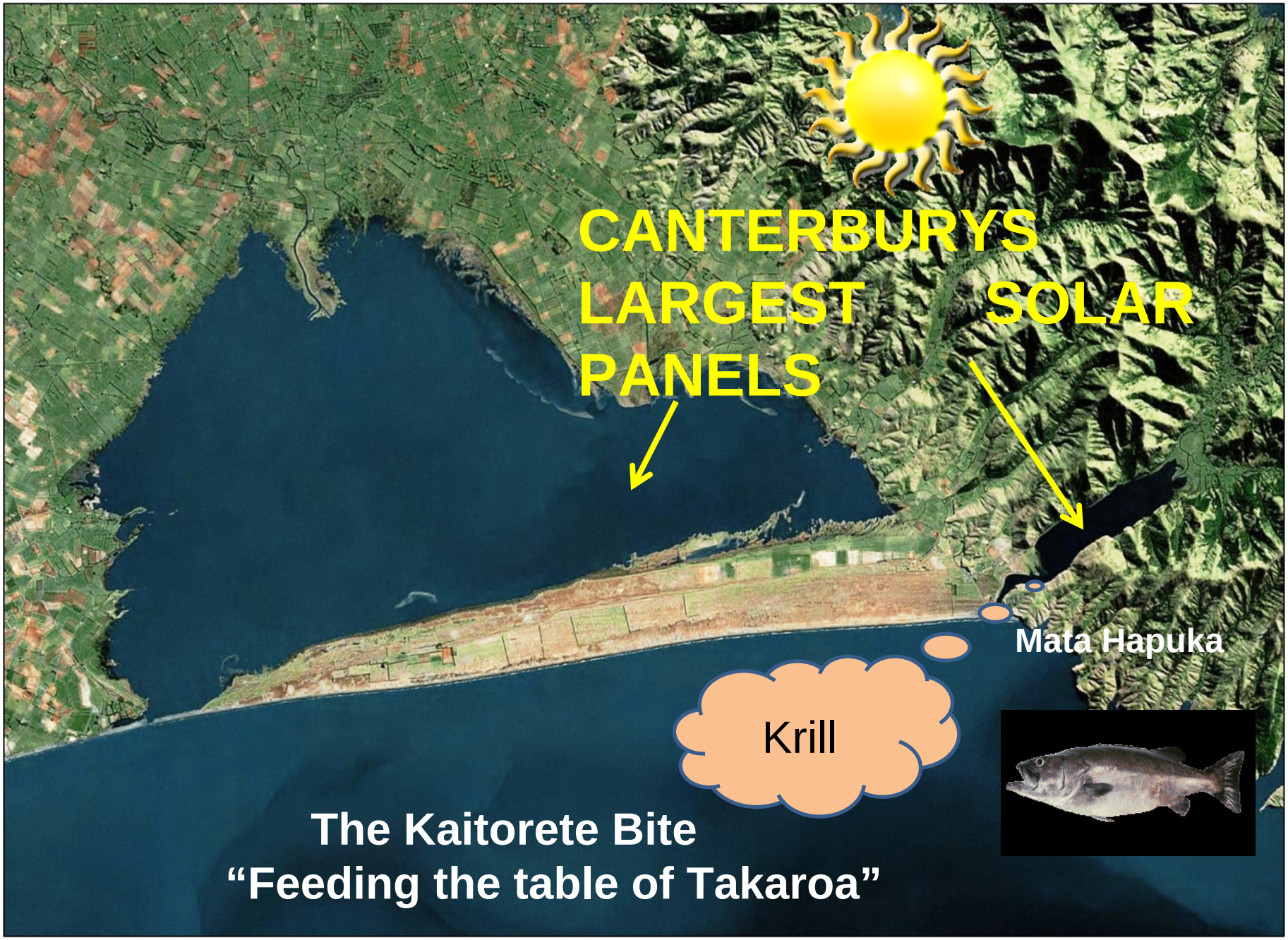
# Feeding the table of Takaroa

***"this is an important and key concept of the project it represents a contemporary expression of a key ngai tahu cultural values, manaakitanga and kaitiakitanga.***

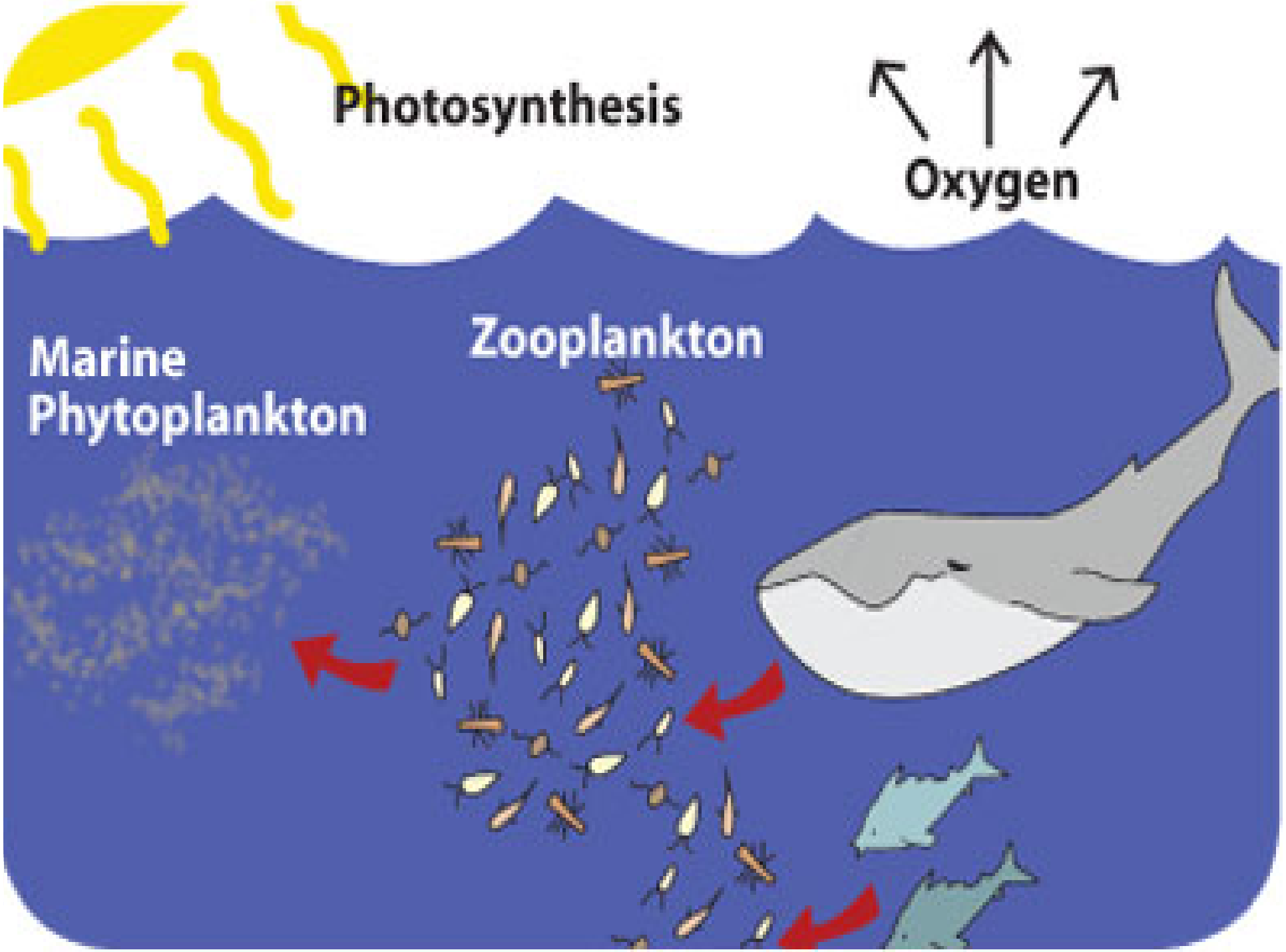
***by producing and releasing food to the ocean protected by our Mātaitai, nature will return to us a hundred fold revitalizing the lake and its fisheries for generations to come"***

# Our project converts waste nutrients to phytoplankton to zooplankton, the universal living fish food to drive mahinga kai

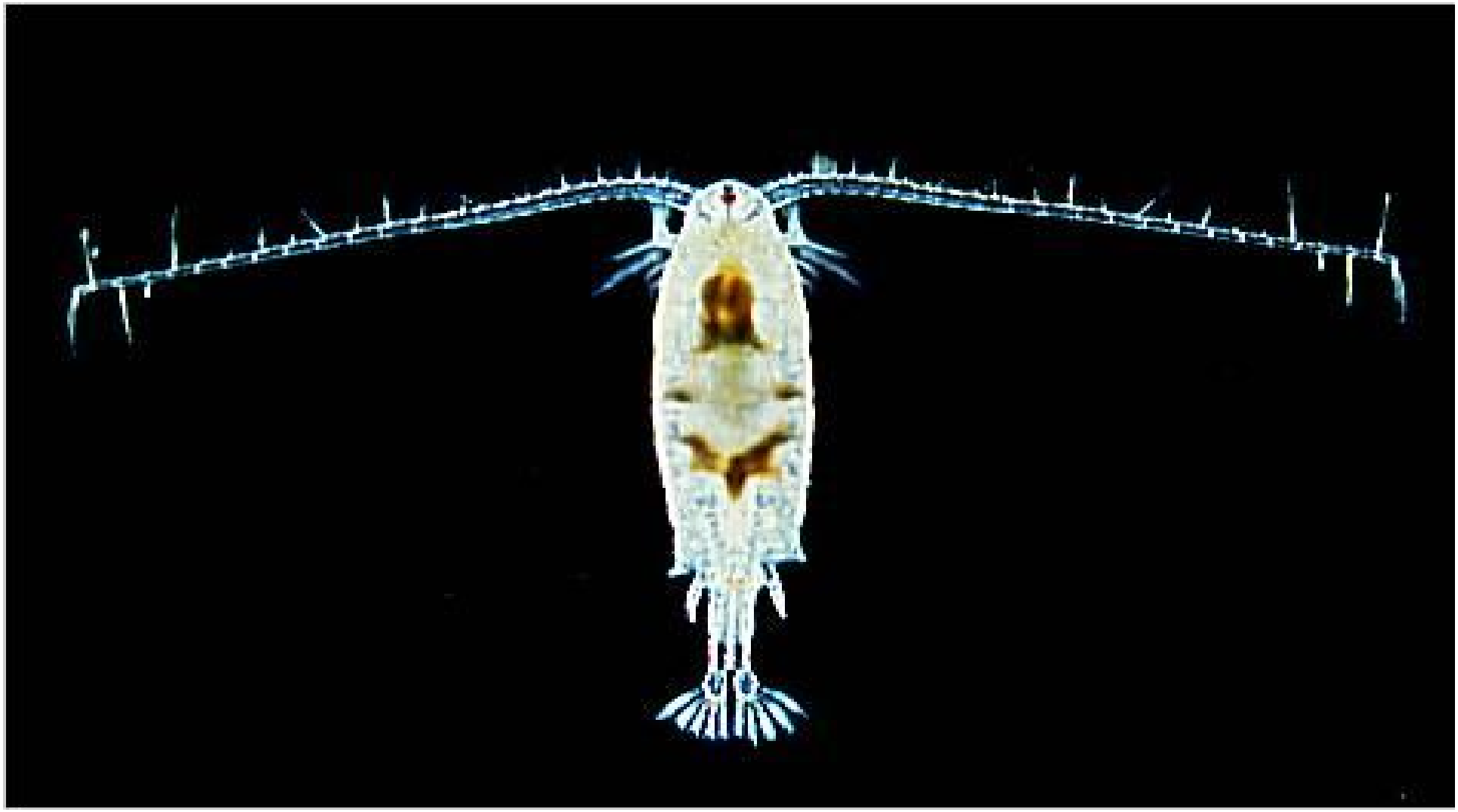
# Aquaculture (whitebait , tuna, patiki and other fish) and tourisim business

