

Tarras Community Workshop

Lindis Minimum Flow

1 April 2015



Discussion about:

- Lindis values
- Amendment to initial proposal
- Recent work undertaken
- Economic impact of a minimum flow
- Amend catchment boundary

Consultation Process

- Considering new information (submissions, hearings, deliberations)
- Progressing notification:
 - Formal RMA process ensures all interested parties remain involved in the process
 - Irrigators have time to prepare for the new regime (2021 expiry of deemed permits)



Lindis Values

Values	Wants/Needs	Concern
Natural character	Make the river flow again	Dry river bed
Recreational	Improve river for swimming, angling	Lack of water to provide characteristics
Cultural values	Protect mahika kai (food) and Mauri (life-force, health of river)	No water connection to Clutha
Ecosystems	Provide fish passage Improve fish habitat for native/exotic species	Meaningful flow to Clutha Galaxiid predation
Farming economy	Enable farming to remain viable	Sufficient water taking to support irrigation

Amendment to initial proposal

Primary allocation	Minimum flow	
	Oct - Nov	750 l/s
	Dec- April	450 <u>750</u> l/s
	May	750 l/s
	June - Sept	1,600 l/s
	Primary allocation limit	1,000 l/s
Supplementary allocation	Minimum flow	
	Dec- April	1,600 l/s
	May – Nov	2,200 l/s
	Size allocation block	500 l/s

What will 750 l/s deliver?

Natural character	Flow continuity with meaningful flows throughout river
Recreational	Improved recreational opportunities throughout river (swimming, fishing)
Cultural	Mountains to sea Mahika kai and Mauri retained
Ecosystems	Fish passage along entire river Trout spawning, rearing & juvenile recruitment Improved native fish habitat (eel, bullies)
Economic	Water for irrigation with opportunity for investment (e.g. efficient irrigation, alternative sources, storage)



Is 750 l/s reasonable?

- 750 l/s min flow = 40% MALF
 - Taieri 93% - 51% MALF; Waitahuna 73% MALF; Manuherikia (Ophir) 48% MALF; Luggate Ck 33% MALF
- 750 l/s safeguards natural character, ecosystem, cultural and recreational values
- Gives effect to NPS FM 2014
- Irrigation remains available
 - Efficient irrigation, alternative source, storage
 - Transition (2015 – 2021 expiry deemed permits)



