

Rotorua Lakefront 6pm 2nd Jan 2012

Lake Rotorua @ 280.236m above SL



Ohau Weir 6pm 2nd Jan 2012

Lake Rotorua @ 280.236 above SL

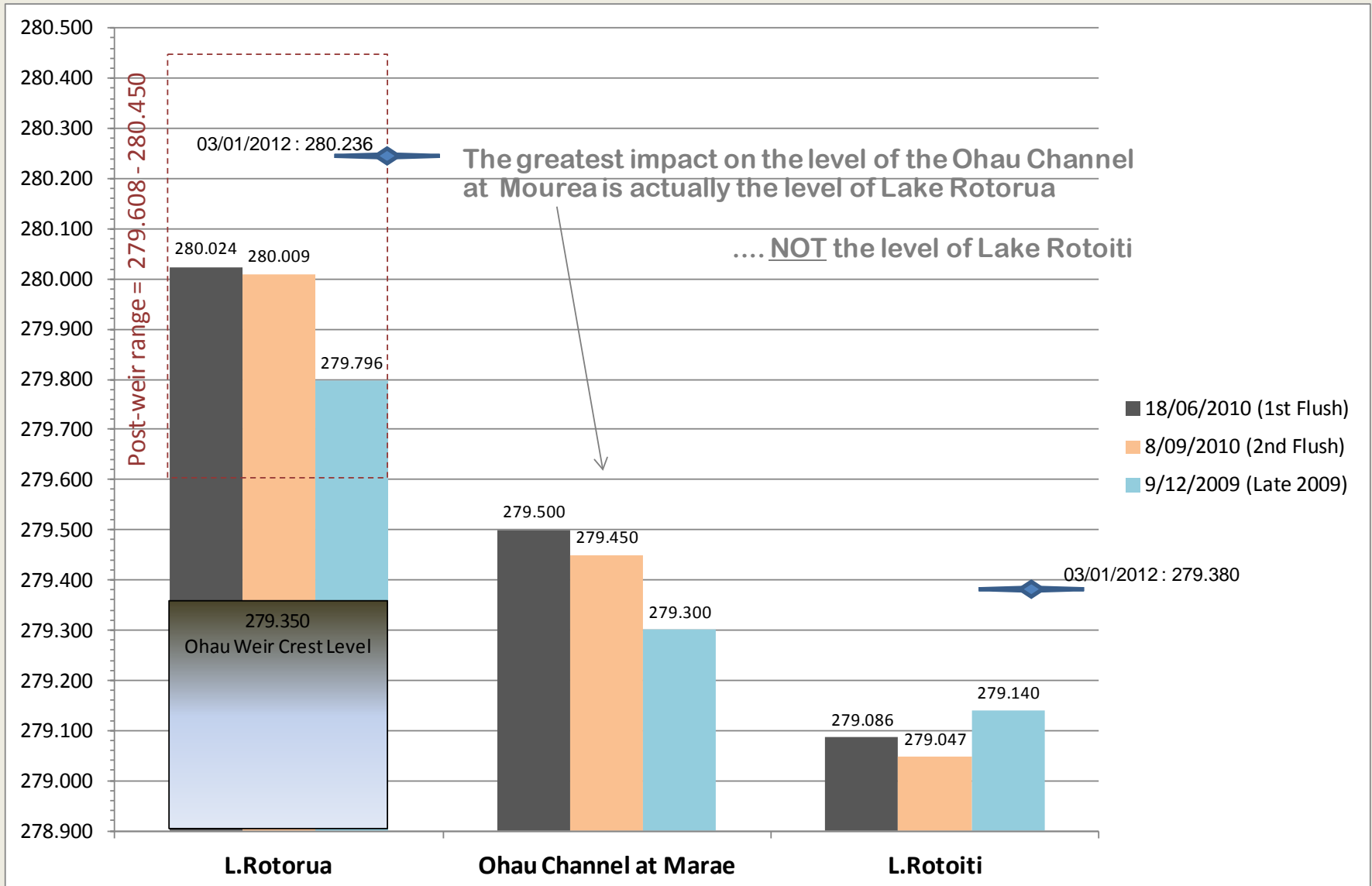


Mourea 6pm 2nd Jan 2012

L.Rotorua 280.236, L.Rotoiti 279.380



Comparative Lake & Channel Levels





Lake Rotoiti



What is clear?



1. Historical levels for Lake Rotoiti (since 1906 at least) were **higher**, not lower, than levels experienced after control structures were installed
2. There has been a significant loss in the range of levels since 1981 (Okere gates installed 1982), **mostly at the top end** via consideration for lakeshore flooding

Bottom Sill Heights

Bottom Sill Height



Pre-Gates Rock Ledge

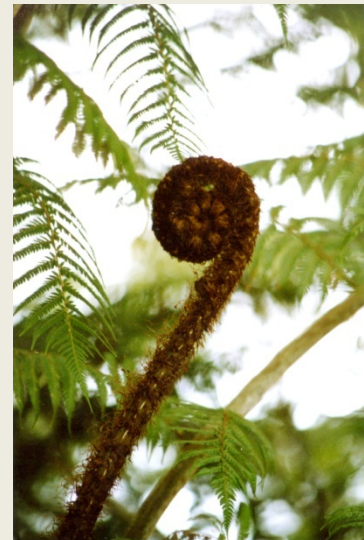
Low Weir Option

Existing Gate Sill

600mm

974mm

hence... removal of the Gates
or Gates wide open long-term
- are not sensible options



The Data and the Science

All data presented here today is derived from the **official peer-reviewed dataset** which has been corrected for:

- **tectonic shift** (*ref. LINZ survey benchmarks 1953 and 1997*)
- **water level drawdown effects** (*only for 1998-2007 dataset used in modelling*).

Note: The 1906-1997 dataset was not required for the modelling of future levels. Without a verifiable reference the dataset for that period was therefore not adjusted for drawdown effects – hence ‘actual’ levels for that period will likely be *slightly higher* than the official dataset.



Presentation Summary

- A. Process update for Okere Gates Consent
- B. Current proposal (subject to Environment Court sign-off)
- C. Lake Rotoiti levels in the 100 years from 1906
- D. How does the current proposal compare?
- E. Probable issues for the future



Process Update



- A. **6 December 2010** - Formal Consent Hearing
- B. **Early 2011** - Hearing Decision appealed by Ngati Pikaio Environmental Society (cultural, spiritual, environmental concerns cited) and BOP Regional Council (practical logistics cited). LRCA et al registered as “interested parties”
- C. **August and September 2011** - Mediation Meetings with Environment Court Commissioner
- D. **Late October 2011** - eventual agreement to amended consent conditions. Sign-off anticipated
- E. **Late November 2011** – late objections by a 3rd party which had attended *neither* the Consent Hearing *nor* subsequent mediation
- F. **December 2011** – Environment Court agrees to deferral of final decision until 27th January 2012