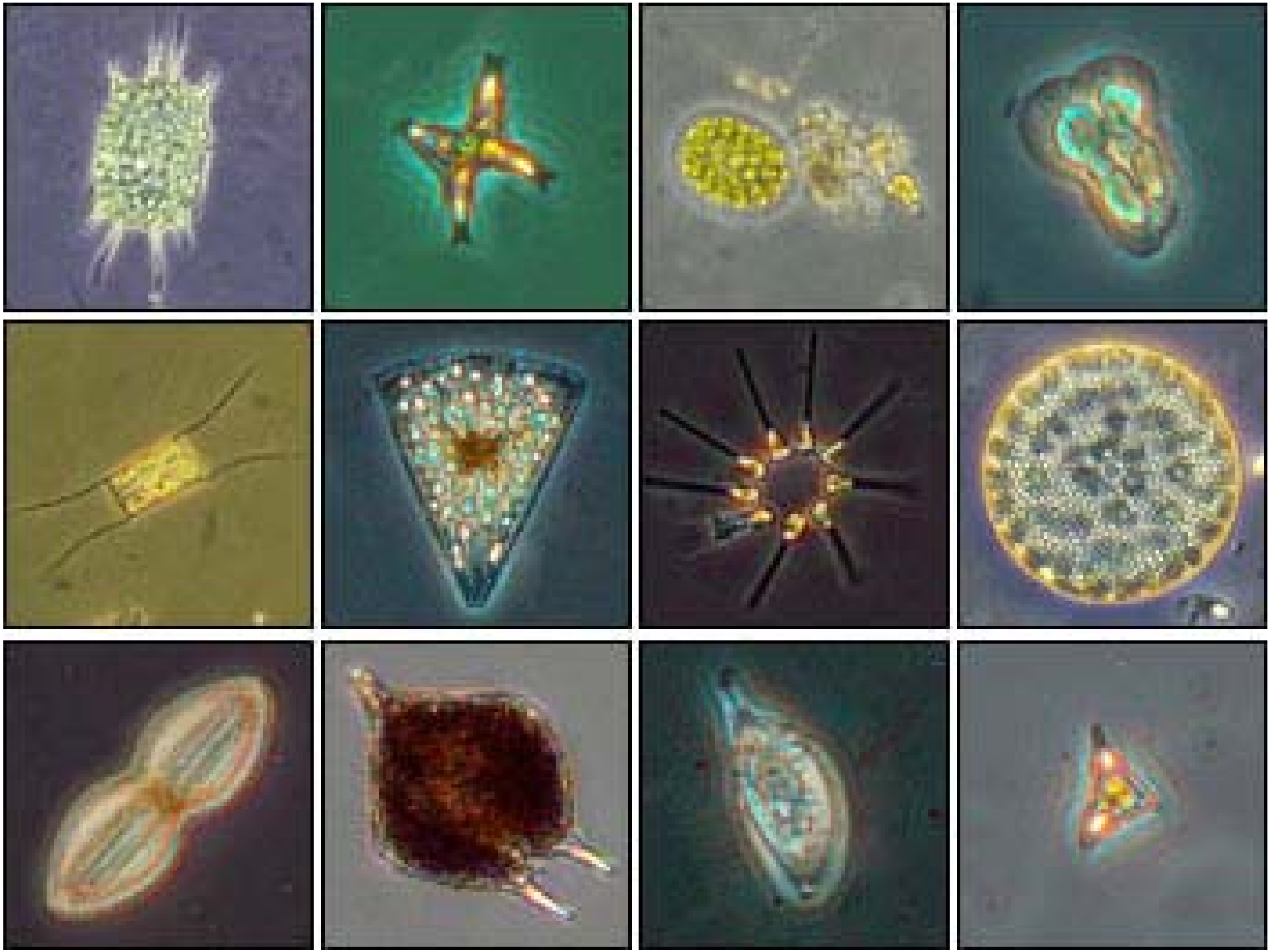

CANTERBURYS LARGEST SOLAR PANELS
Mata Hapuka
Krill
The Kaitorete Bite
“Feeding the table of Takaroa”

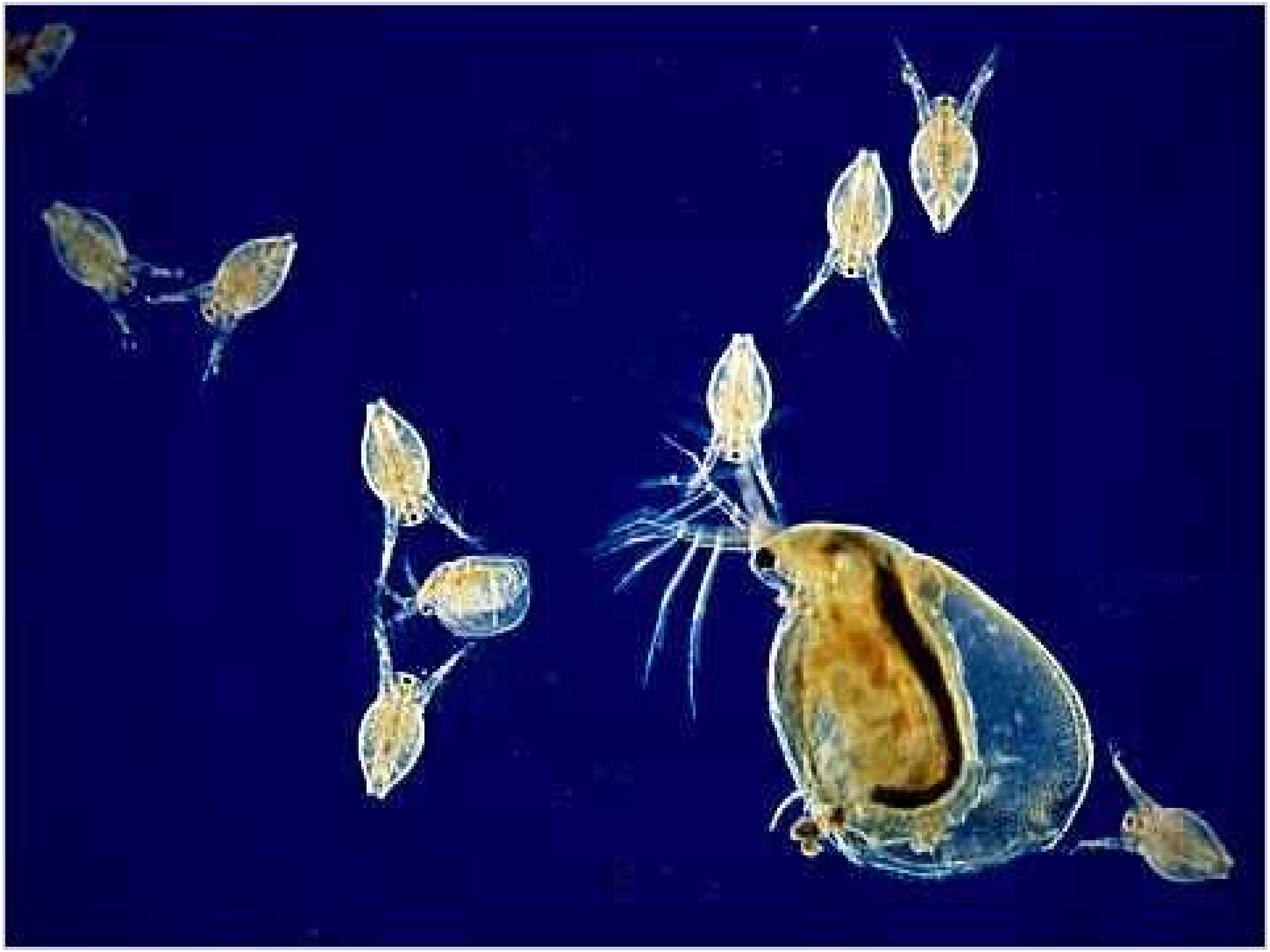

Exported nutrients arriving at their rightful destination

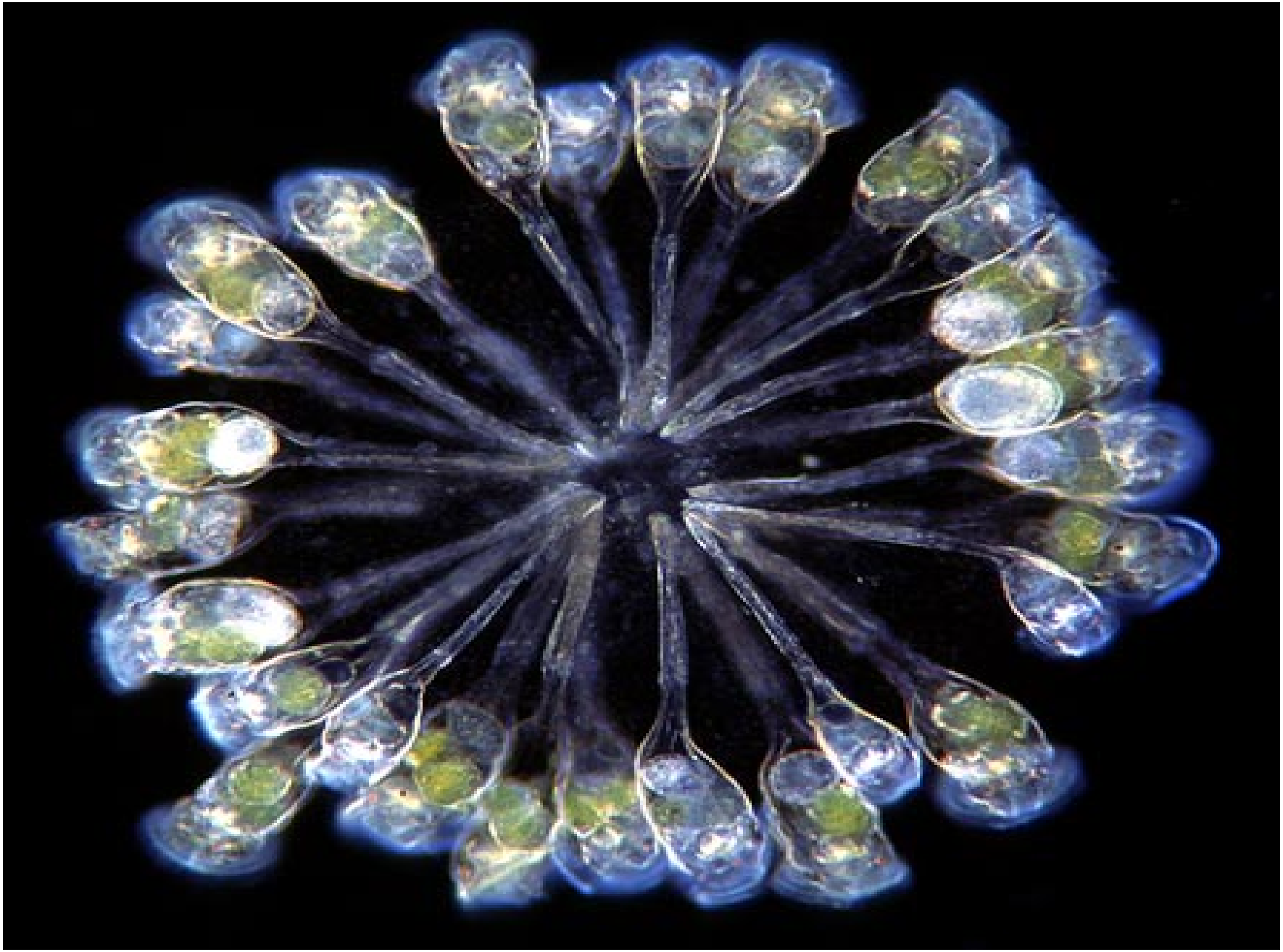

Photosynthesis
Oxygen
Marine
Phytoplankton
Zooplankton

# The invisible Mahinga kai





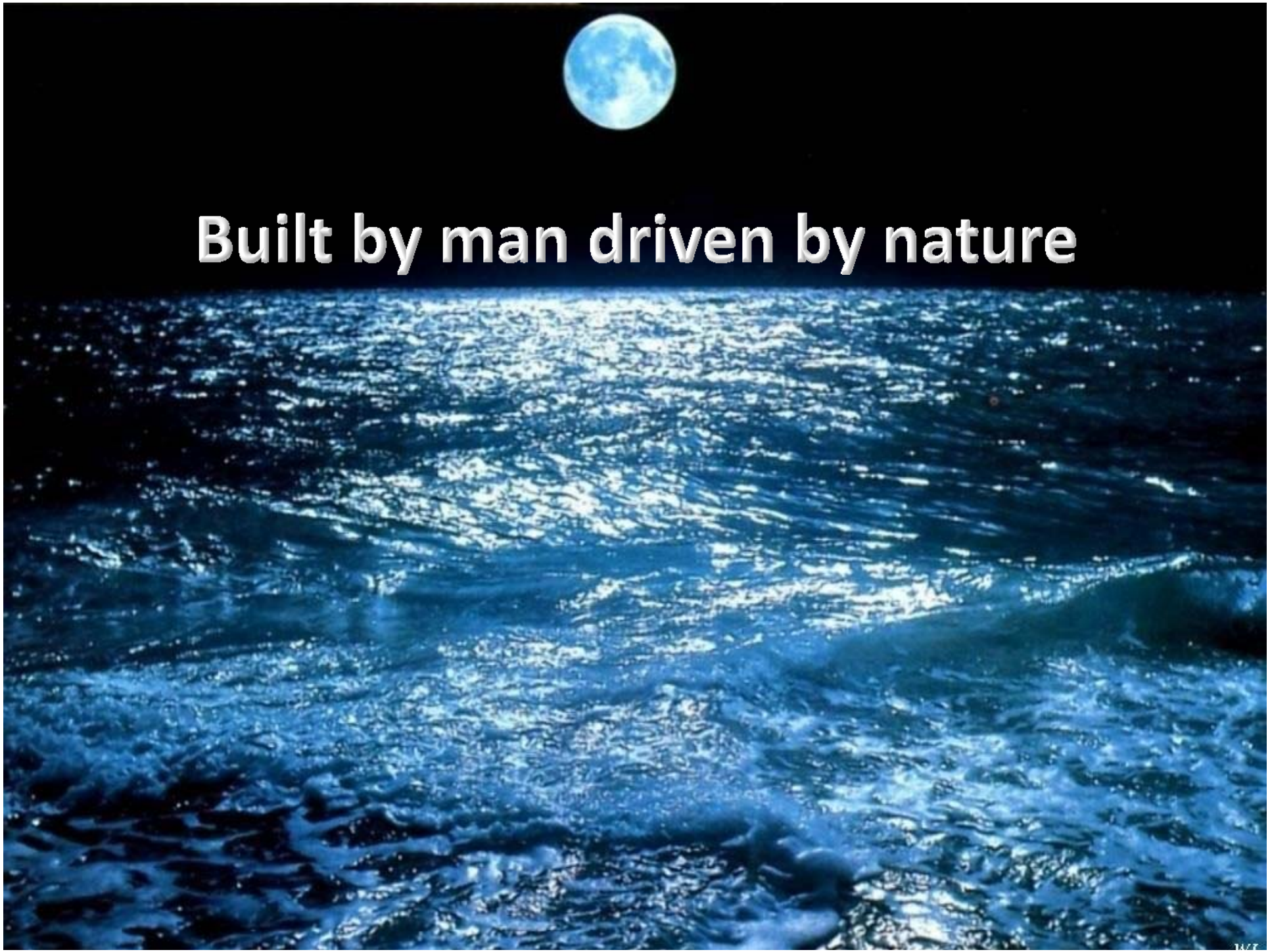




# Fish migration pathways will be restored and food sources for aquaculture and coastal fisheries (wild fish ranching) become avaliable


Fish passage
No changes expected to current salt water peculation at the old cut


www.mahingakai.com


Built by man driven by nature

# The not so goodies

# The Crowns Tuna

# The Not so Goodies cont'd

- We were hoping ECan changes would led to a new and more Ngai Tahu & Wairewa Runanga responsive regime

- Minefield of uninformed and obstructive staff (letter to Burke and Jenkins, first compliance officer, recent feedback)

- We are acting in the public good what don't ECan get?