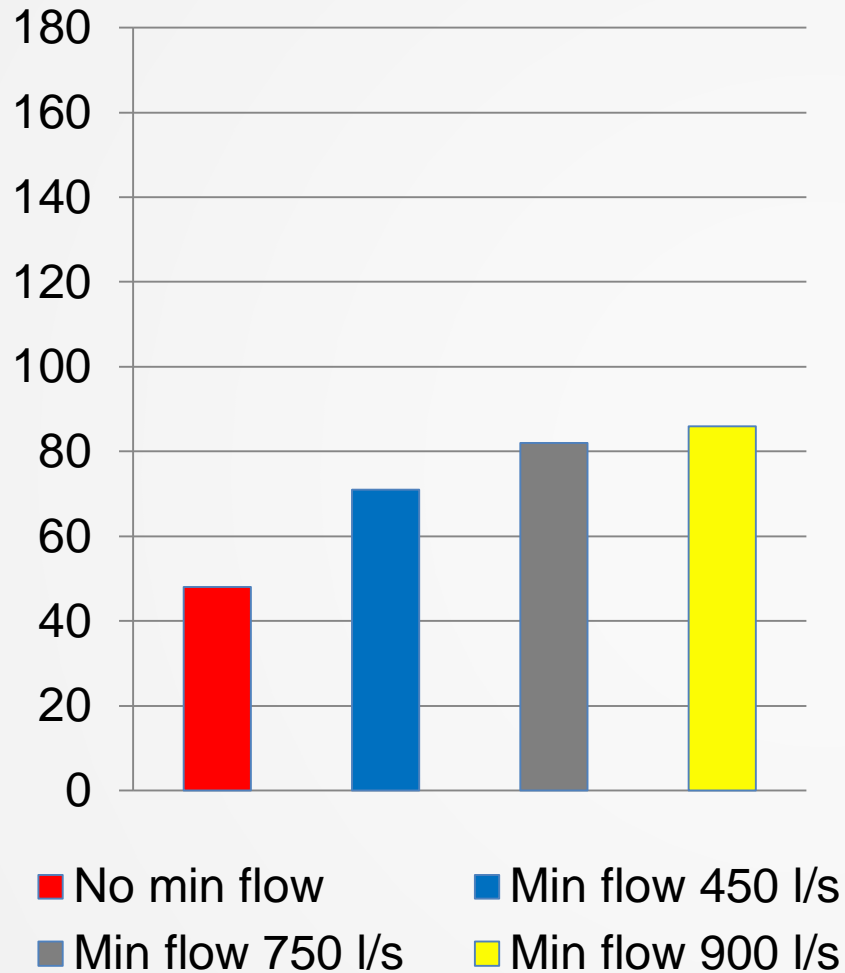
Recent work undertaken

- 2012/2014 hydrology study
 - Naturalised MALF 1,864 l/s - higher than previously calculated (1,600 l/s)
- Review ORC information (NIWA):
 - Ecological, hydrological, morphological info = robust
 - Choice of minimum flow/allocation could be further refined by quantifying surface water losses & assessment of any flushing regime = done

Recent work cont.

- Lower Lindis River surveys 2014/2015
 - Measured flow loss Ardgour Rd - Clutha 2015: 550 l/s (440 l/s in 07/08)
 - Increased flow loss due to changing bed armouring & aquifer level
 - Refuge pools do not protect aquatic life
- Economic Study (BERL/OPUS)
 - Environmental conditions have a greater impact on water available for irrigation
 - Any minimum flow would have relatively small economic impact in average year

BERL economic impacts:

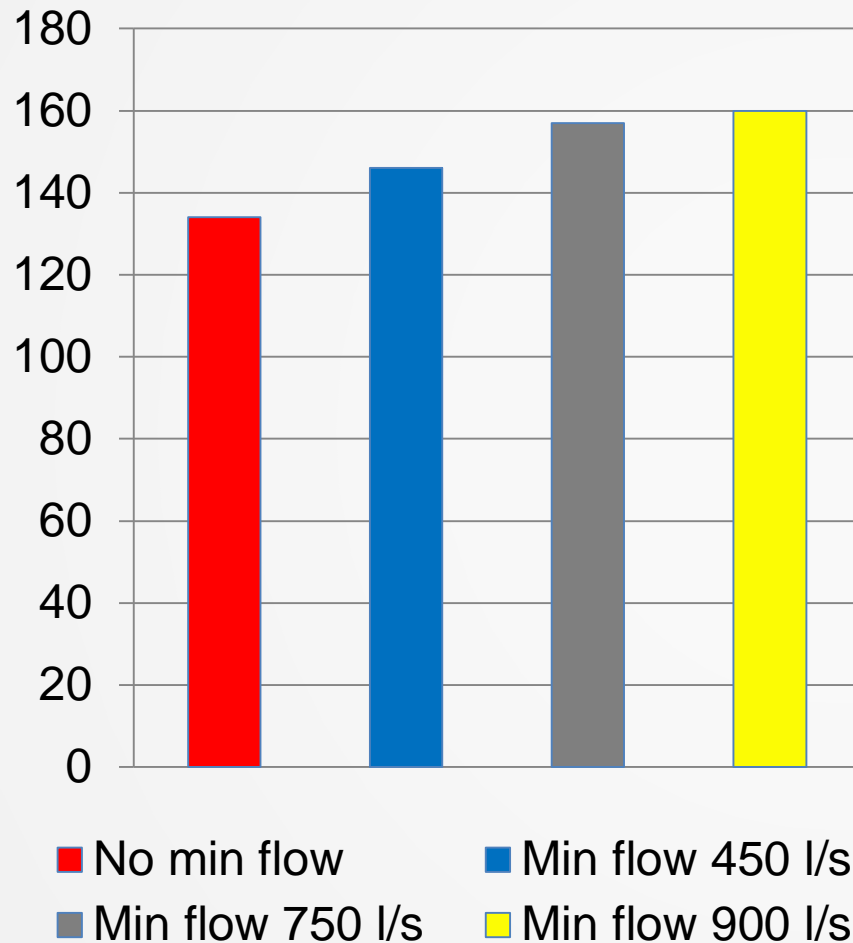


**Average year –
2008/2009**

No min flow:
48 restriction days
(17 consecutive)