Current Proposal

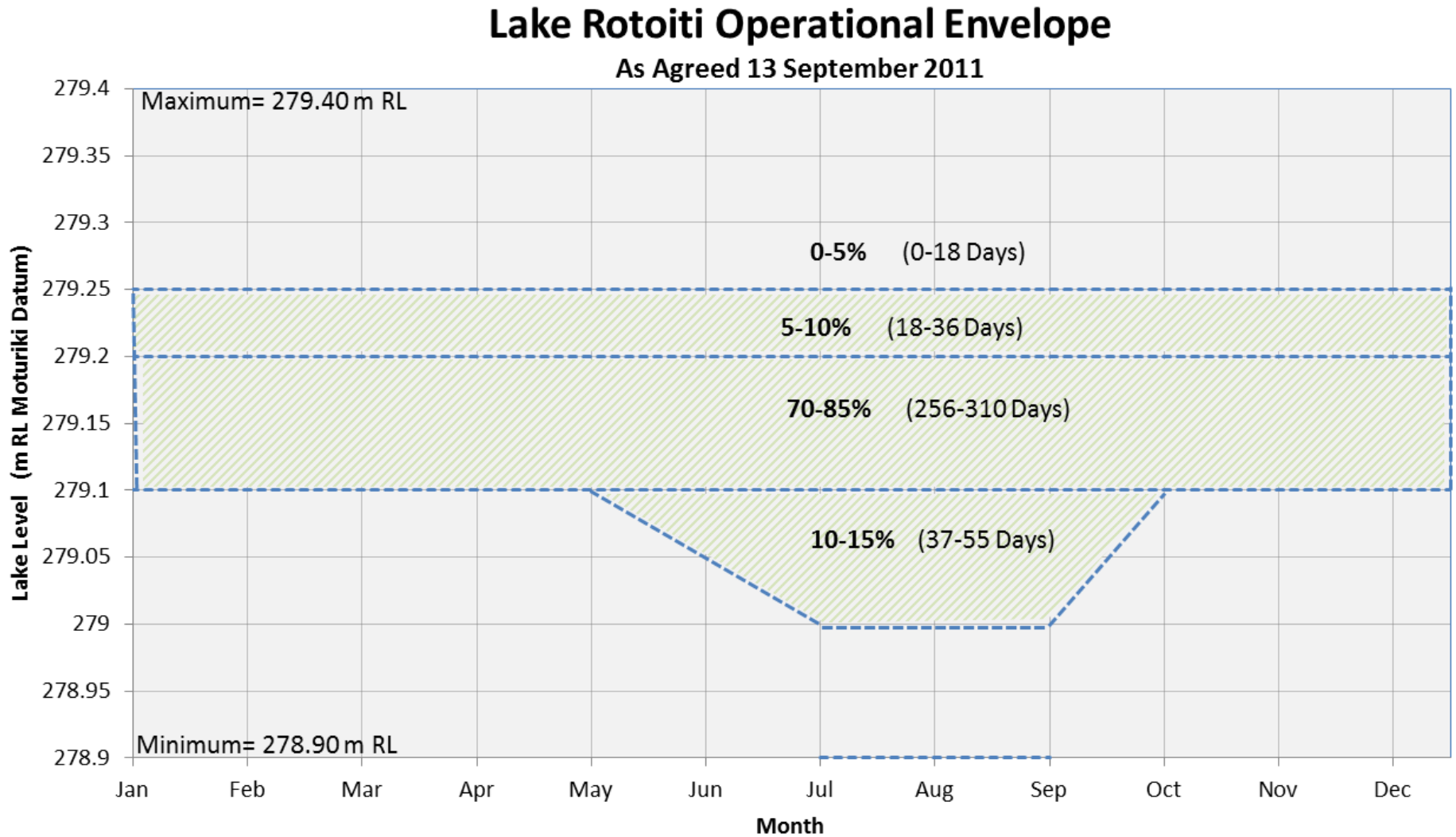
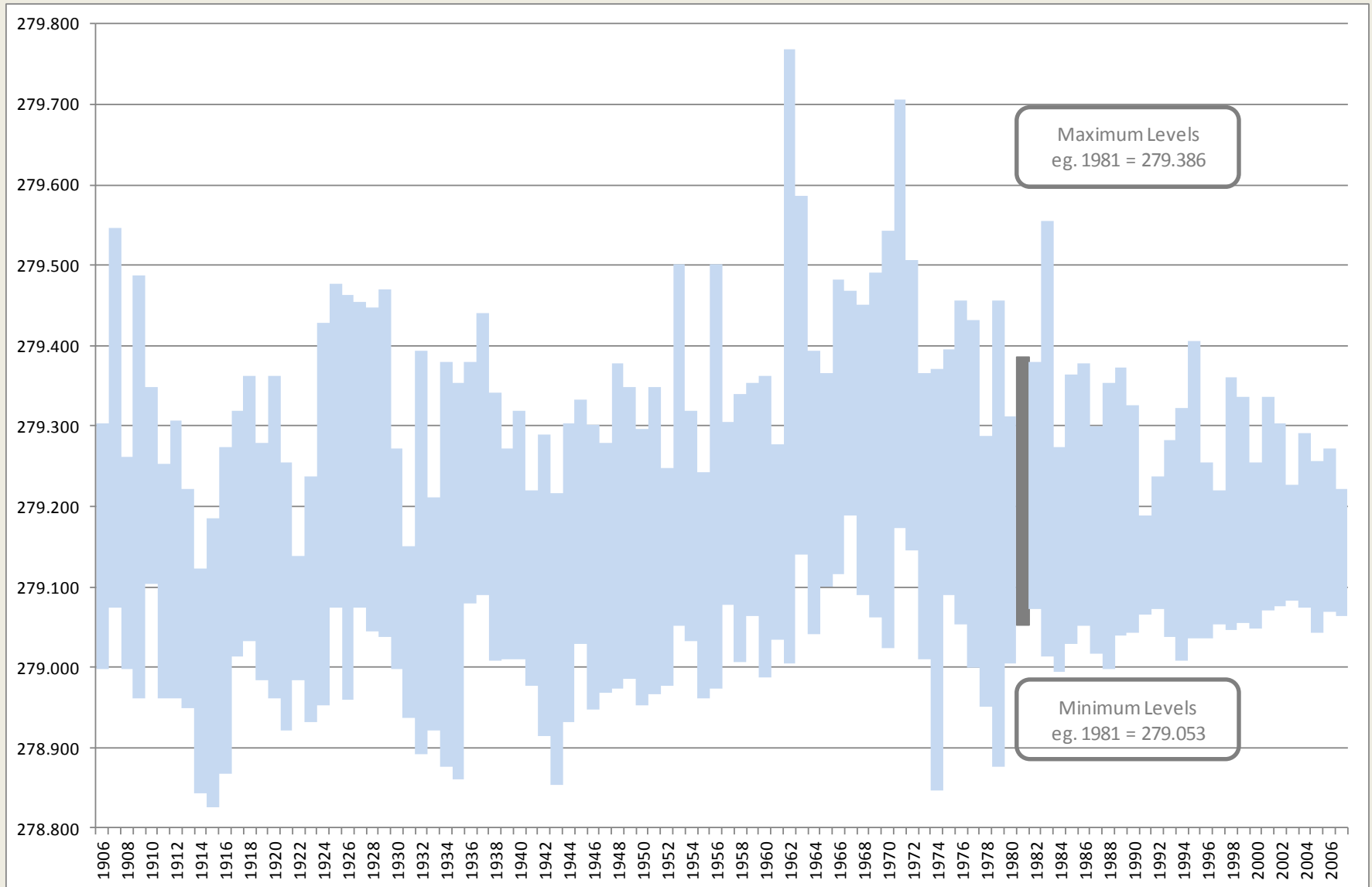