- Why are the discussions around solutions not in scale with the problem?

- A press reporter has put it together. ( Te Ao Hou and 12 million Te Waihora & Wairewa)

- Is there a fundamental organisational cultural malaise a reluctance to listen to those from another school.

- What contributions or solutions have ECan provided to address Te Roto o Wairewa?

- What has happened at Osbournes drain in the last 7 years ?

Why are we in such rush?

Because
most of  are not being paid and

our

fishery is dying

# DEVELOP TECHNOLOGIES TO FARM THE WATERWAYS

# BY SCRUBBING

# THE EXCESS NUTRIENTS?

# What we want

# Our Experience with ECan has been a mixed bag

**The Goodies**

- ✓ Dr Tim Davie - Surface Water Resources and Ecosystems Manager
- ✓ Fiona Nicol – Consents Monitoring Officer
- ✓ Julie Edwards (Jules) -Water Quality Officer
- ✓ Living Streams – initiative

# Where Agriculture waste meets Aquaculture

# Farmed Bio Mass can be Mahinga kai

# Translates to

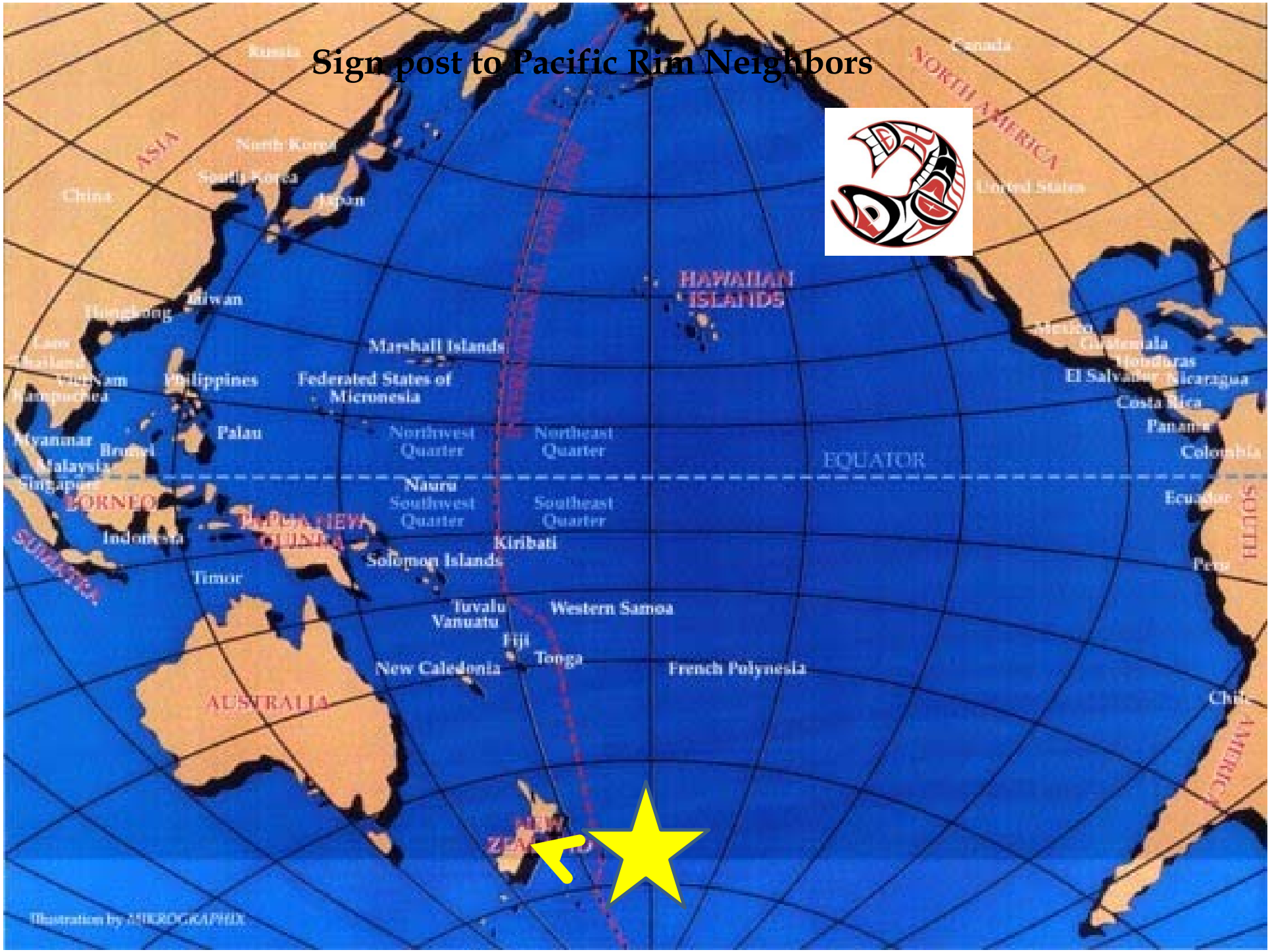
- Responsive, open and aware staff
- Waiving consent costs under public good clause
- Inserting Te Roto o Wairewa in CWMS Plan

- “Better be dead and out of the way” Hoani Uru 1891. Ngai Tahu

- “To be seen to belong” Sir Tipene O’Regan 1991

- “To be asked to lead”  Wairewa Runanga 2011


EQUATOR
VANCOUVER
SOUTH POLE
LOS ANGELES
TROPIC OF CAPRICORN
SYDNEY


Sign post to Pacific Rim Neighbors
ASIA
China
North Korea
South Korea
Japan
Taiwan
Hong Kong
Philippines
Marshall Islands
Federated States of Micronesia
Palau
Myanmar
Brunei
Malaysia
Singapore
BORNEO
Indonesia
Timor
Nauru
Kiribati
Solomon Islands
Tuvalu
Vanuatu
Western Samoa
Fiji
Tonga
New Caledonia
French Polynesia
AUSTRALIA
HAWAIIAN ISLANDS
Canada
United States
Mexico
Guatemala
Honduras
El Salvador
Nicaragua
Costa Rica
Panama
Colombia
Ecuador
Peru
Chile
EQUATOR
Northwest Quarter
Northeast Quarter
Southwest Quarter
Southeast Quarter
Illustration by CARTOGRAPHIX

# Scrubbing nutients

# To

# Create

# phytoplankton

**A key to mitigating the negative impacts of Canterburys agricultural water use practices on downstream enviornments**

**Innovative technologies combines waste run-off from irrigation with Canterburys largest solar panels Te Waihora and Te Roto o Wairewa to restore valued ecosytems and enhance mahinga kai**

**Fish migration pathways will be restored and food sources for aquaculture and coastal fisheries (wild fish ranching)**

**The project converts waste nutrients in zooplankton the universal living fish food to drive aquaculture (whitebait , tuna, patiki and other fish) and tourisim buisness**

**More relaible lake level controls, improvements in water quality, biological productivity and recreation.**

**Prove to Canterbury and the world that a shift from old sun (fossil fuels) to new sun (solar, hydro, bio-mass , tidal wave power) is not only possible but proftable for our enviornment and economey**

# More relaible lake level controls, improvements in water quality, biological productivity and recreation

- A key to mitigating the negative impacts of Canterburys agricultural water iuse practices on downstream enviornments
- Innovative technologies combines waste run-off from irrigation with Canterbury's largest solar panels Te Waihora and Te Roto o Wairewa to restore valued ecosytems and enhance mahinga kai
- Fish migration pathways will be restored and food sources for aquaculture and coastal fisheries (wild fish ranching)

- A key to mitigating the negative impacts of Canterburys agricultural water iuse practices on downstream enviornments
- Innovative technologies combines waste run-off from irrigation with Canterburys largest solar panels Te Waihora and Te Roto o Wairewa to restore valued ecosytems and enhance mahinga kai

# Prove to Canterbury and the world that a shift from old sun (fossil fuels) to new sun (solar, hydro, bio-mass , tidal wave power) is not only possible but profitable for our enviornment and economy