750 l/s min flow:
82 restriction days
(50 consecutive)

Economic impacts cont.



**Dry year –
2005/2006**

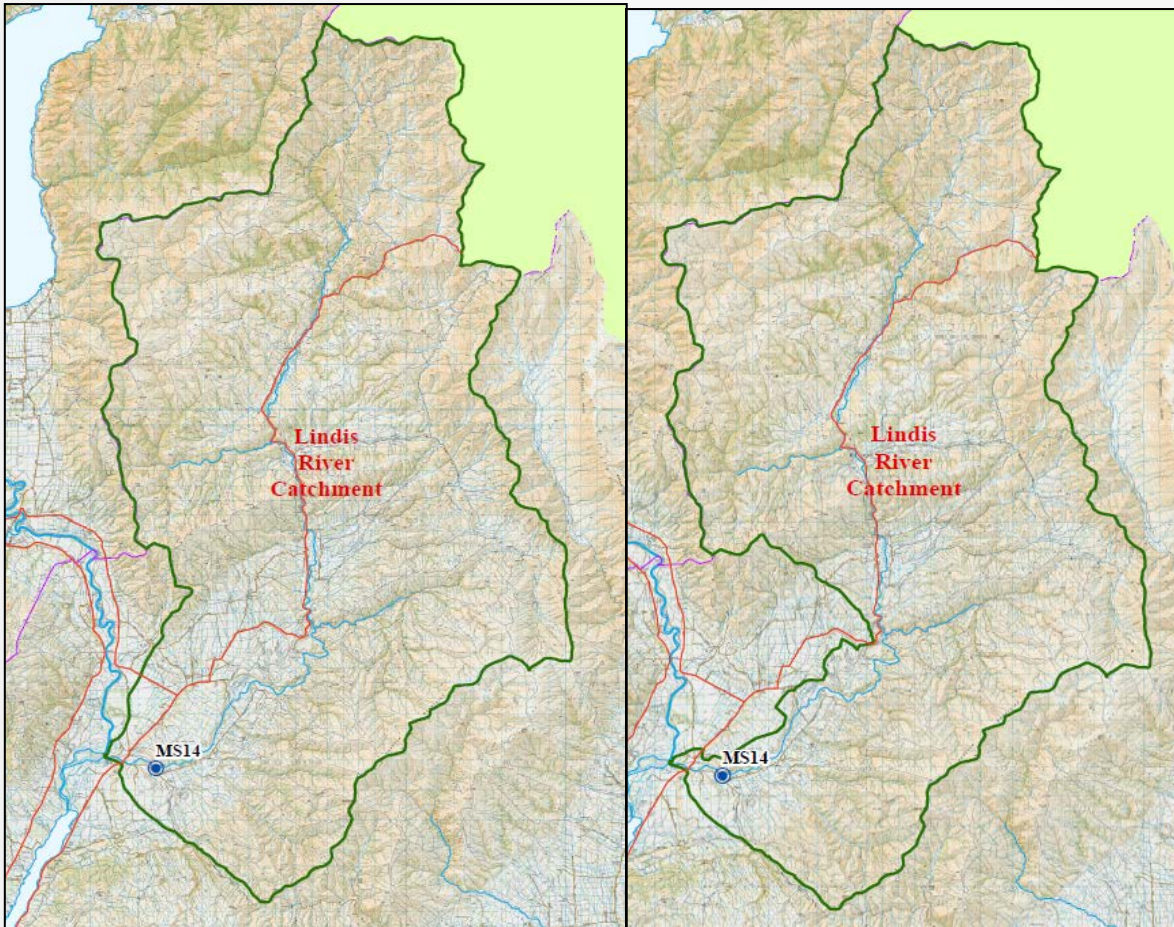
No min flow:
134 restriction days
(66 consecutive)