Figure 1: Schematic of Lake Rotoiti operating envelope as agreed at mediation 13

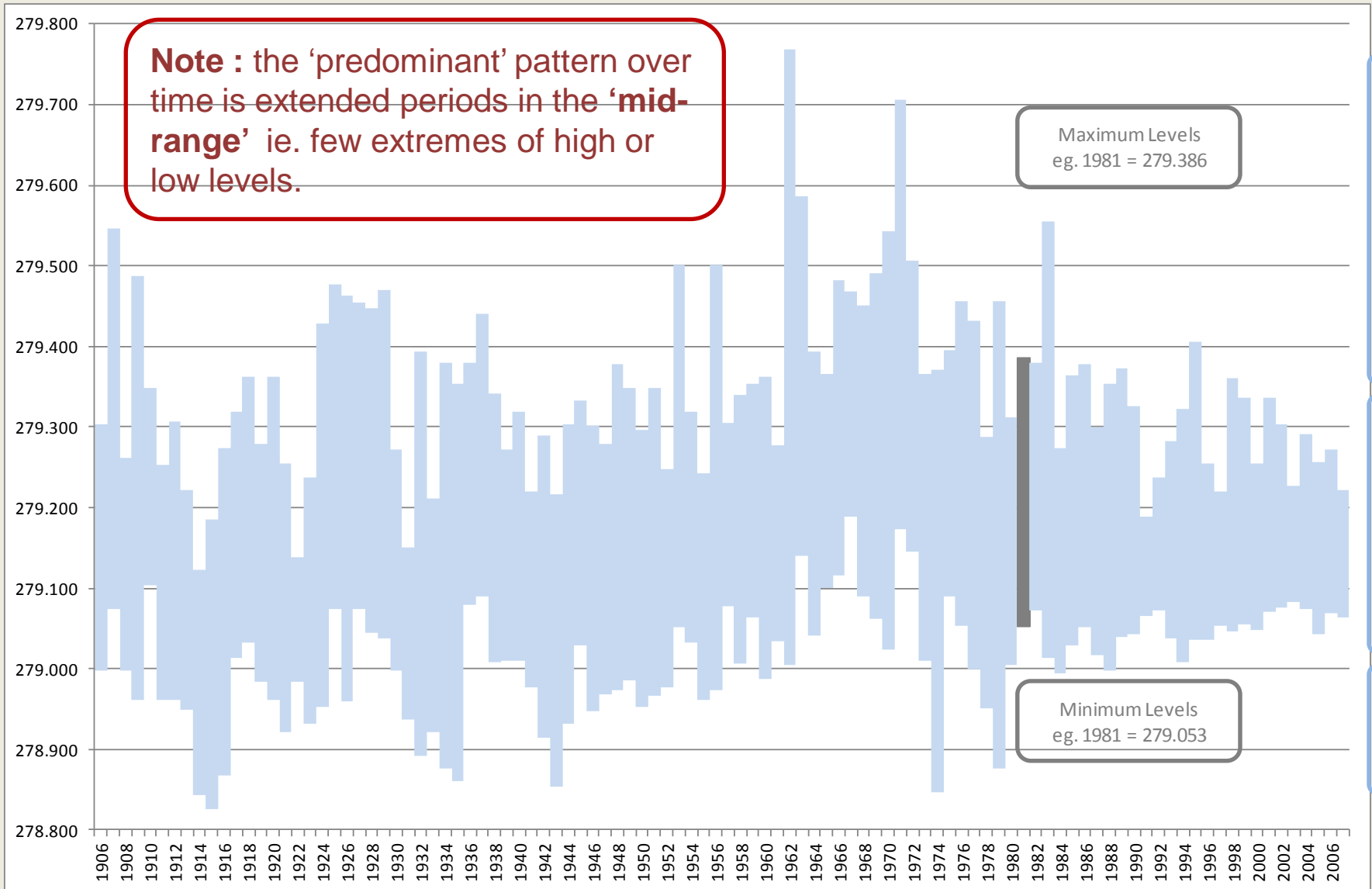
Levels in 100 years from 1906-2007



Official Data Record



Official Data Record



7%

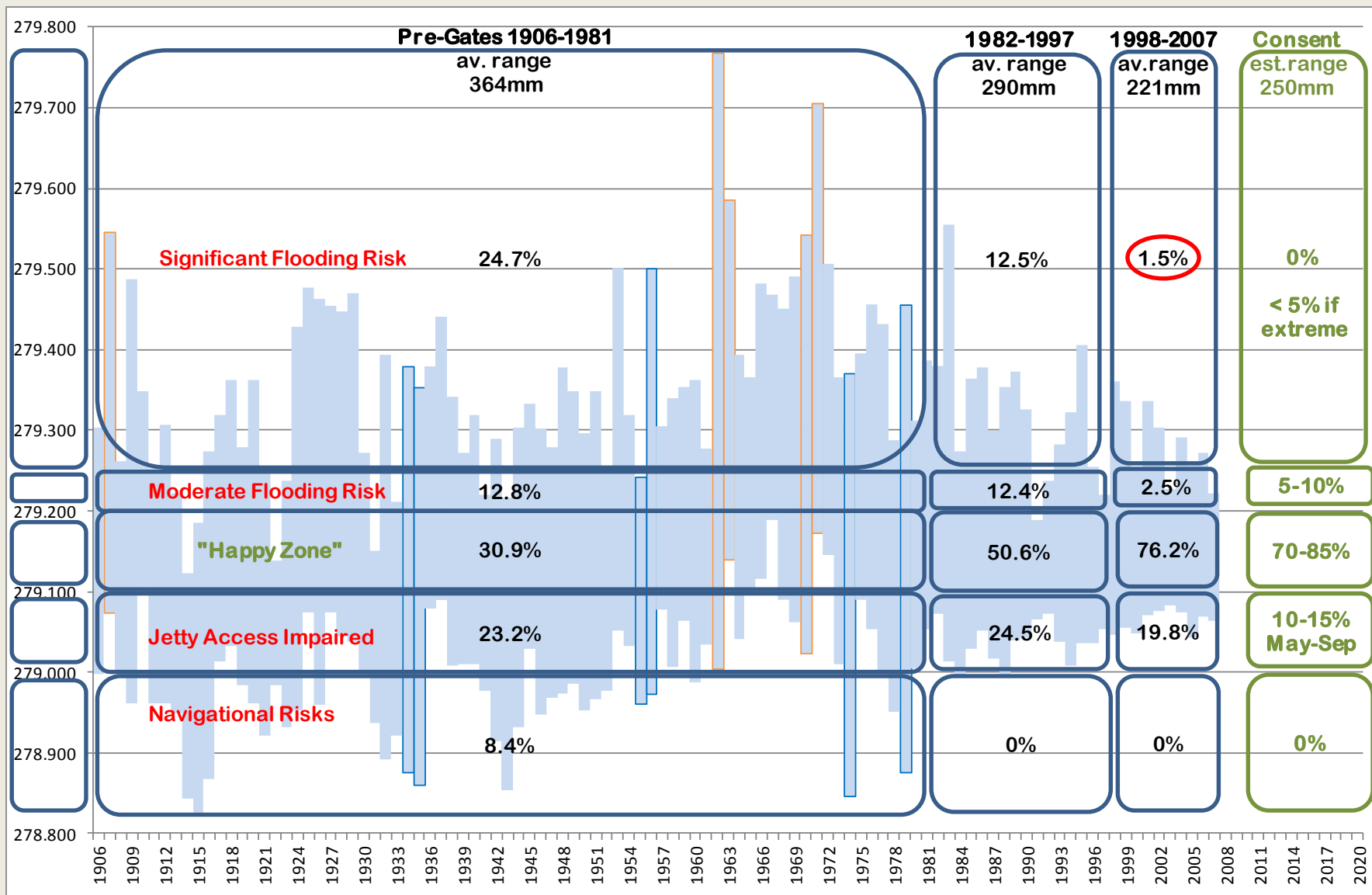
85%

8%