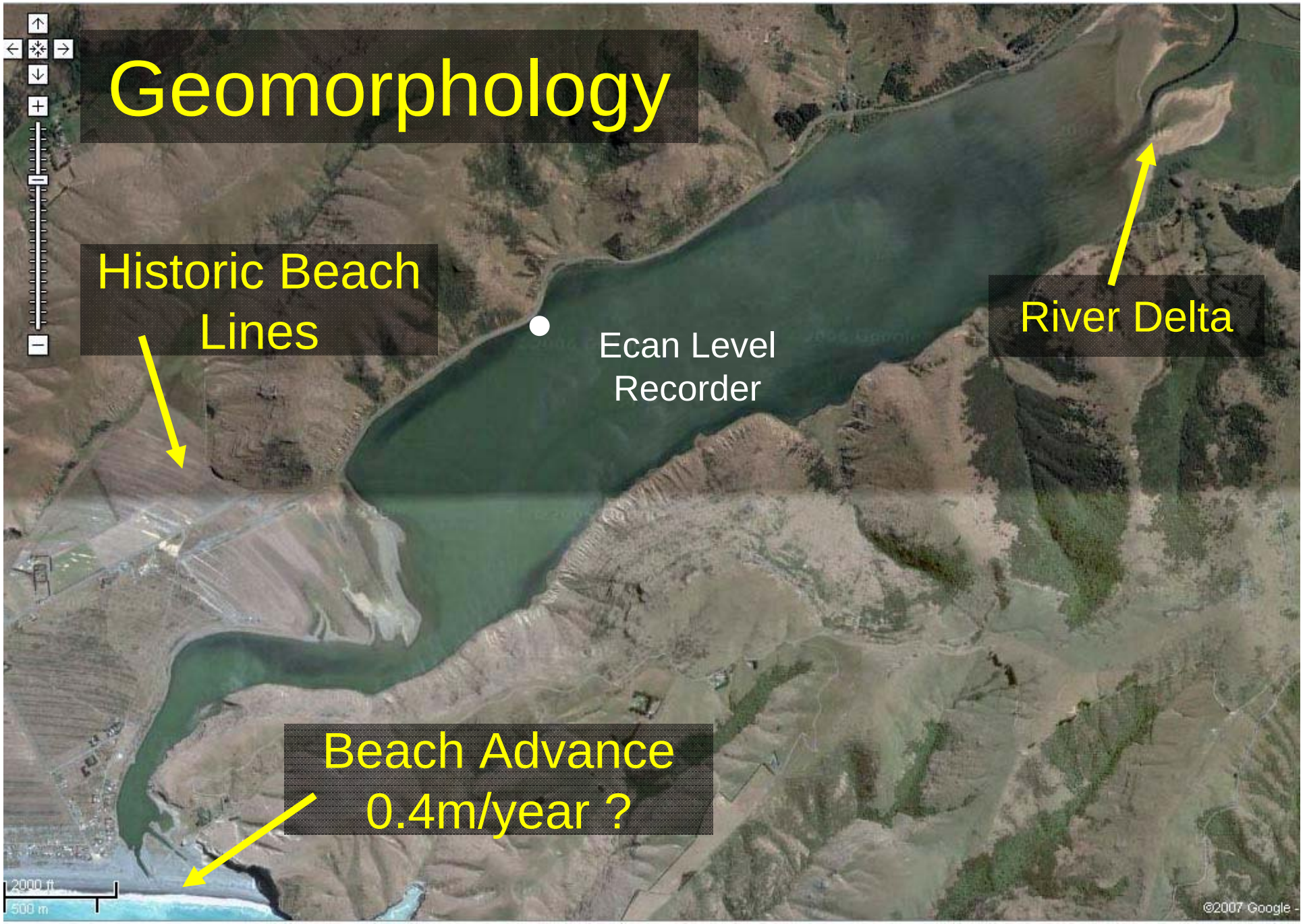
# kokopü

# Changing paddock

Wairewa – proof concept nodularia vs anabaena

# Wairewa - Lake Forsyth

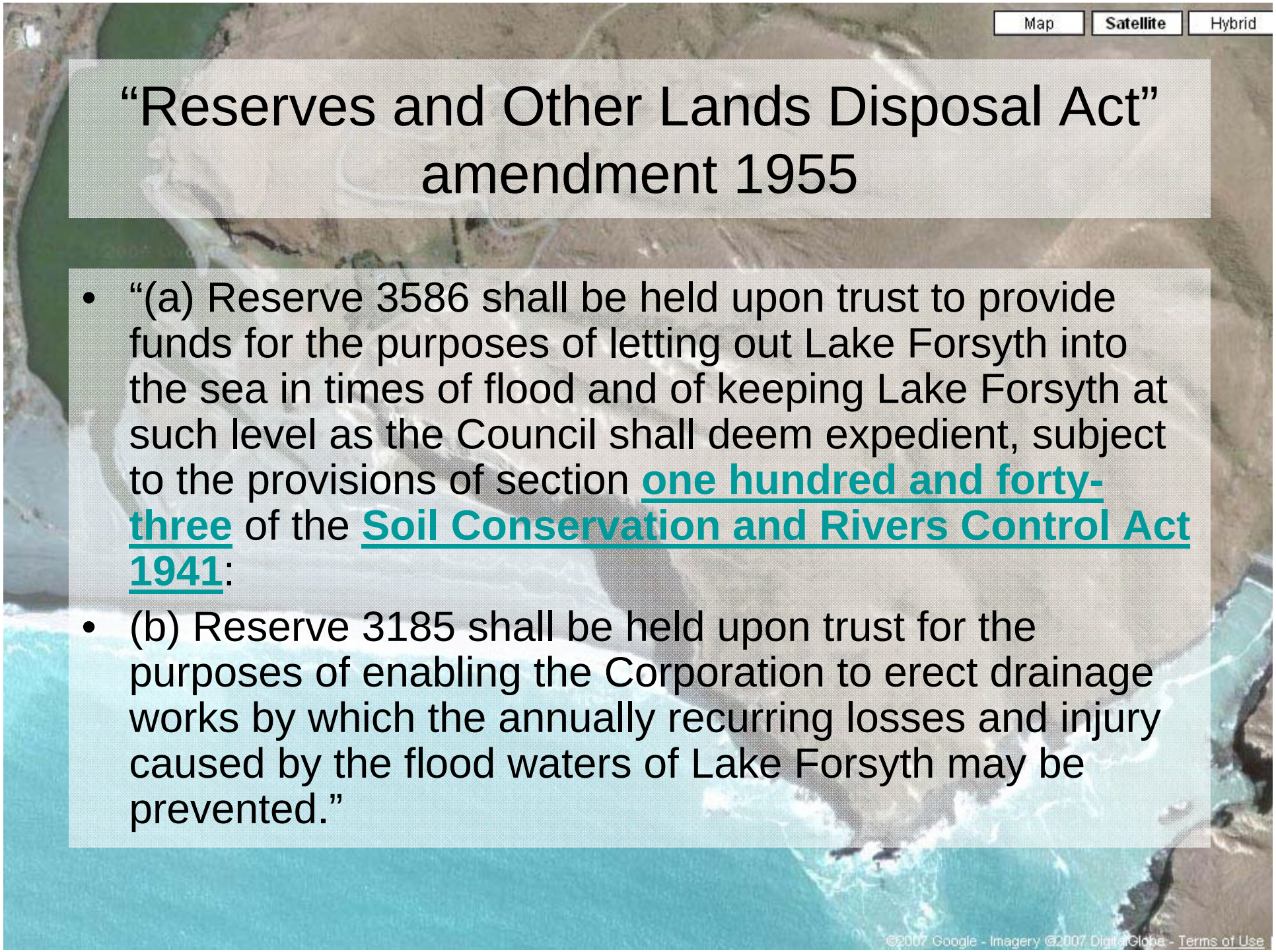

July 1977 Flood
Lake level 4.77m
Approx 1m deep SH75
16489 Lake Forsythe and Birdlings Flat.
6 JULY 1977


Geomorphology
Historic Beach Lines
Ecan Level Recorder
River Delta
Beach Advance 0.4m/year ?
2000 ft
500 m
©2007 Google


Customary
Eeling
September Eel Recruitment
Feb – Apr Eel Harvest
2007/01/18


Operating Regime
• Summer 2.3m
Dec - Apr
• Winter 2.1m
May - Nov
•Ecan Recording site
•Real time Website levels


Map
Motukarara
Christchurch Akaroa Rd
Kaituna Valley
Greenpark Huts
Ataahua
Little River
Christchurch Akaroa Rd
Reserve 3586
412 Ha
Reserve 3185
93 Ha
Birdlings Flat
Funding Base
Set up under an amendment to the "Reserves and Other Lands Disposal Act" in 1955

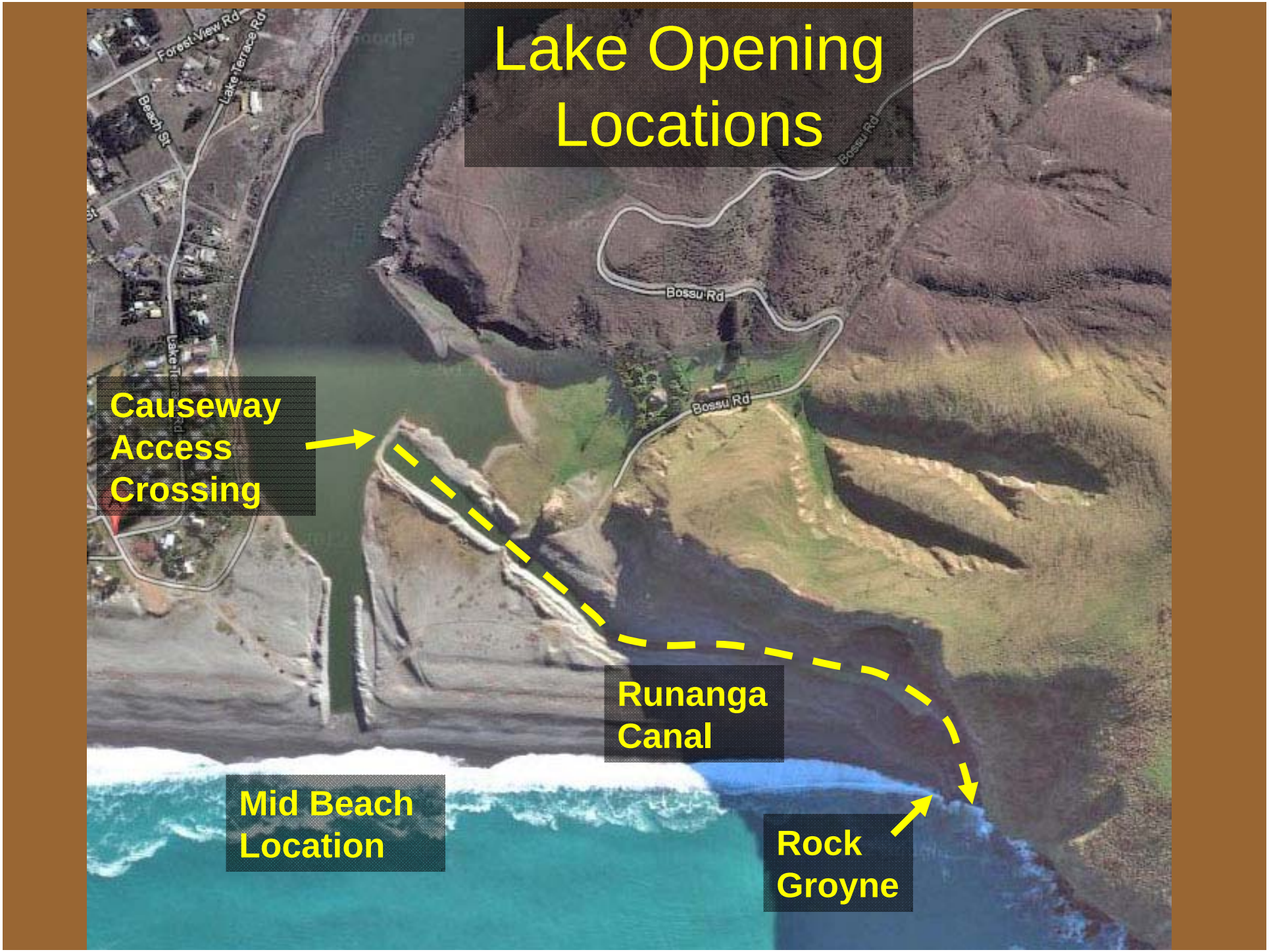



# "Reserves and Other Lands Disposal Act" amendment 1955

- "(a) Reserve 3586 shall be held upon trust to provide funds for the purposes of letting out Lake Forsyth into the sea in times of flood and of keeping Lake Forsyth at such level as the Council shall deem expedient, subject to the provisions of section **one hundred and forty-three** of the **Soil Conservation and Rivers Control Act 1941**:
- (b) Reserve 3185 shall be held upon trust for the purposes of enabling the Corporation to erect drainage works by which the annually recurring losses and injury caused by the flood waters of Lake Forsyth may be prevented."


# Lake level Management Consents

- BPDC Notified Use Consent - 2001
- BPDC /CCC - amalgamation
- Wairewa Runanga 5 Year consent
- Runanga Consent renewal application July 2012
- CCC/Runanga Joint consent application December 2012


Lake Opening Locations
Forest View Rd
Lake Terrace Rd
Beach St
Bossu Rd
Bossu Rd
Bossu Rd
Causeway Access Crossing
Runanga Canal
Mid Beach Location
Rock Groyne