750 l/s min flow:
157 restriction days
(86 consecutive)

Amend catchment boundary

Previous

Proposed



**Amend
catchment
boundary**
Exclude the
Tarras Creek
catchment as it
has no
connection to
Lindis River or its
alluvial aquifer at
low flow



Key messages

- 450 l/s min flow does not:
 - protect ecosystem, cultural, recreational or amenity values of the Lindis River
 - give effect to NPSFM 2014
- ... but 750 l/s achieves these outcomes
- Water availability at 750 l/s min flow means water is available for irrigation
- Opportunity remains for adaptation during transition period

Next steps

- 22 April 2015 – Proposal to Committee
- 6 May 2015 – Proposal to Council
- 9 May 2015 - Notify Plan Change

Questions?



Challenges of setting a minimum flow

❑ Challenging environment

- Irrigation already restricted by environment
- Ecosystem, cultural values, natural character and recreational values currently not protected

❑ Role and obligations

- Community leadership: looking after well-being of Otago community.
- Meet NPS requirements (set environmental limits/levels, phase out over-allocation)



Challenges of setting a minimum flow

- ❑ **Competing values/different views**
- ❑ **Progressing *versus* postponing**

Possible benefits of delaying the process:

- No immediate costs (water supply infrastructure, storage, etc.)
- More info/clarity (DP replacement)

But delay is not a solution.....



Feedback Consultation Draft

minimum flow of 450 l/s

- ❑ **Does not deliver on anticipated outcomes**
 - No meaningful improvement to ecosystems, cultural and recreational values in Lower Lindis
- ❑ **Does not give effect to NPS:**
 - Does not look after ecosystem health, life supporting capacity
 - No connection between water bodies
- ❑ **No widespread community support for 450 l/s minimum flow proposal**

Economic Study (BERL)

The Brief:

Determine impacts of various minimum flow scenarios on regional economy, including agricultural activities, supporting services and industries, tourism.

Economic Study (BERL)

The principles:

- Thorough selection process
- Independent assessment
- Methodology not prescribed by ORC
- Request to assess impacts of various scenarios – NOT a proposal
- Consultants given consent info, water metering data & water use estimates provided by community to test assumptions



Economic impacts

Interpreting the results

This is a worst case scenario

1. Assumption no water on restriction days (100% on vs. 100% off). But most restriction days some water can still be taken.
2. Scope to reduce water needs by:
 - using more efficient irrigation
 - using alternative water sources on portions of the 2,186 ha



Economic impacts:

