

# Te Waihora lake level management

Te Waihora Living Lake  
Symposium 2015

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# Presentation Outline

1. Quick history
2. How the lake is opened
3. The rules and how decisions are made
4. 1 January 2013 to 30 June 2015 – what happened?



# Brief history of level management

- Before human intervention - lake would have naturally opened by overtopping beach-crest (approx 4m)
- Tangata whenua opened the lake for fish migration and flood control
- Use of horse drawn scoops from 1868 to 1904, 1925-1931
- 1904 Dobson's culvert
- 1908 Pannet's culvert, destroyed 1925
- 1931 Ellesmere Drainage Board purchased power scoops
- 1947 North Canterbury Catchment Board took responsibility (current levels formalised)
- Currently managed by Environment Canterbury and Te Rūnanga o Ngāi Tahu → now managed for broader range of values





*Lake Oharewa - Great Harbour - North Harbour, 1886*

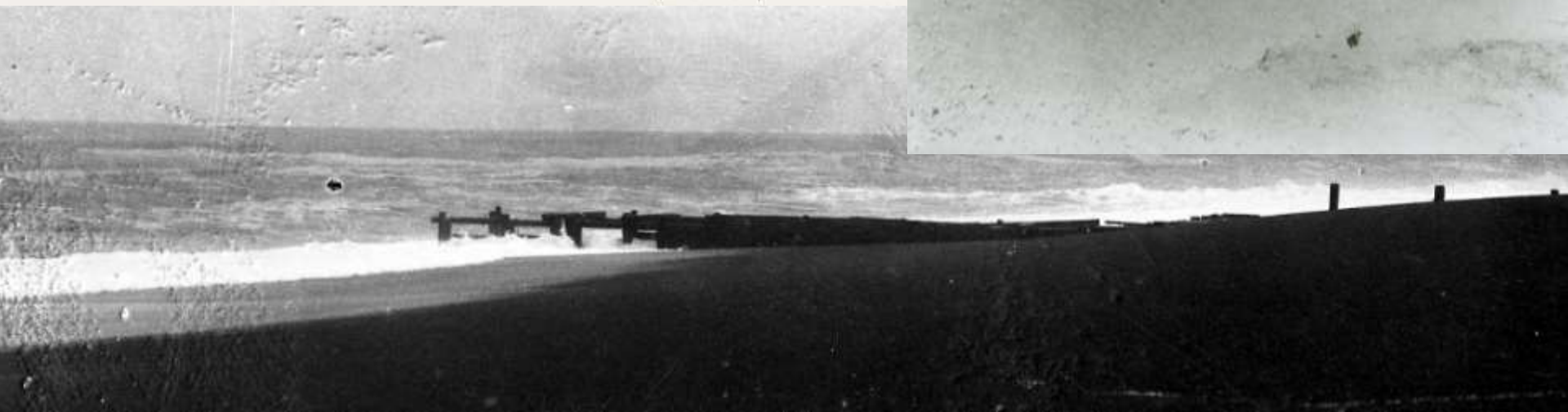


Figure 1.2 Historic opening 1886  
(A.W. Hands, collection, Canterbury Museum)

# Features of the site & how opened



# Mechanical Openings

Achieved by making a temporary cut through the beach

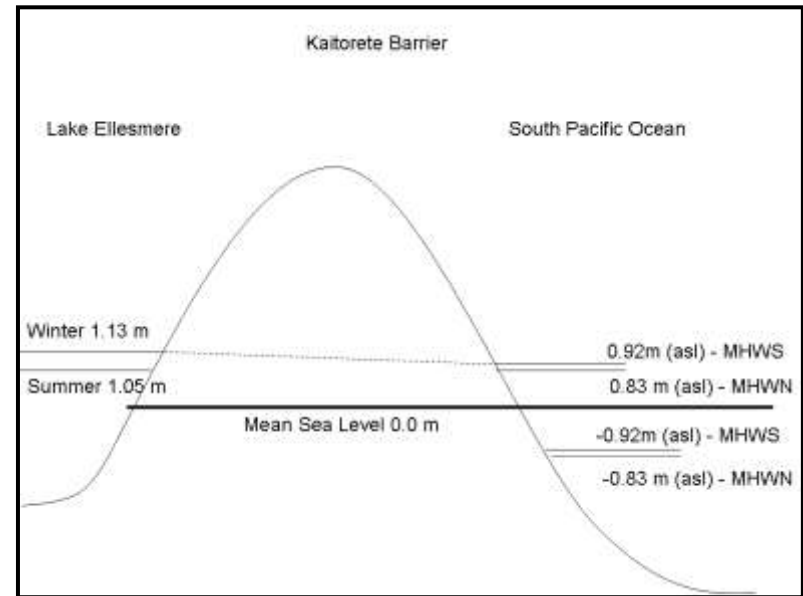
- 1.5 - 2.0m deep channel
- 10 -15m wide channel – ~75m wide at beach crest
- up to 300m long
- ~ 30,000m<sup>3</sup> material moved
- ~ 3 - 5 days to create channel