Mid Beach Opening to the Sea
04 May '07
Turbulent Flow
04/05/2007


July 2008 Mid Beach Opening


16 May '07 – Mid Beach
Outlet Closed

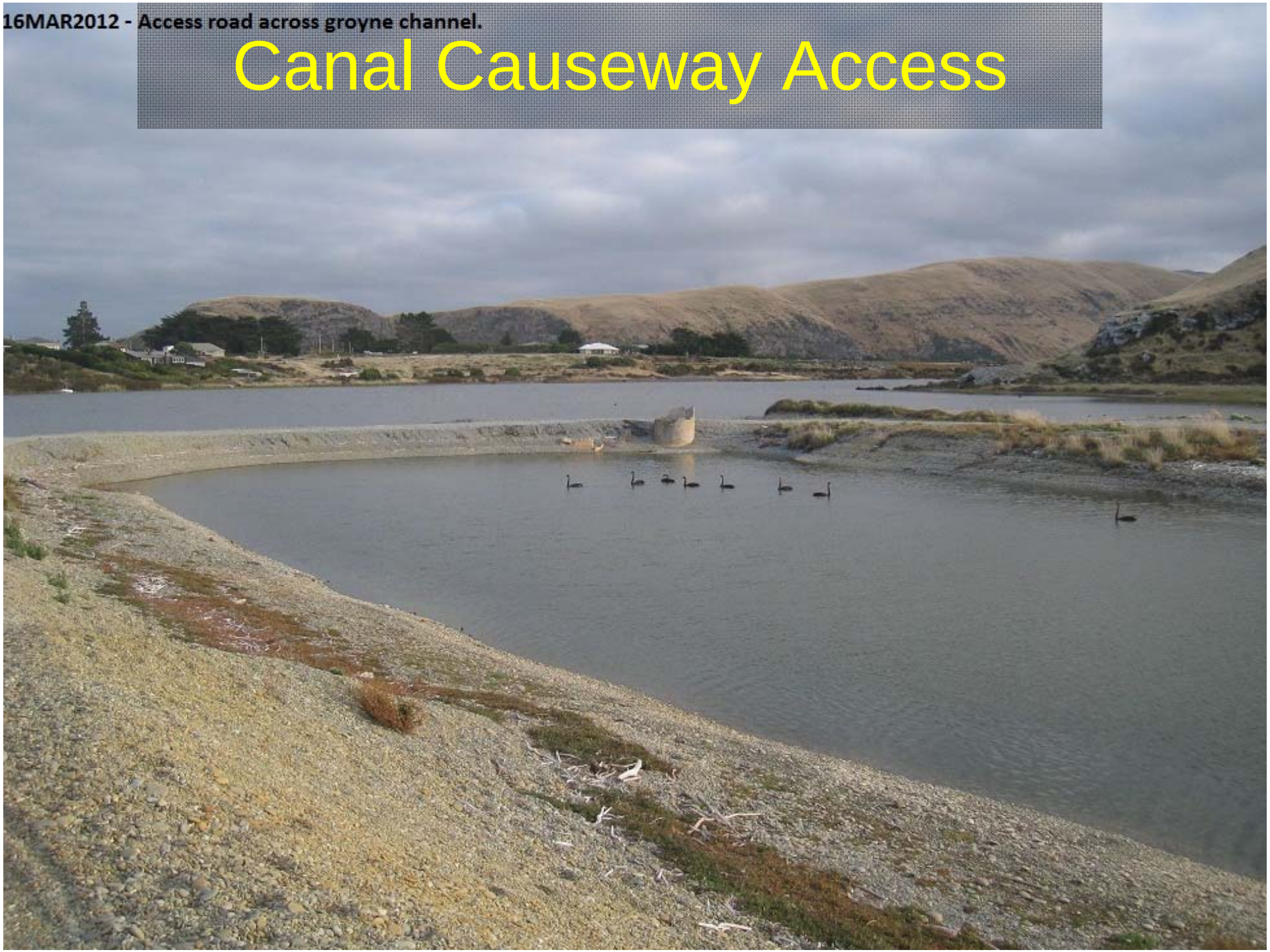

Access
Causeway
Runanga upstream Canal


Runanga Canal Outlet
Outlet closed with Gravel
Local Rock Groyne

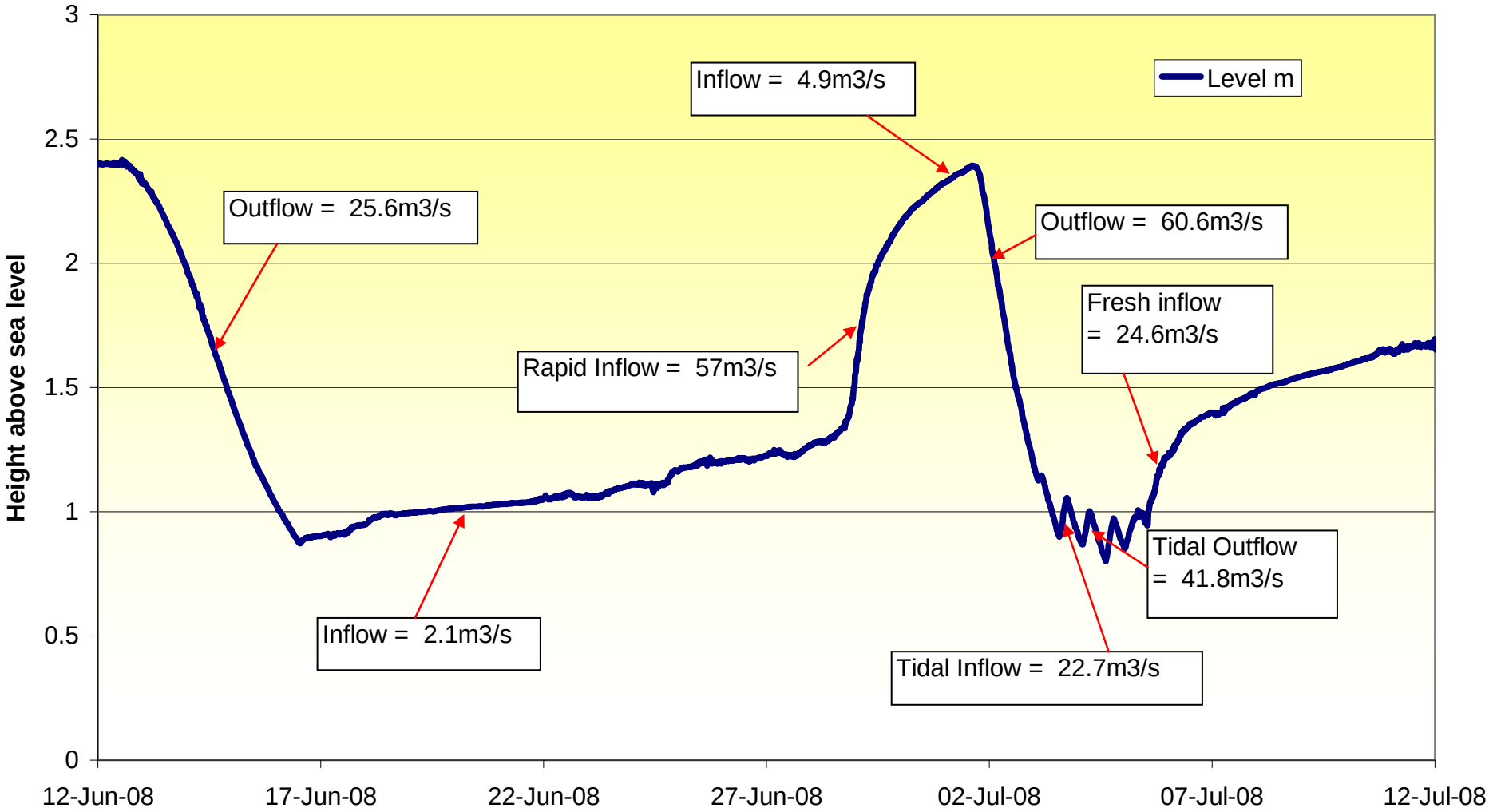

Canal Discharging
29/06/2010 11:18

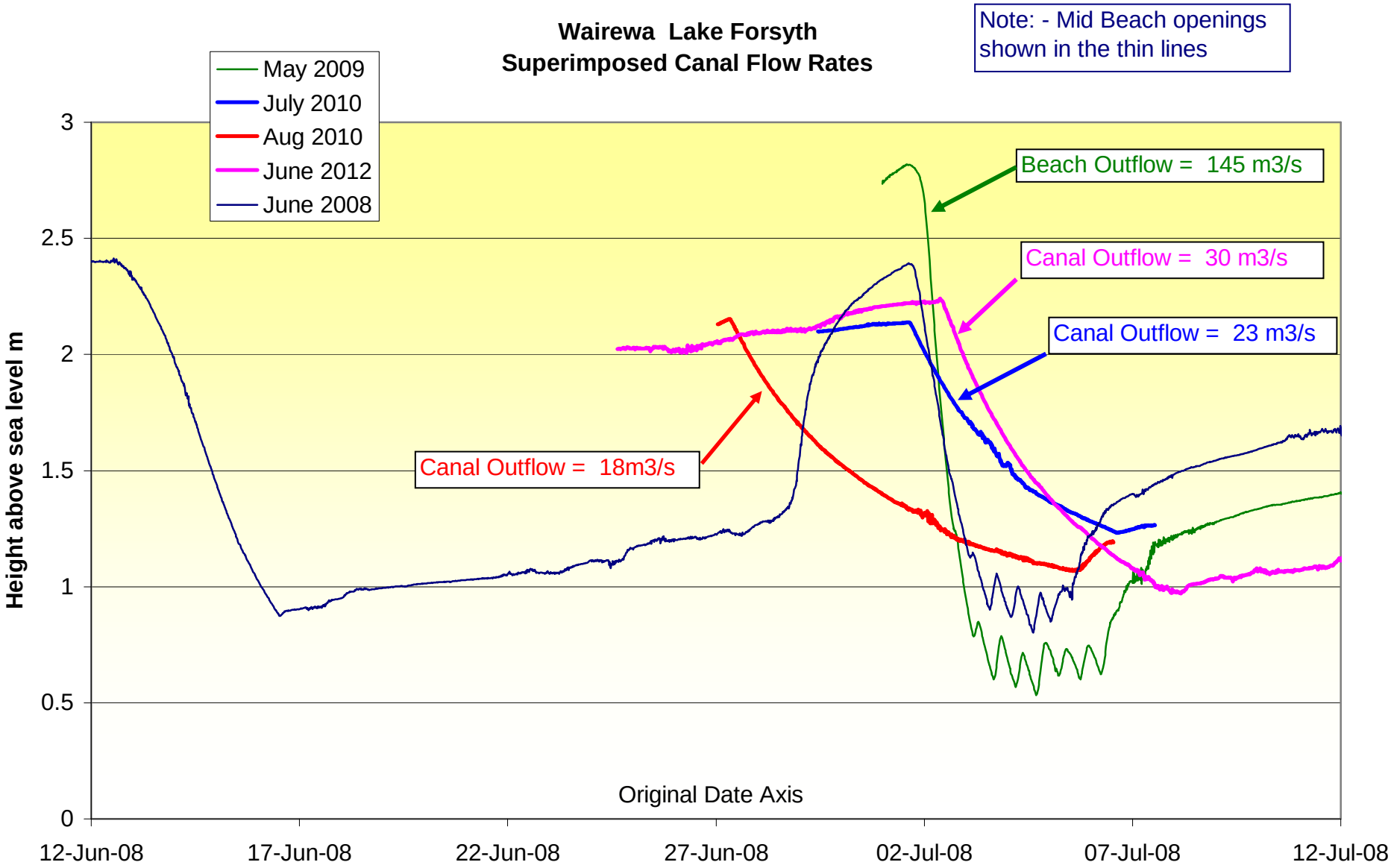

Canal Mid Reach
23/10/2009 14:14

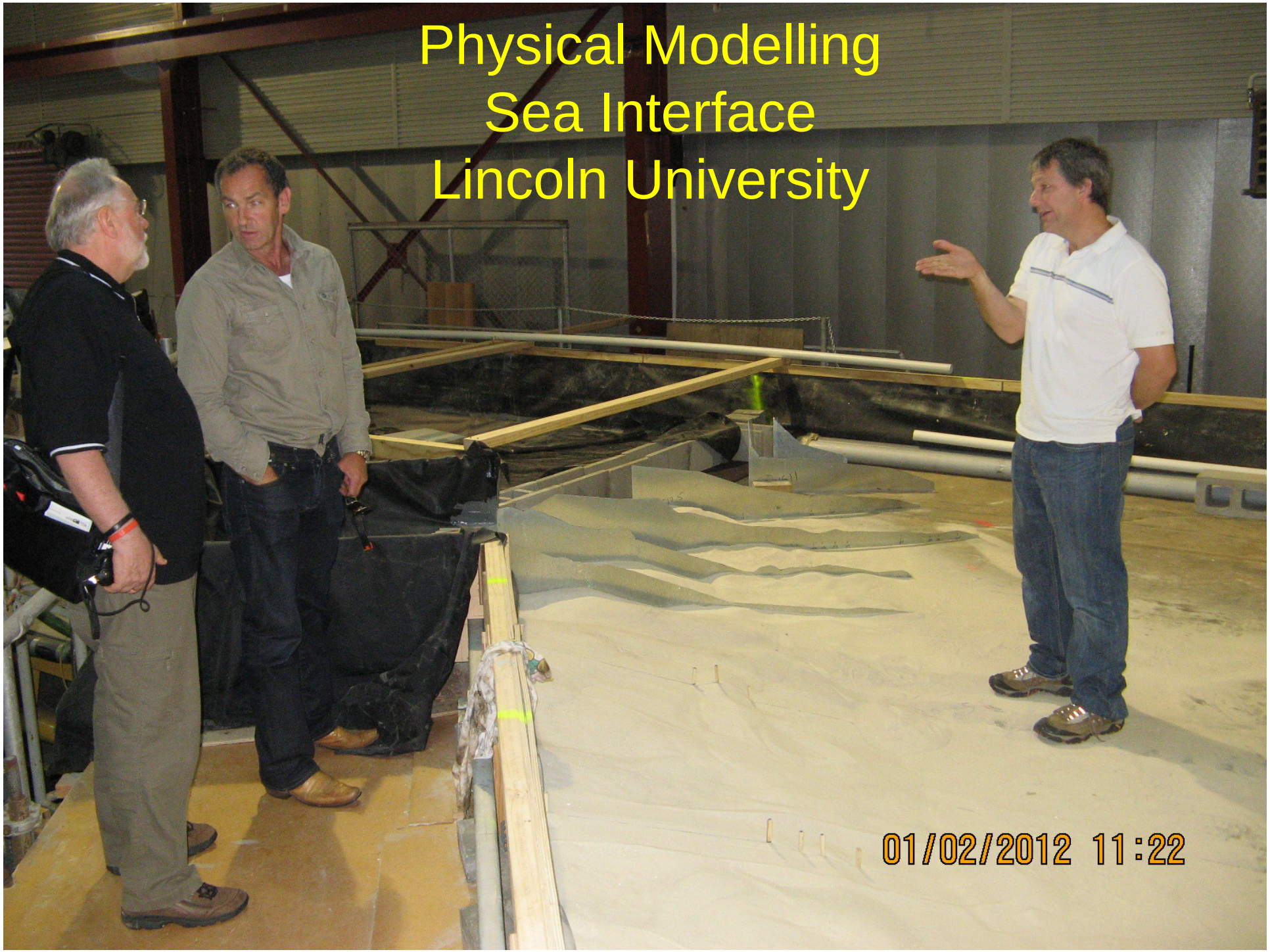

Gentle Flow Regime
Canal Upper Reach


16MAR2012 - Access road across groyne channel.
Canal Causeway Access

**Wairewa Lake Forsyth**
**Mid Beach Outlet Flow Rates June 2008**

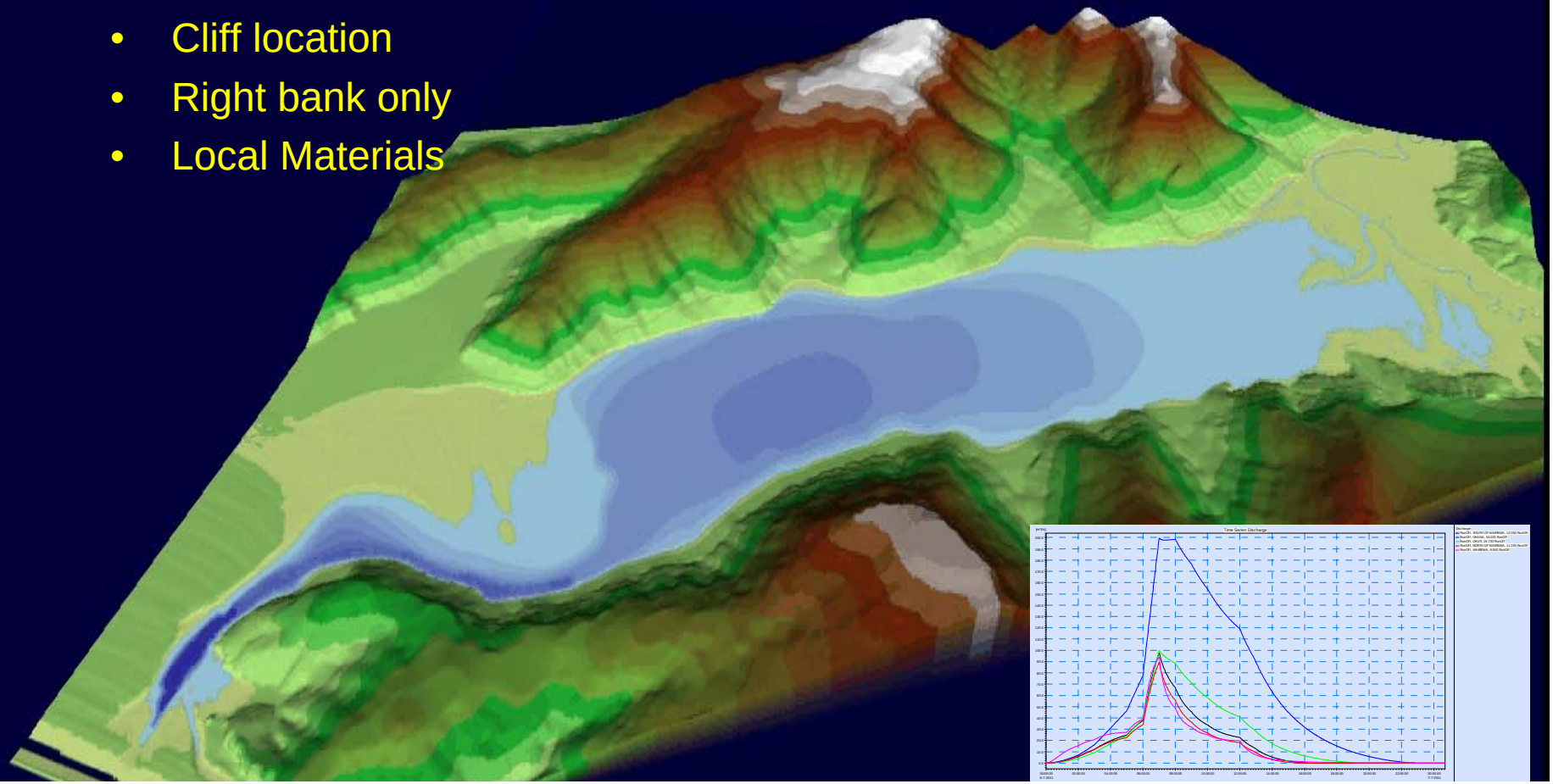



Wairewa Lake Forsyth
Superimposed Canal Flow Rates
Note: - Mid Beach openings shown in the thin lines
May 2009
July 2010
Aug 2010
June 2012
June 2008
Beach Outflow = 145 m3/s
Canal Outflow = 30 m3/s
Canal Outflow = 23 m3/s
Canal Outflow = 18m3/s
Height above sea level m
3
2.5
2
1.5
1
0.5
0
Original Date Axis
12-Jun-08
17-Jun-08
22-Jun-08
27-Jun-08
02-Jul-08
07-Jul-08
12-Jul-08


Physical Modelling
Sea Interface
Lincoln University
01/02/2012 11:22

# Computer Modelling

- 100yr Flood Canal Capacity
- Waihora Interface
- Sea Interface is Key Issue
  - Cliff location
  - Right bank only
  - Local Materials



# Canterbury
# Land & Water Regional Plan

## Briefing to Banks Peninsula Zone Committees

Tami Woods – Principal Planning Advisor
Anna Veltman – Senior Planner

Environment Canterbury
Regional Council
Kaunihera Taiao ki Waitaha

# Programme


Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

# Context

- LWRP must deliver on or give effect to:
  - ECan functions under RMA
  - NPS – Freshwater Management 2011
  - Proposed Regional Policy Statement