Scenario 2: Efficient irrigation

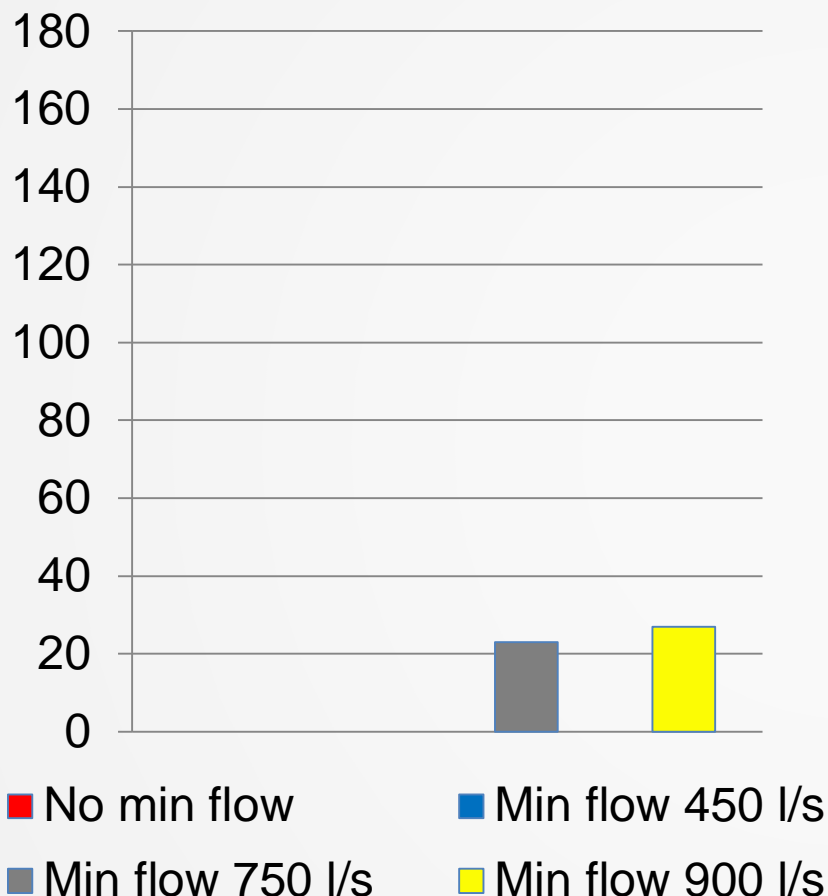
Average year – 2002/2003

No min flow:

0 restriction days
(0 consecutive)

750 l/s min flow:

23 restriction days
(7 consecutive)