How does the Current Proposal compare?



Historical vs. Current Proposal



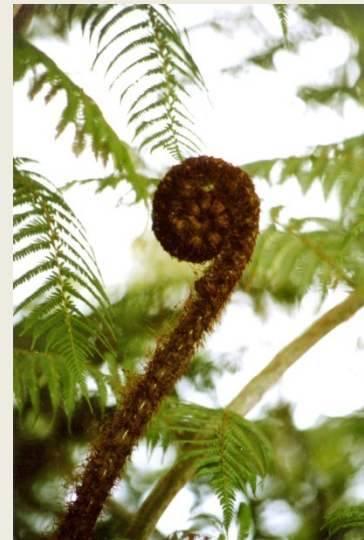
Probable issues for the future

Perceptions of

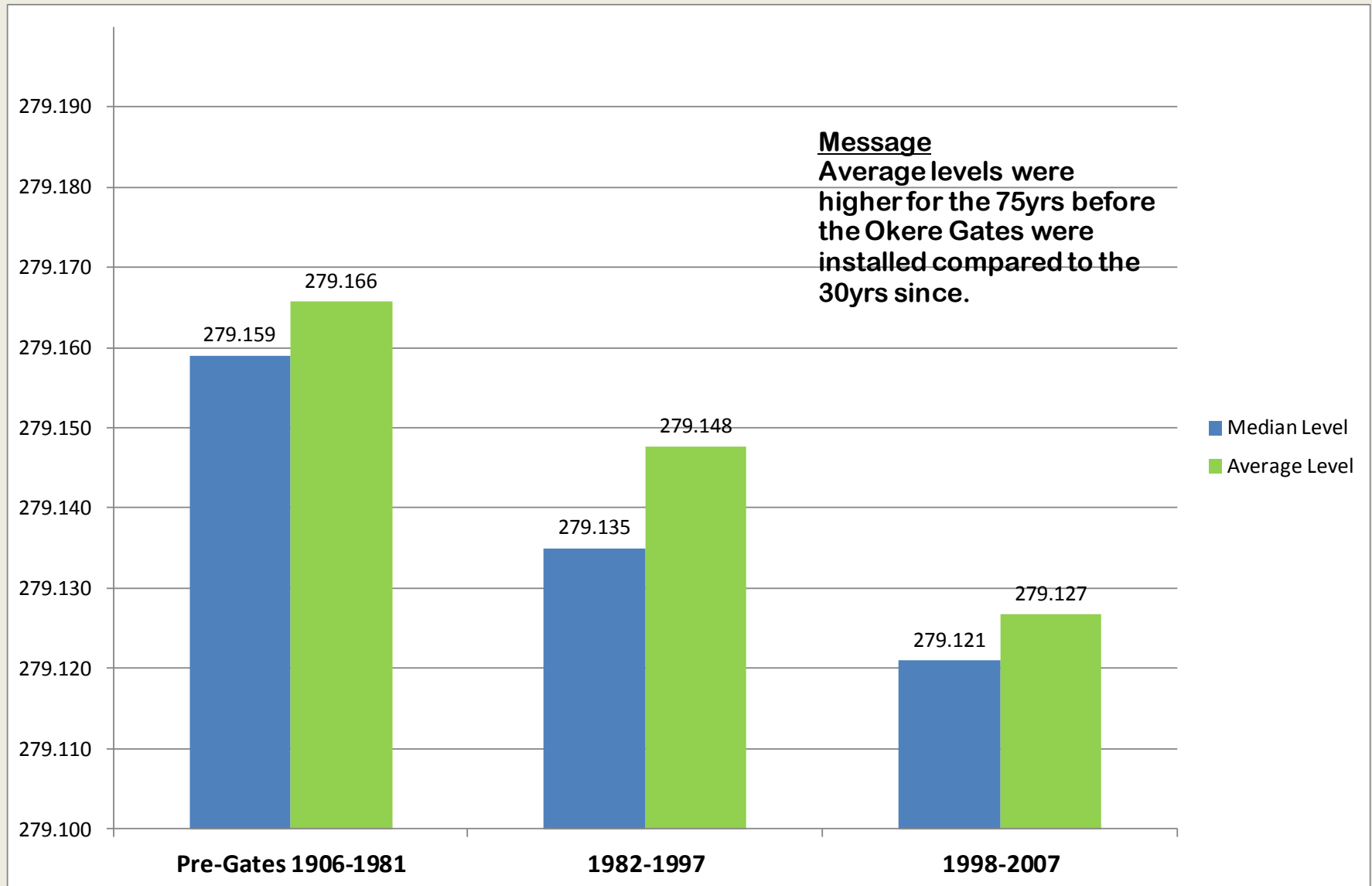
- Lakeside flooding
- Loss of beaches
- Cultural and spiritual impacts