  - Ministerial terms of reference

- Must also achieve purpose of Resource Management Act

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# LWRP Purpose

- Achieve ECan functions under RMA
  - Integrated management natural and physical resources
  - Control of use of land for water quality & quantity purposes
  - Management of water
  - Management of discharges [s30]

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# Key Points to Note

- Section 63 of the ECan Act 2010 requires particular regard to be given to vision & principles of CWMS
- Sections 1, 2, 3 & 4 are the regional context for CWMS delivery through plan
- Sections 6 – 15 (sub-regional sections) provide for delivery at zone level

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Regional Council
Kaunihera Taiao ki Waitaha

# Sub-regional Boundaries

- Logical “fit” between CWMS zone boundaries and surface water & ground-water management areas
- Based on surface water being in 1 plan chapter only
- Results in 10 sub-regional areas
- Alpine river area – current management and future infrastructure

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Regional Council
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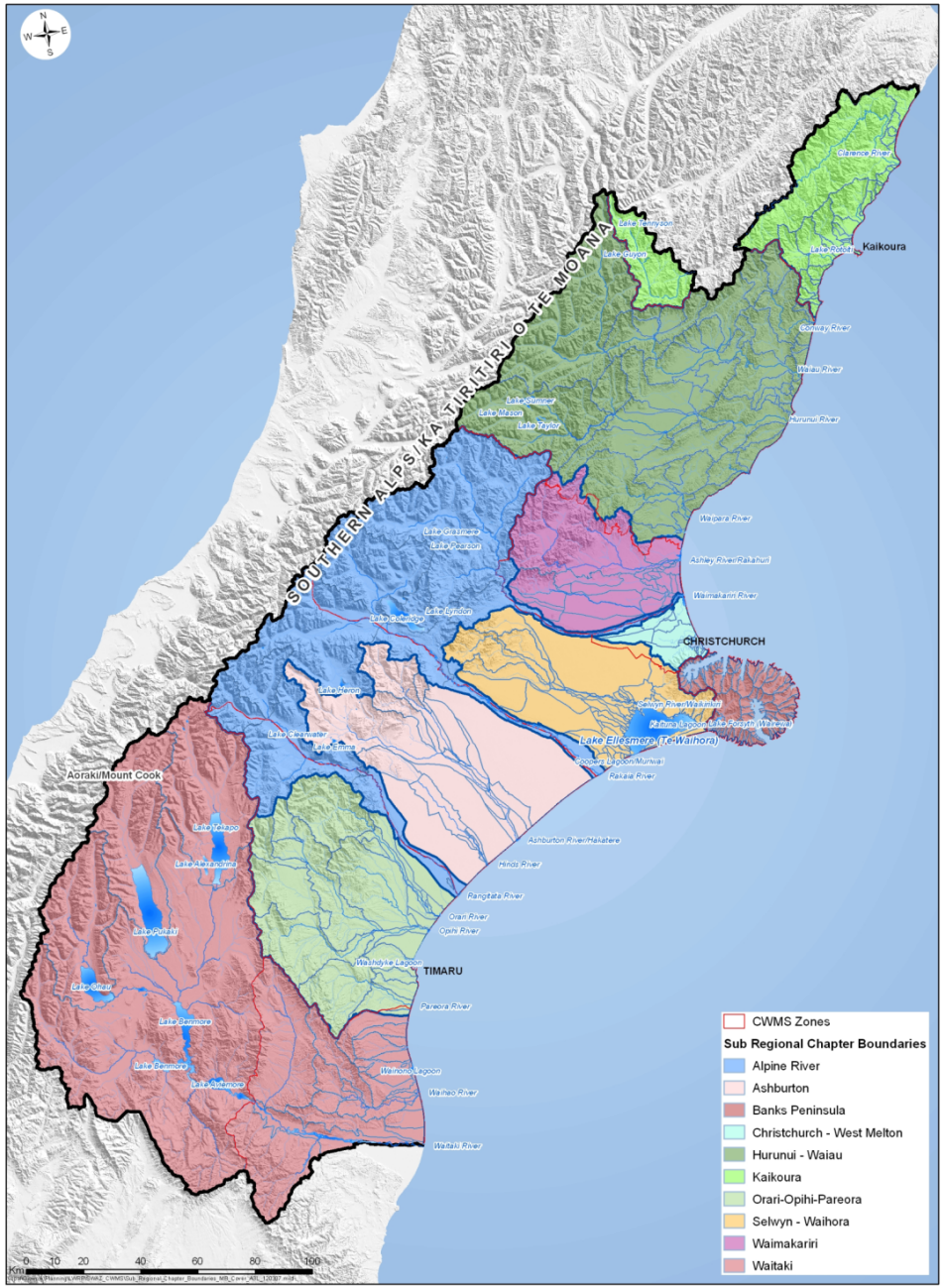


Sub Regional Chapter Boundaries and
Canterbury Water Management Strategy Zones

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# Water Quality – Overall Approach

Key elements of approach

- 2 stages – region-wide & sub-regional

Region-wide

- LWRP will contain the key outcomes, the "holding position", the key tools (for consistency)
- Region-wide nutrient status established
- Nutrient discharge limits per enterprise type

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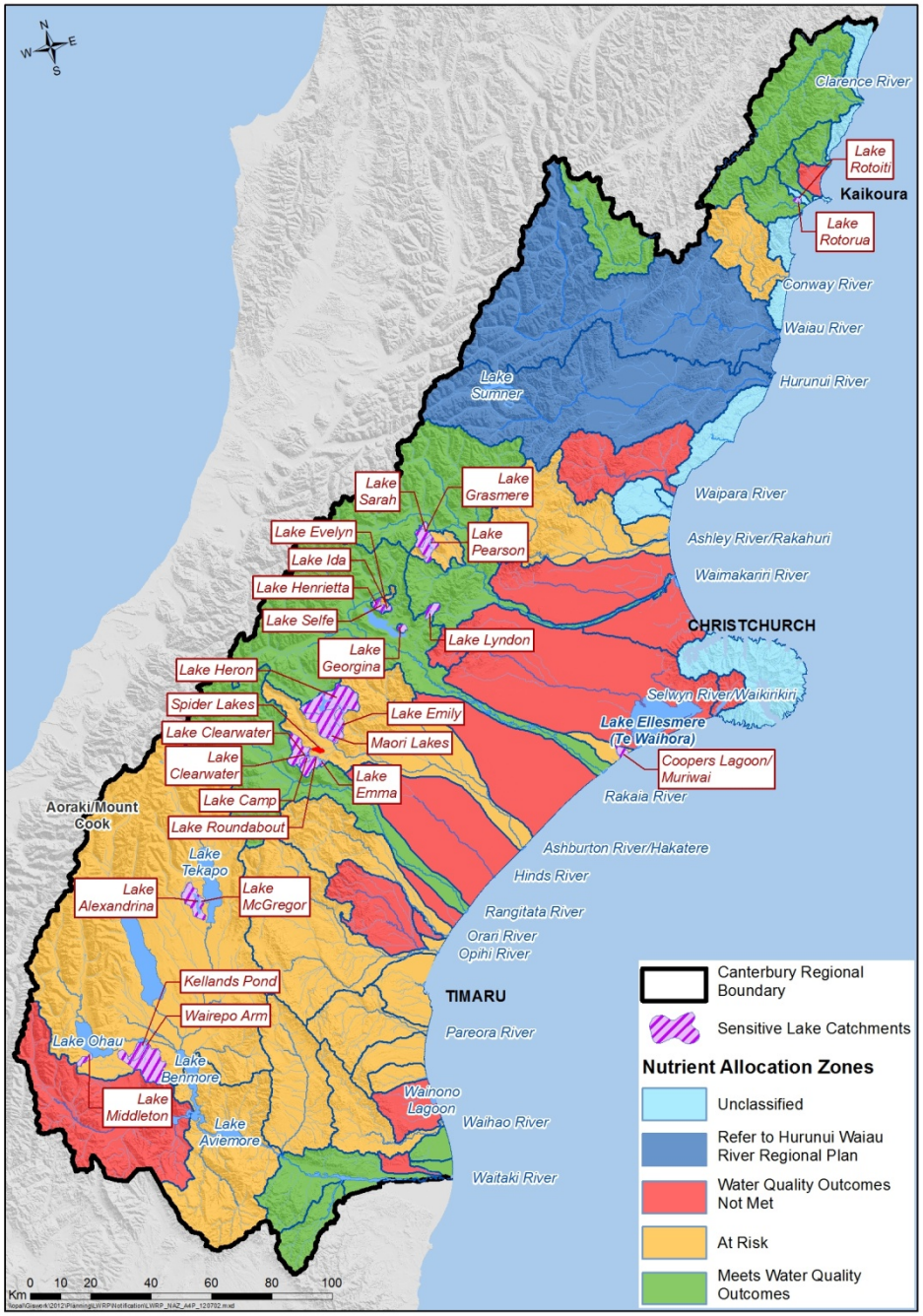