Note: With current irrigation practices & no min flow: 65 restriction days

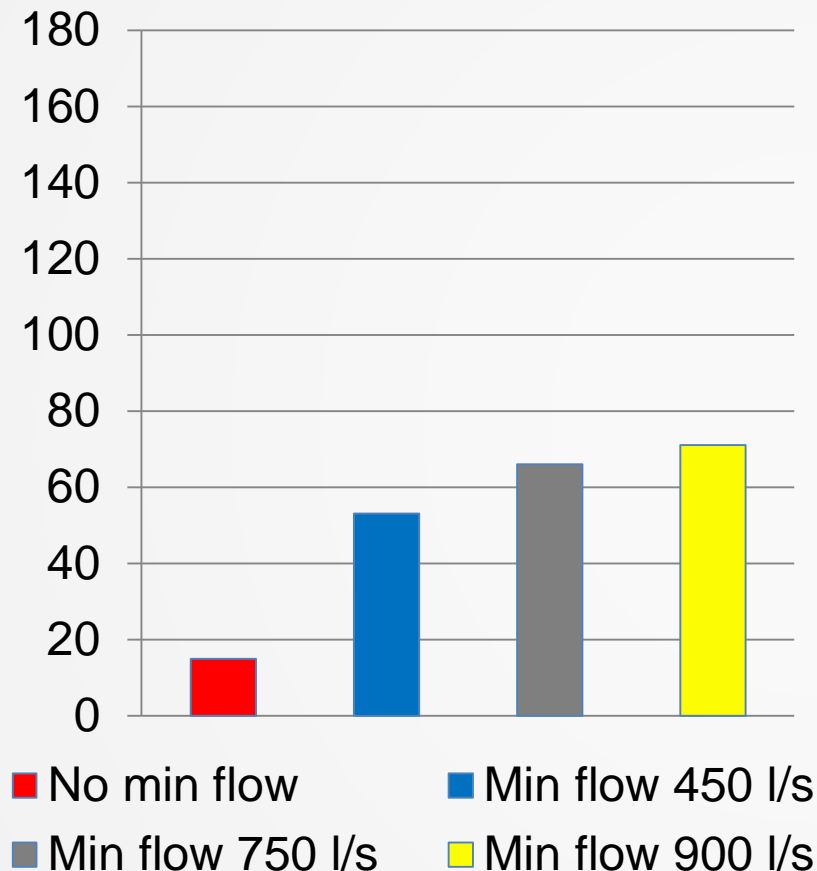


Economic impacts: Scenario 2: Efficient irrigation

Dry year – 1977/1978

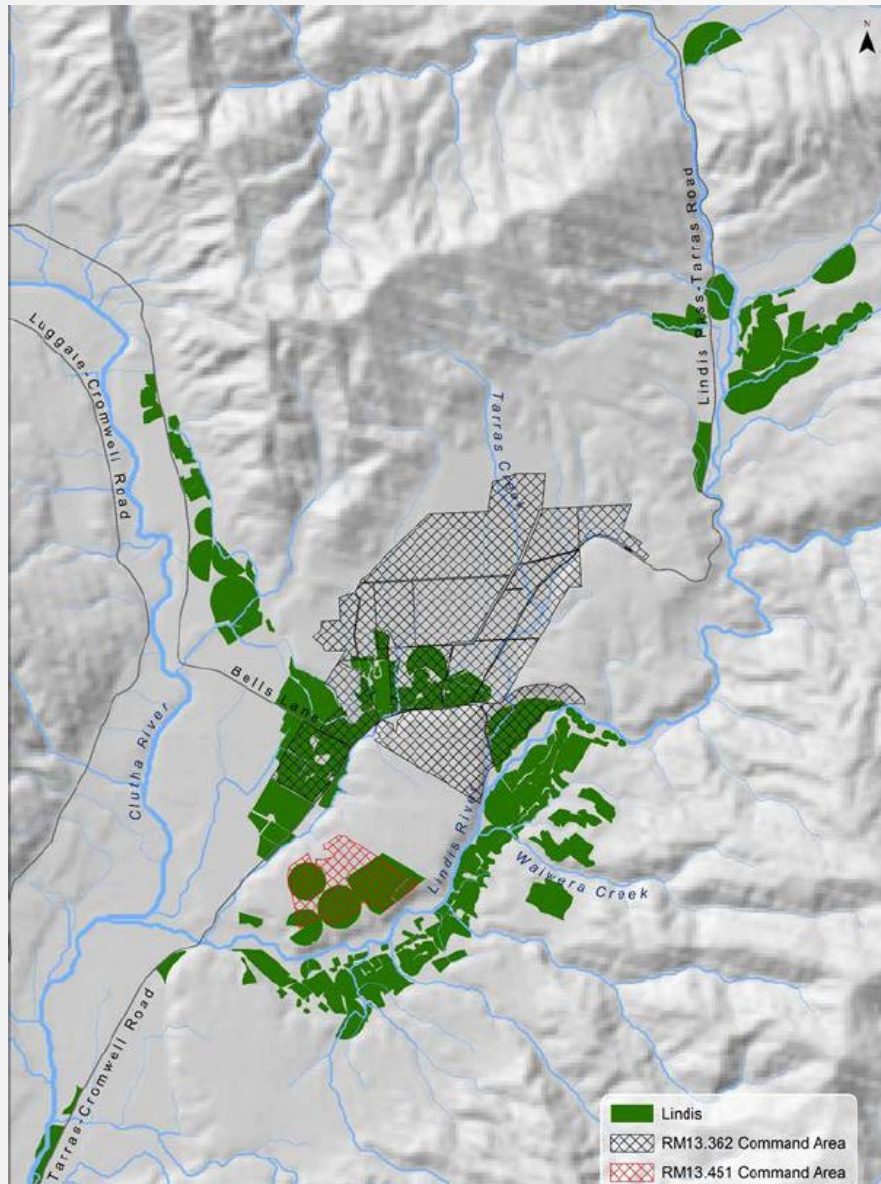
No restriction:
15 restriction days
(5 consecutive)

750 l/s min flow:
66 restriction days
(23 consecutive)







Note: With current irrigation practices & no min flow: 115 restriction days

Economic Study (BERL)



Main study area:

Green area only (no pattern)

(excl.    )