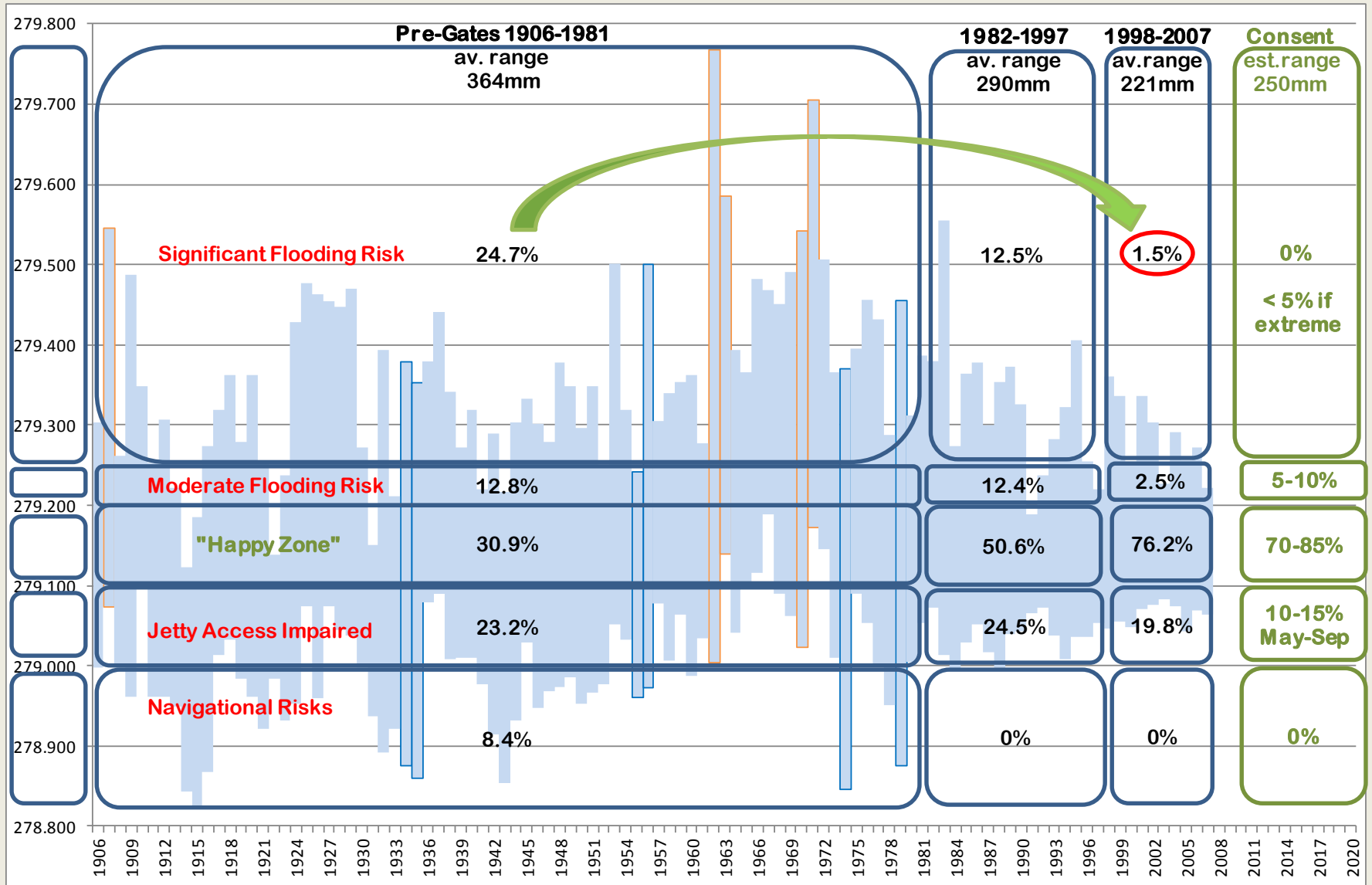
Lakeside flooding?



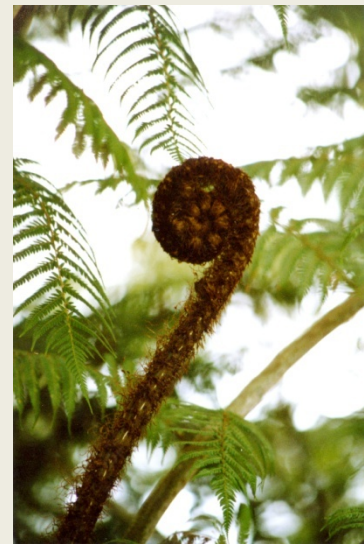
Lake Rotoiti levels were higher pre-Gates



Okere Gates have reduced the flooding



So why do parts of our community claim that the Okere Gates have increased lakeside flooding?



Perhaps? ...

- **sinking land** has increased the relative risk of flooding at the eastern end of Lake Rotoiti
- **levels in the Ohau Channel** are incorrectly presumed to equate the levels of Lake Rotoiti
- **memories & recollections** may have become blurred over time?

1953-1997 (41 yrs)