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# Regional Rules: Activity Status: Existing

| | | |
|---|---|---|
| Outside Lake Zone<br>Pre 30 June 2017 | → | Farming = Permitted Activity<br>& record nutrient losses |
| After 1 July 2017 | → | All farms meet LUT = Permitted Activity<br>>20kgN/ha report nutrient losses<br>& Farm Plan & Audit |

| | | |
|---|---|---|
| Inside Lake Zone<br>Pre 30 June 2017 | → | Farming = Permitted Activity<br>& record nutrient losses & Farm Plan |
| After 1 July 2017 | → | All farms meet LUT = Permitted Activity<br>>20kgN/ha report nutrient losses<br>& Farm Plan & Audit |

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# Regional Rules: Activity Status: Change

## Before 1 July 2017

Water permit with nutrient conditions & outside Lake Zone

Yes → Permitted Activity, record nutrient losses & Farm Plan

No → **Consent required**

*Best Practice Advisory Panel*

- Meets WQ Outcomes = Restricted Discretionary
- Unclassified = Restricted Discretionary
- At Risk = Discretionary
- WQ Outcomes Not Met & Lake Zone = Non-complying

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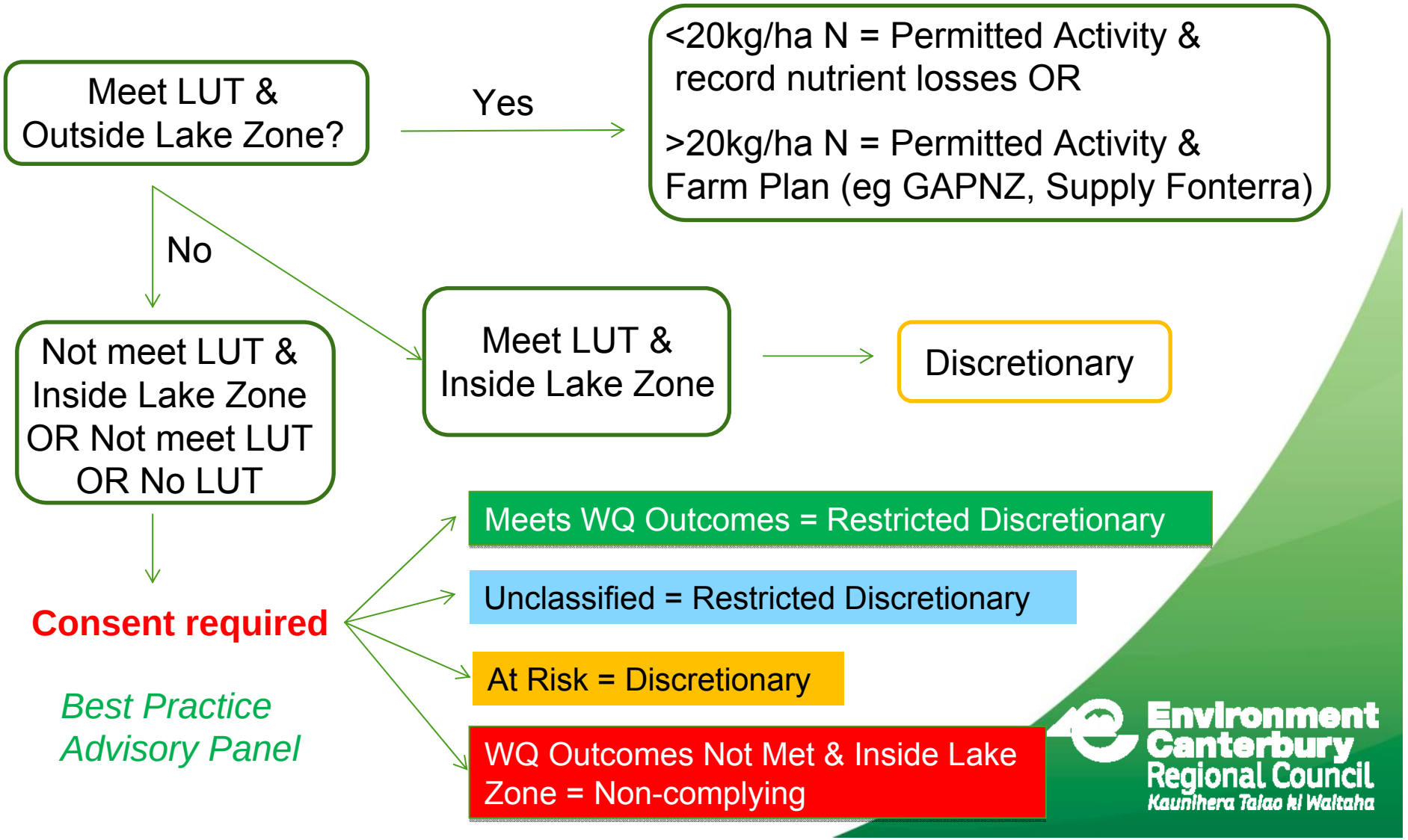
# Regional Rules: Change

## After 1 July 2017



# Water Quality – Regional: Desired Outcomes

- Articulation of industry good practice
- Industry good practice is the norm
- Comprehensive and integrated farm plans
- Freedom to operate within agreed limits
- Improved returns on capital
- Improved environmental health

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# Water Quality: Sub-regional

- Integrate quality, quantity and storage issues together
- Where regional approach will not meet the Plan's objectives and/or Zone Committee Priority Outcomes, specific limit setting process:
  - Rules setting NDA
  - Specific rules concerning implementation of policy regarding compliance with NDA (timing)

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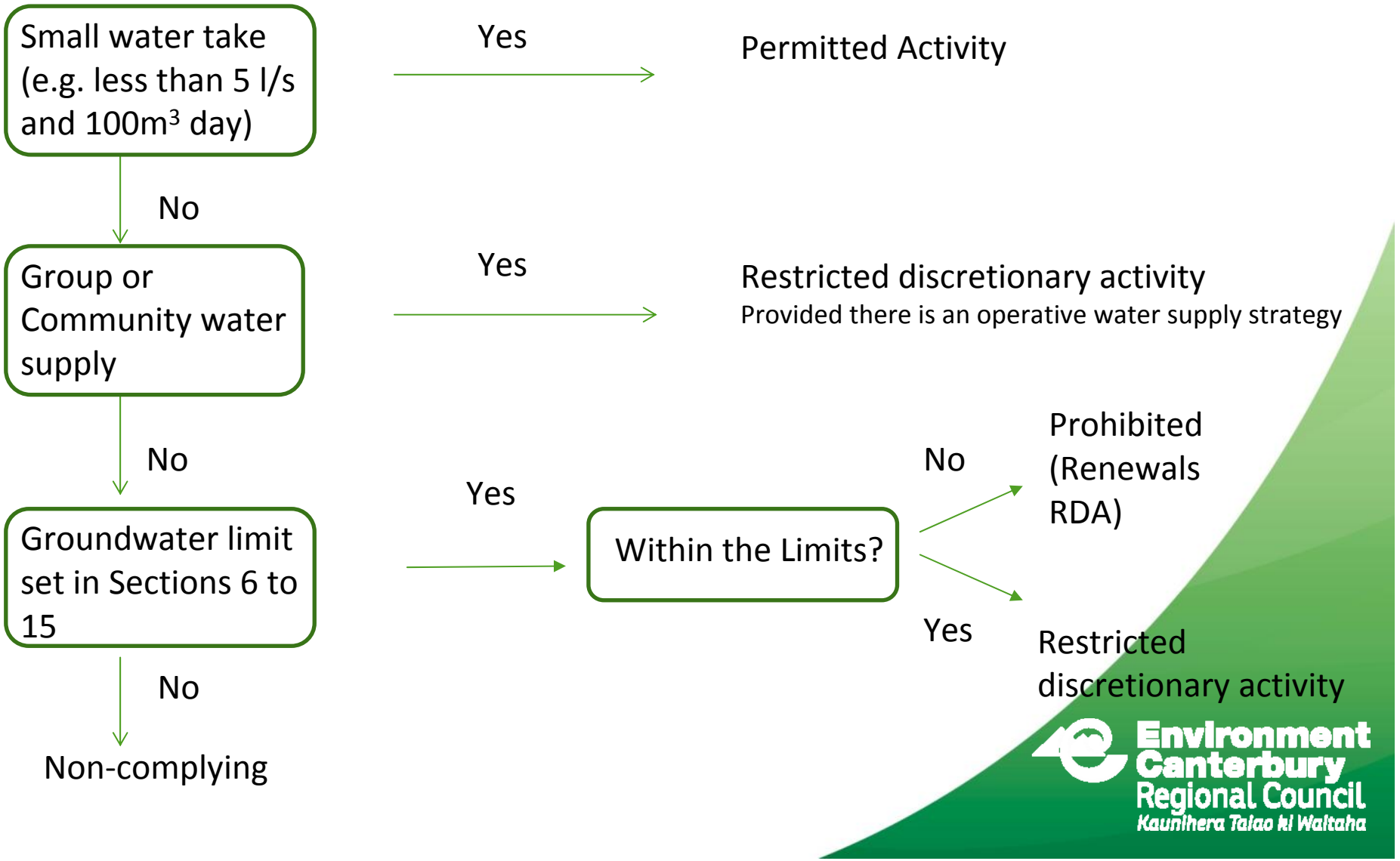
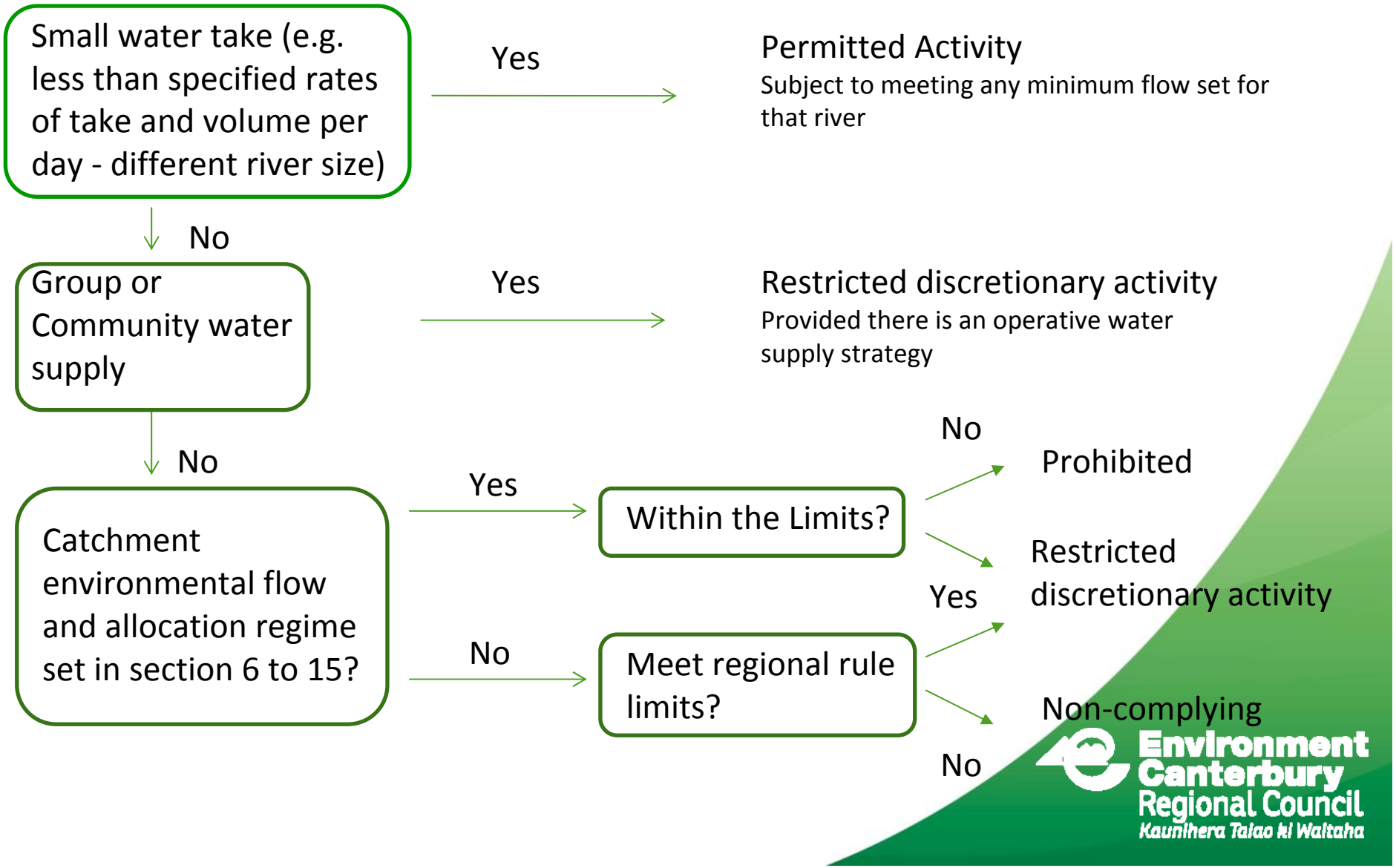
# Regional Rules: Groundwater abstraction



# Regional Rules: Surface water abstraction



# Flow sensitive catchments

- manage effects arising from the interception of rainfall run-off on surface water flows