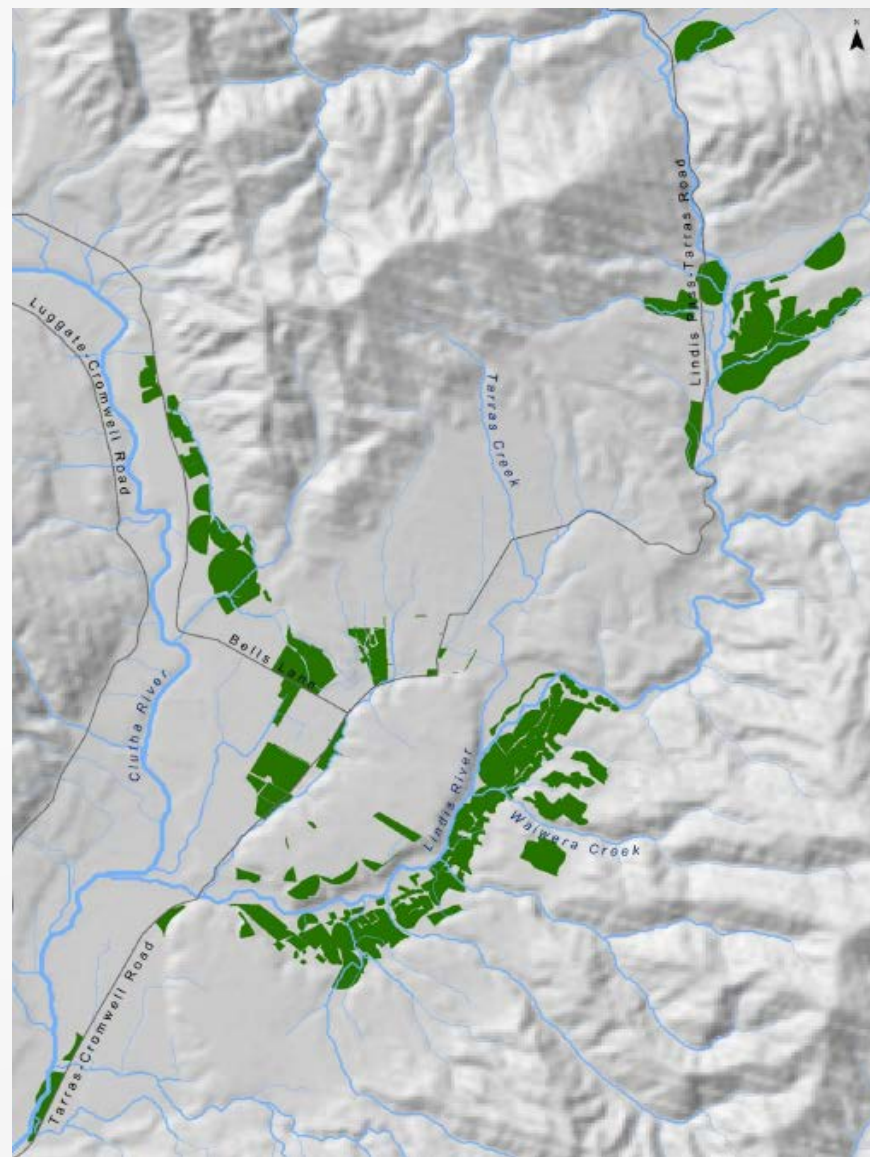
Size 2,420 ha

Current water use:
2,084 l/s

Economic impacts

Scenario :
Current situation

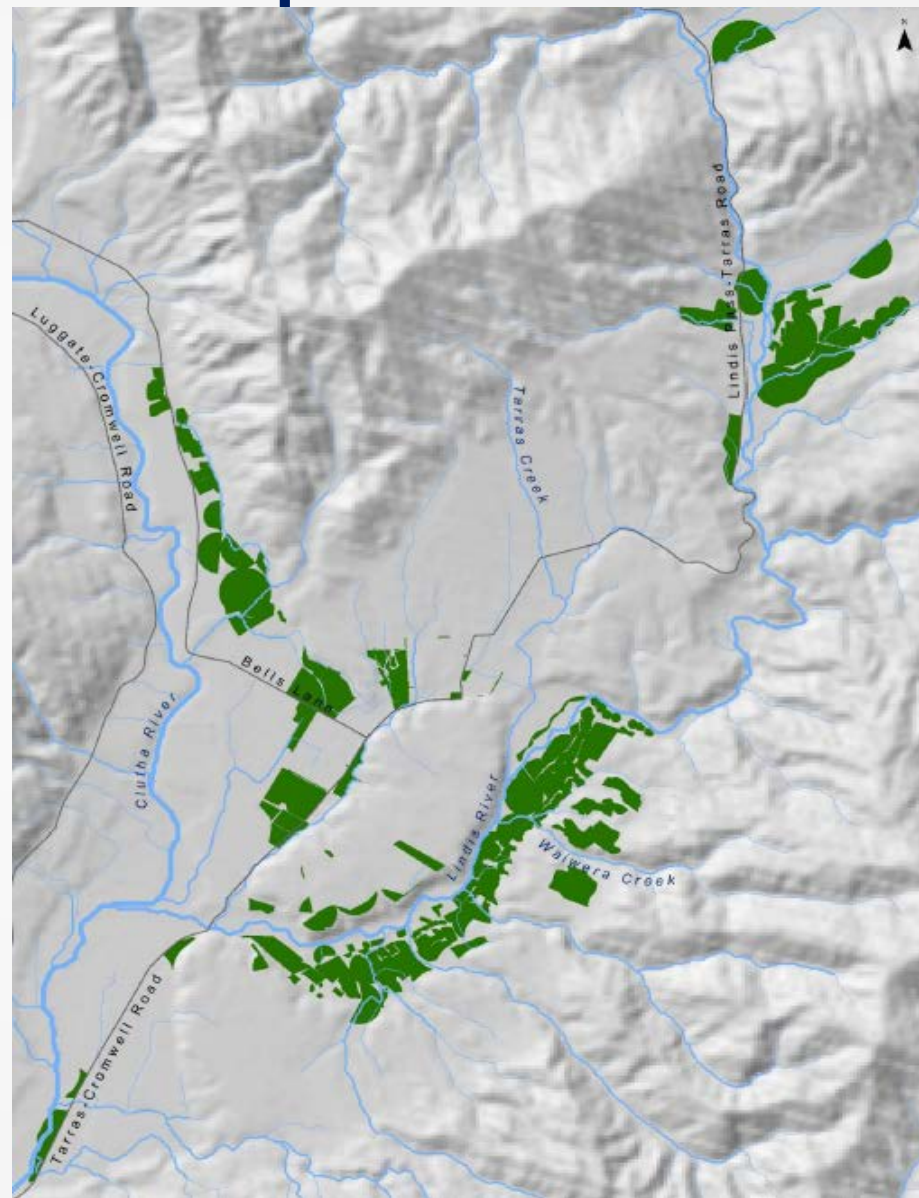
- ❑ Irrigated area:
2,420 ha
- ❑ Take from Lindis
2,084 l/s



Economic impacts

Scenario 2: Efficient irrigation

- ❑ Irrigated area:
2,420 ha
- ❑ Take from Lindis
1,146 l/s



Economic Study (BERL)

		Direct Value Added	Total Value Added	Direct Employment	Total Employment
		Lindis	Otago	Lindis	Otago
		\$'000	\$'000	FTEs	FTEs
No minimum flow		1,755.9	4,265.0	14.2	30.7
Minimum Flow 450 l/s	Less 3.6%	1,693.2	4,112.8	13.7	29.6
Minimum Flow 750 l/s	Less 5.6%	1,656.8	4,024.3	13.4	29.0
Minimum Flow 900 l/s	Less 6.6%	1,640.7	3,985.3	13.2	28.7



Economic Study (BERL)

Key Conclusions:

- ❑ Minimum flow :
 - likely to impact economy, but relatively small impact in average year
 - unlikely to have significant economic benefit for tourism sector
 - may drive land use change (from intensive finishing towards more extensive farming)
- ❑ Farming usually more restricted by natural conditions than by a minimum flow



New information

Economic impacts

How much water is really needed?

Currently taken from Lindis River	2,084 l/s
Use of efficient irrigation	est. water savings: 938 l/s (BERL)
Use of alternative source	est. water savings: > 150 l/s (ORC)
Water needed to efficiently irrigate within Lindis catchment	< 1,000 l/s