Hinehopu dropped 67mm cf. Okere Arm

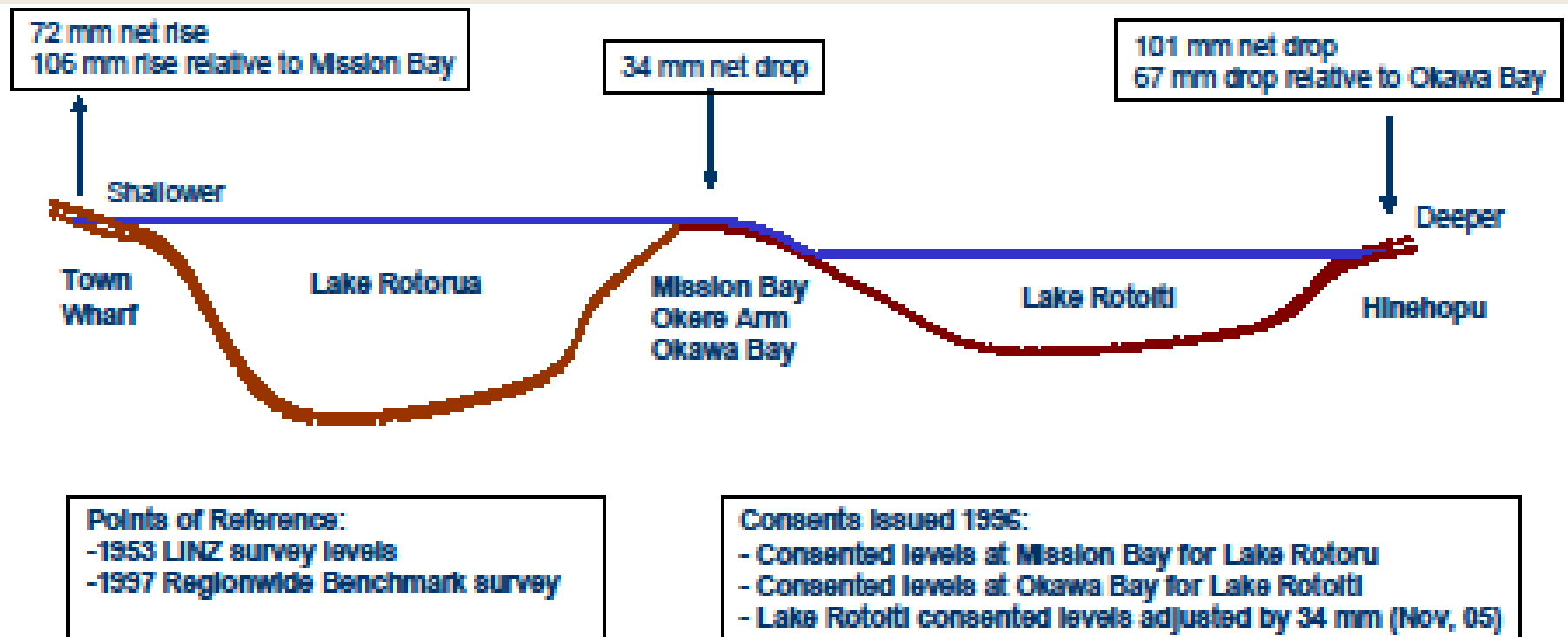
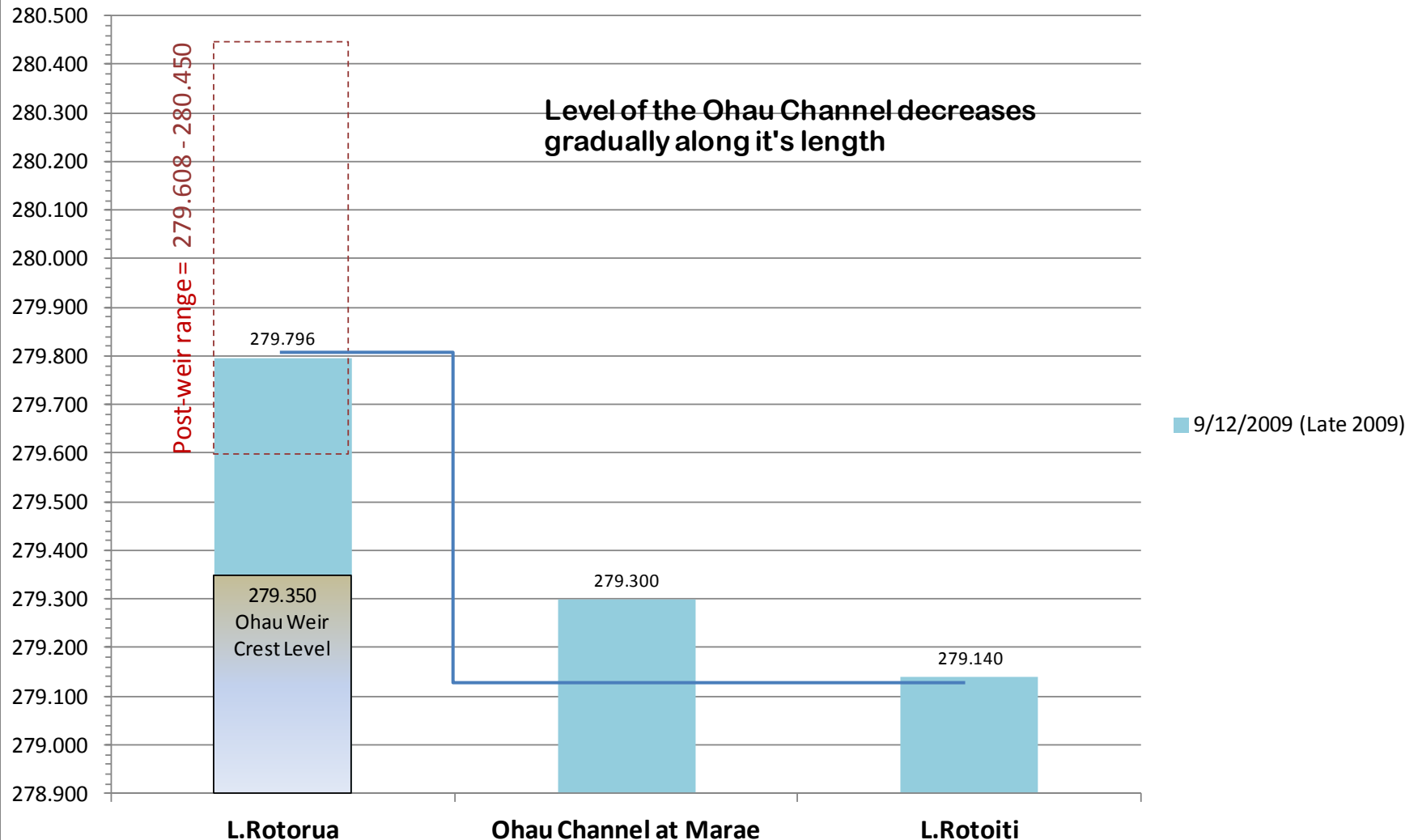


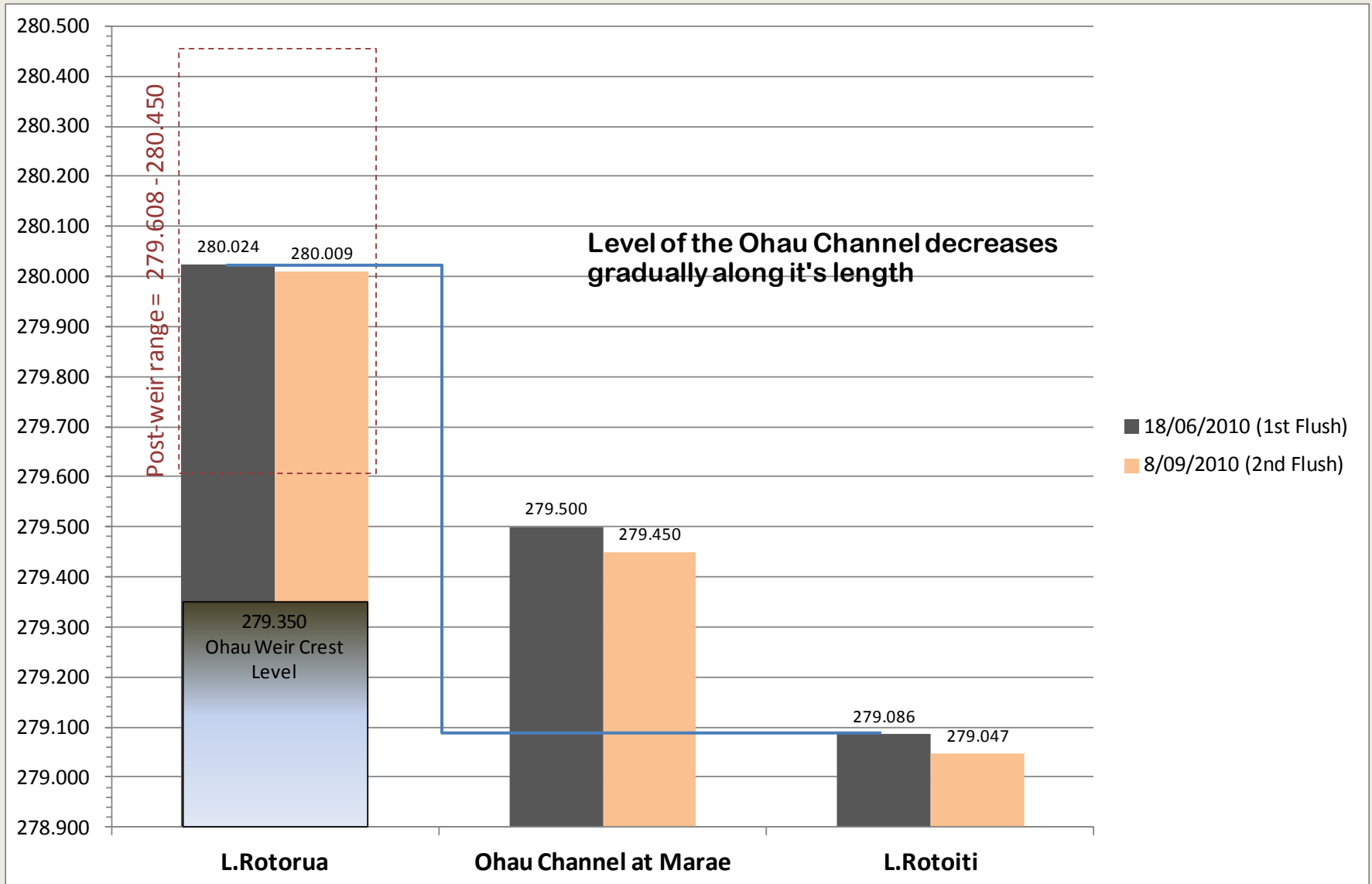
Figure 1 Simplified schematic showing relative tectonic movement at Lakes Rotorua and Rotoiti.