Factors affecting openings

- Swells and wave action
- Tides and hydraulic gradients
- Wind

Between ~\$20,000 to \$120,000 per opening

Between 2 to 6 openings per year







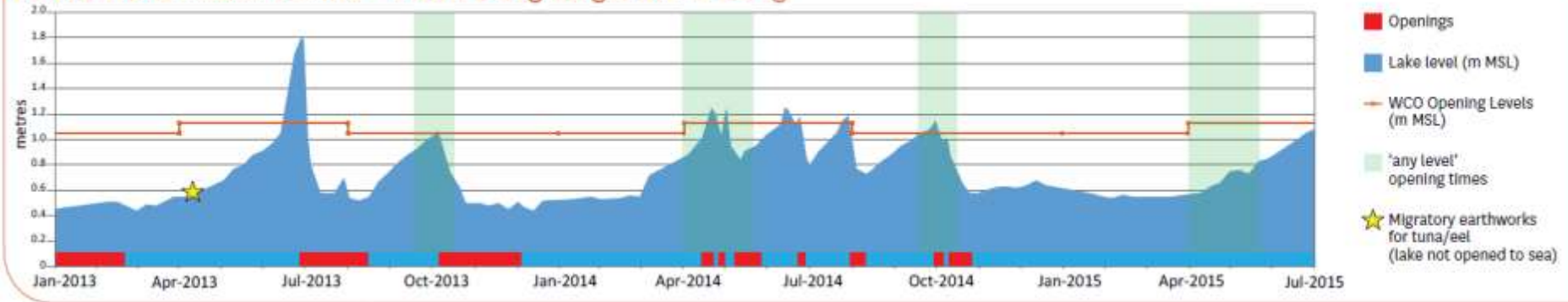


# Decision for opening

- Water Conservation Order (WCO) sets minimum levels and 'any level' opening times
  - 1.05m masl 1 August – 31 March
  - 1.13m masl 1 April – 31 July
  - Any level 1 April – 15 June & 15 Sept – 15 Oct
- Resource consent (mirrors WCO minimum levels)
- Opening decision process – Protocol Group
  - Protocol members: Lake Settlers, Taumutu Rūnanga, CCC, SDC, CRC, Ngāi Tahu, WET, DOC, F&G, Commercial Fishers
  - Aim is for group to reach consensus on decisions. Where consensus is not reached the final decision is made jointly by CRC and Ngāi Tahu (as joint consent holders)

# Water levels: 1 Jan 2013 to 30 June 2015

Te Waihora water levels - 1 Jan 2013 to 30 June 2015



Te Waihora openings: 1 Jan 2013 - 30 June 2015

Date opened	Date closed	No. days open	Level open	Level closed
15/12/2012	21/02/2013	68	1.08	0.51
29/06/2013	15/08/2013	47	1.81	0.52
5/10/2013	4/12/2013	60	1.07	0.51
21/04/2014	29/04/2014	8	1.25	1.03
2/05/2014	11/05/2014	9	1.24	0.84
15/06/2014	21/05/2014	6	1.24	1.12
24/06/2014	29/06/2014	6	1.18	0.85
29/07/2014	9/08/2014	15	1.19	0.73
30/09/2014	6/10/2014	6	1.15	0.99
9/10/2014	25/10/2014	16	1	0.58

No openings between 1 Jan and 30 June 2015

## 2013

- 3 long openings
- earthworks for eel/tuna
- flood event

## 2014

- 7 shorter openings





# HIGH LAKE - JUNE 2013



24/06/2013



24/06/2013



# Assisting eel/tuna migration



April 2013

**QUESTIONS?**