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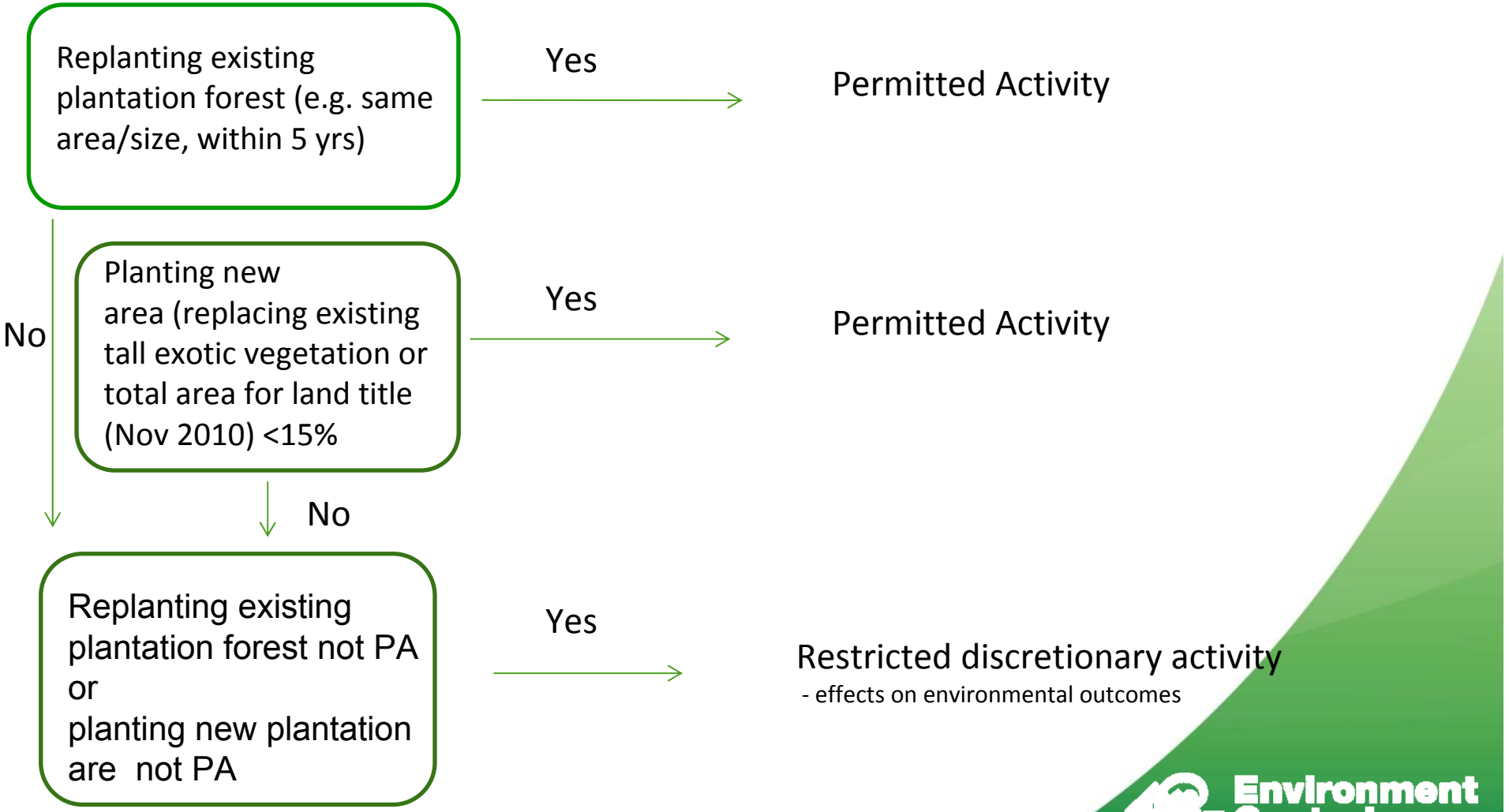
# Regional Rules: Flow Sensitive catchments

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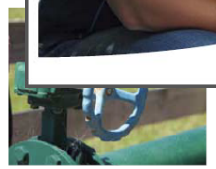
# LWRP Section 10: Banks Peninsula

Environment Canterbury
Regional Council
Kaunihera Taiao ki Waitaha

# Set environmental limits for Te Roto o Wairewa/Lake Forsyth

- integrated land and water management – catchment specific
- priority
  - degraded state of lake
  - particularly high importance for Ngāi Tahu
- for water quality and quantity

**Levels of service**

Levels of service show you how effective our work programmes are in delivering measurable benefits to ratepayers and the region.

Measures & Targets - Canterbury Water Management Strategy

**Level of Service 1: Set environmental limits for water quality and quantity in Canterbury**

Measure: A schedule of notified RMA plans is implemented.

Target: See table. *Achieved in 2010/11.*

| Target | Notification |
|---|---|
| A Regional Land and Water Plan that sets freshwater objectives, environmental flows and water quality limits as required by the National Policy Statement on Freshwater Management | 2012/13 |
| Sub-regional components of the Regional Land and Water Plan to set environmental flows in the Ashburton river, the Orari River and Waihao River | 2012/13 |
| A sub-regional chapter for integrated land and water management in the Selwyn-Waihora catchment | 2012/13 |
| A sub-regional chapter for integrated land and water management in Hinds River and Ashburton-Rangitata groundwater | 2013/14 |
| A sub-regional chapter for integrated land and water management for Wairewa/Lake Forsyth | 2013/14 |
| [illegible] Morven Glenavy groundwater | [illegible] |
| A sub-regional chapter for integrated land and water management in the Waitaki catchment | 2014/15 |
| A sub-regional chapter for integrated land and water management for rivers and groundwater in the Orari-Opihi-Pareora zone | 2017/18 |
| A sub-regional chapter for integrated land and water management for the Ashley River and Waimakariri zone groundwater | 2017/18 |

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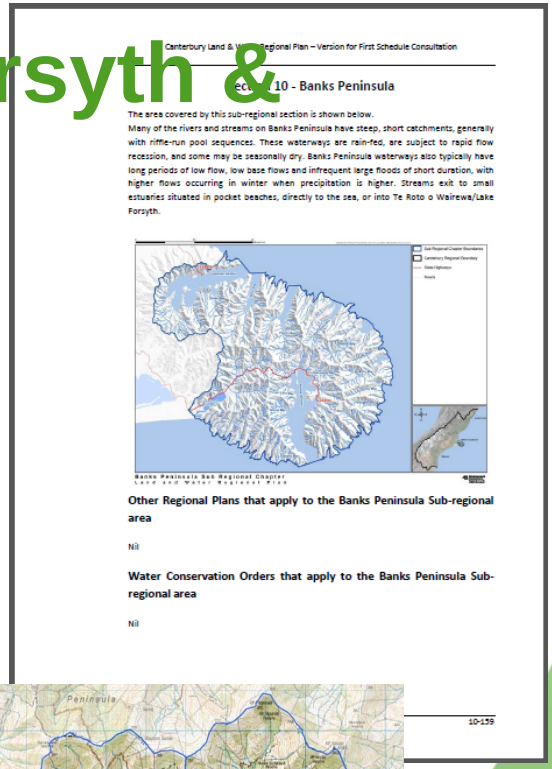
# Te Roto o Wairewa/Lake Forsyth & catchment

Main elements

- zone priority outcomes (ZIP)
- additional policies and rules
- allocation limits
  - environmental flow and allocation regimes limits
  - groundwater allocation limits
  - catchment nutrient load limits and allowances
  - flow sensitive catchments



Canterbury Land & Water Regional Plan – Version for First Schedule Consultation

ection 10 - Banks Peninsula

The area covered by this sub-regional section is shown below.

Many of the rivers and streams on Banks Peninsula have steep, short catchments, generally with riffle-run pool sequences. These waterways are rain-fed, are subject to rapid flow recession, and some may be seasonally dry. Banks Peninsula waterways also typically have long periods of low flow, low base flows and infrequent large floods of short duration, with higher flows occurring in winter when precipitation is higher. Streams exit to small estuaries situated in pocket beaches, directly to the sea, or into Te Roto o Wairewa/Lake Forsyth.

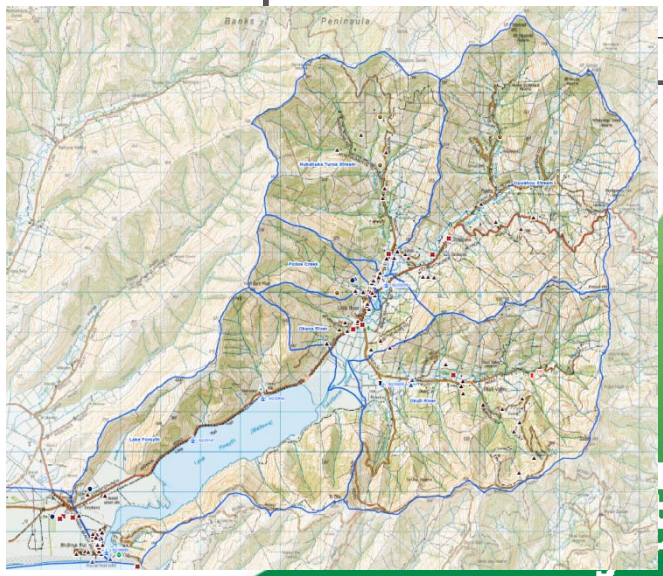
Other Regional Plans that apply to the Banks Peninsula Sub-regional area

Nil

Water Conservation Orders that apply to the Banks Peninsula Sub-regional area

Nil

10-159




ronment
terbury
nal Council
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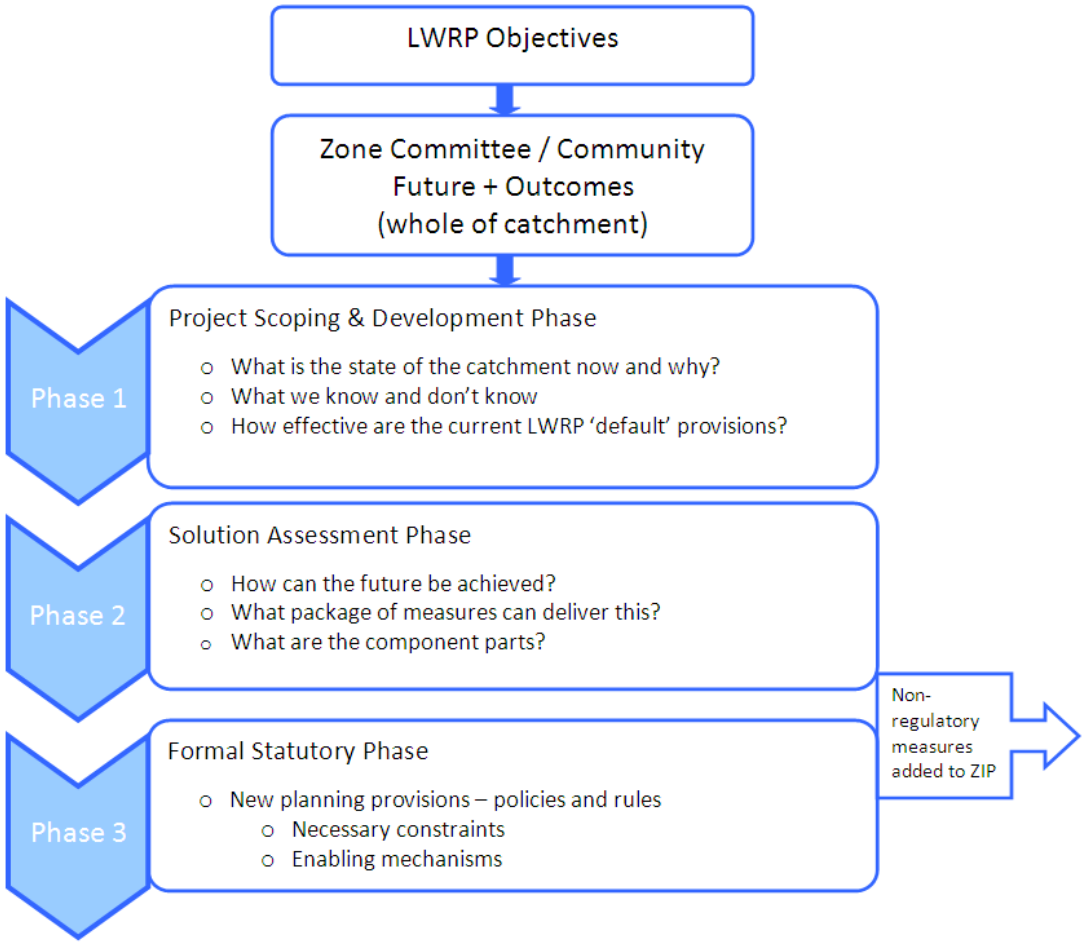
# What process is likely to look like

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# Key roles, first steps….

## Key Roles

- Te Rūnanga o Wairewa –
  - Kaitiaki
  - Treaty partner
- Zone Committee -
  - set direction
  - champion Phases 1 & 2
  - make recommendations
- Community
  - focus
  - assess options
- ECan Commissioners
  - kept informed on progress
  - make decision

## First steps…

- Establish Priority Outcomes (draft ZIP)
- Treaty Partner engagement discussion
- Establish Project Management Team
- Draft Project Plan
- Knowledge gathering and gap analysis

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