Rotorua-Ohau-Rotoiti Levels Dec 2009

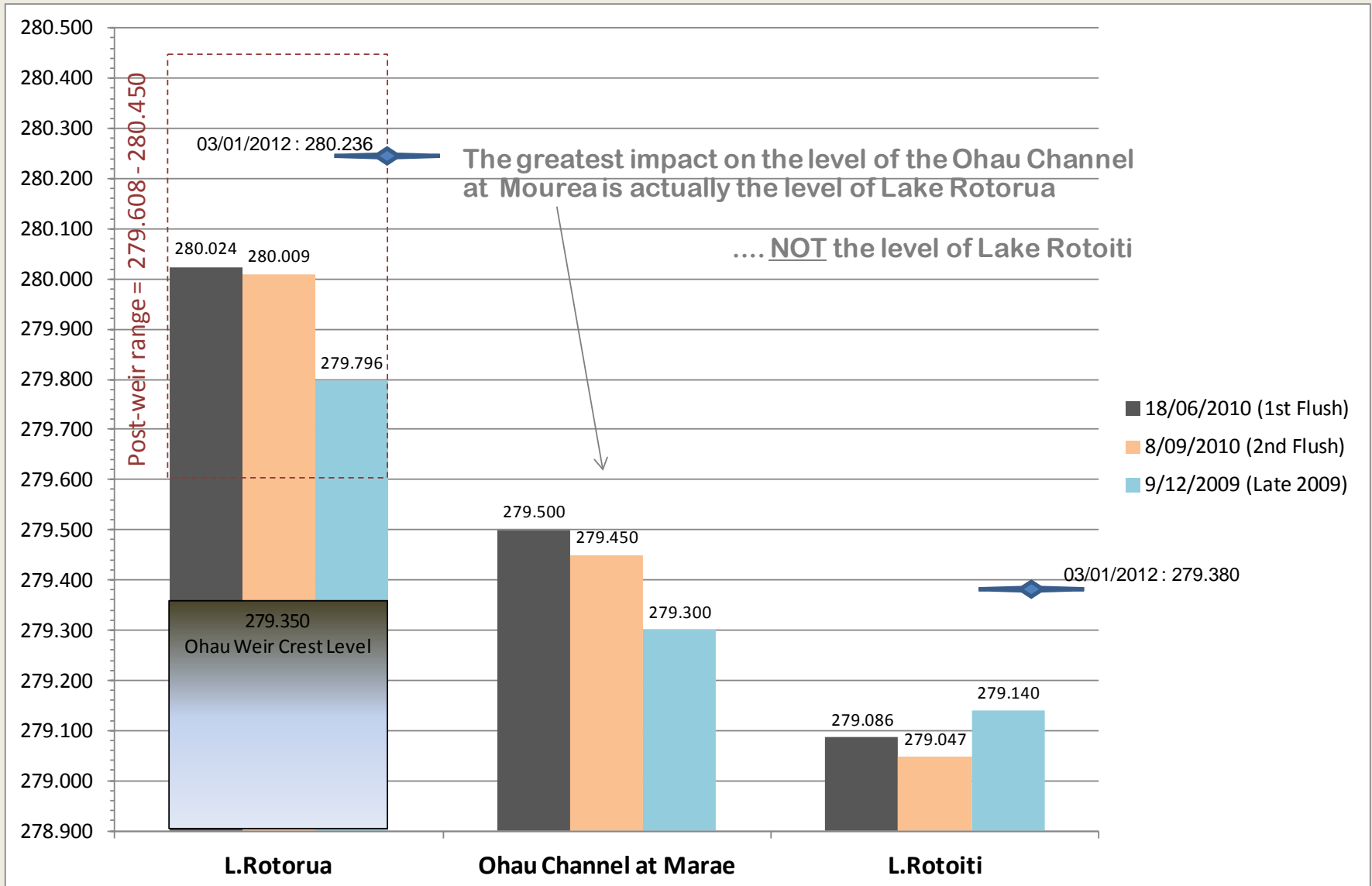
9/12/2009 (Late 2009)



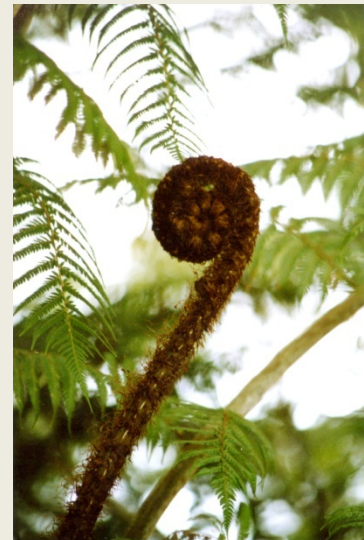
Rotorua-Ohau-Rotoiti 'Flush' 2010



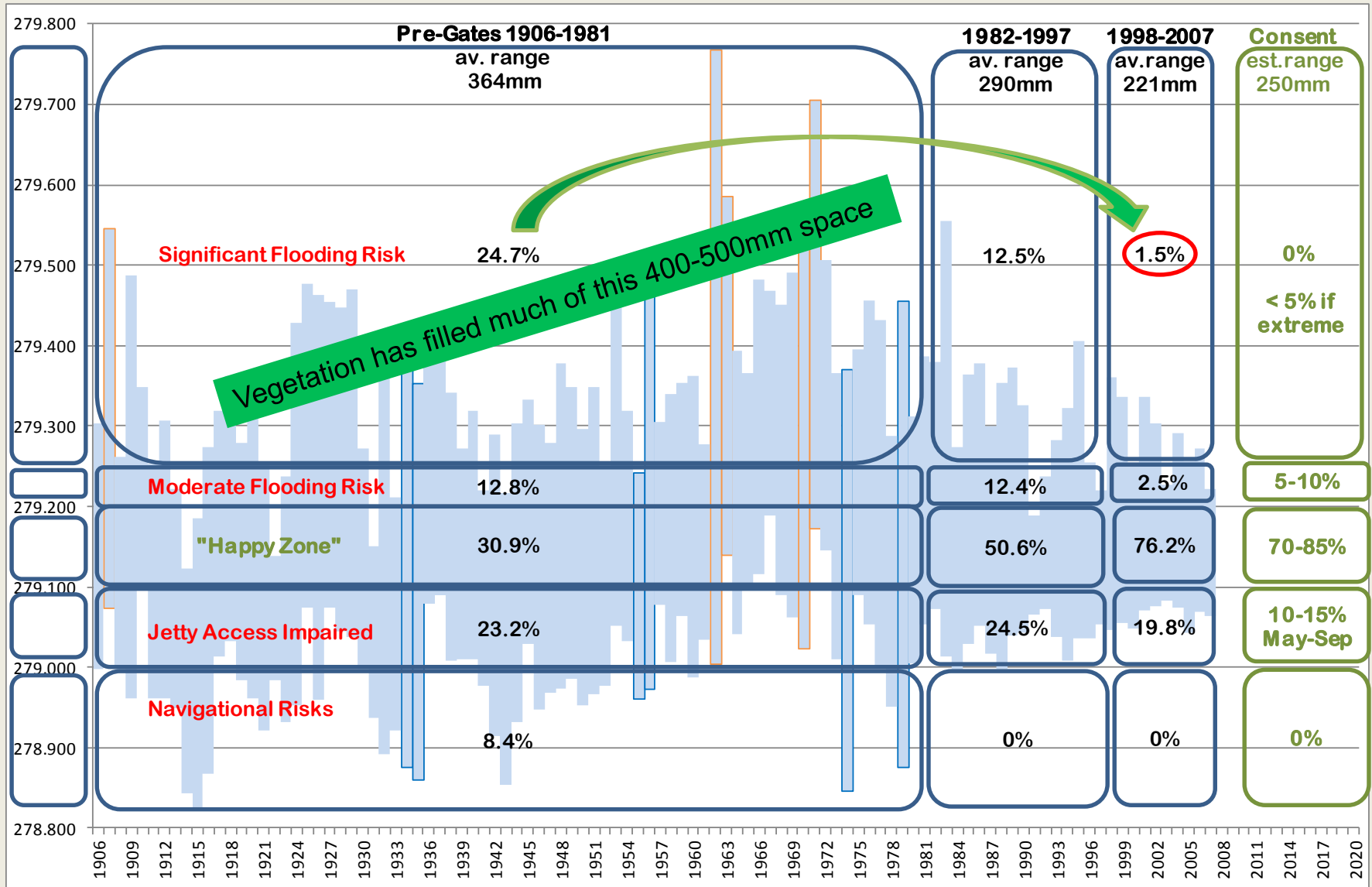
Comparative Lake & Channel Levels



Loss of beaches?





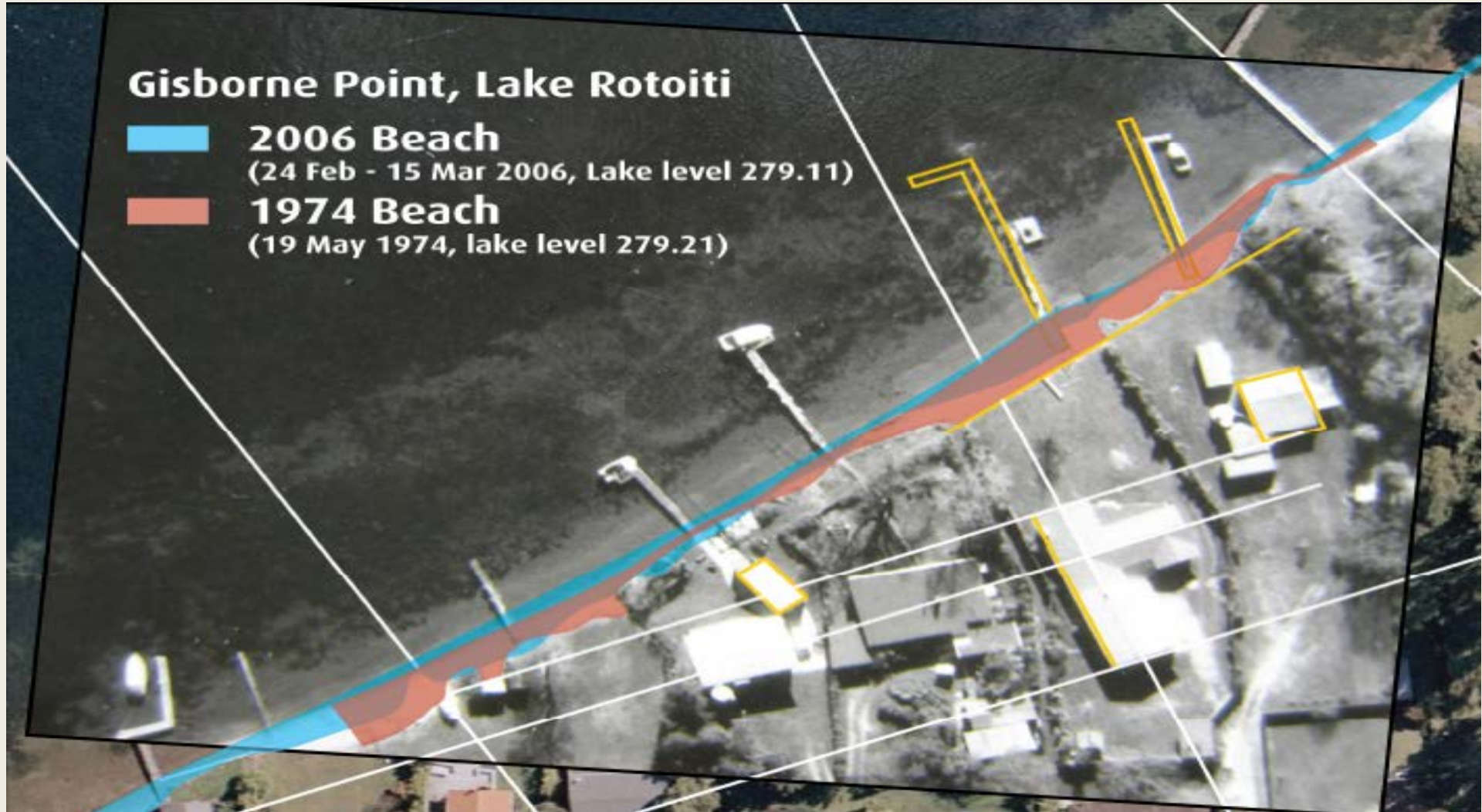
Reduced flooding = reduced beaches



Photos also tell a story ...

Gisborne Point, Lake Rotoiti

-  **2006 Beach**
(24 Feb - 15 Mar 2006, Lake level 279.11)
-  **1974 Beach**
(19 May 1974, lake level 279.21)



More about the beaches ...

1. LRCA supports a programme of beach **retention and restoration** (eg. spraying and clearance)
2. **Data and photographs** show that **much of the 'lost beaches' are currently above water level**
3. 'Loss of width' is mainly via **decreased high water levels and re-vegetation**
4. **Change in the supply of substrate** is also likely to affect beach formation – insufficient new material from the catchment results in eventual shrinkage of beaches (*ref. Nick Miller submission as appendix to LRCA submission*)
5. Some beaches are in a **constant state of flux** (eg. Hinehopu)





Thank you

