

Integrated Management of the Lindis River & Bendigo-Tarras Basin

Community workshop
Tarras Hall, 1 April 2014

Today's workshop

Presentation

- Where we are at
- Proposal for managing surface water & assessment regime outcomes
- Proposal for managing groundwater

Q&A session / panel discussion

Conclusion – next steps in the process

Tea/coffee

Previous workshops...

Feb 2009 – March 2011: 3 community workshops

- Explained policy framework
- Discussed hydrology (groundwater & surface water)
- Identified values

Nov 2011: 4th community workshop

- Presented 2 regime options

Why are we here today....

- Present recommended option for minimum flow and allocation limits for the Lindis River
- Present recommended option for maximum allocation volumes for the Bendigo-Tarras basin
- Invitation for comments

Everybody can have their say - We need your input

Terms and concepts...

Surface water

- Allocation limits
- Minimum flow

Groundwater

- Maximum allocation volume
- Aquifer restriction level

Why do we need a minimum flow....

- Requirement under the RMA, NPS Freshwater Management 2011
- Water short catchment with competing values
- Preparing for the future
 - Land use changes
 - 2021 – expiry deemed permits

Important values & uses

- irrigation
- trout spawning & juvenile rearing – main spawning tributary for Lake Dunstan
- native fish (galaxiids and eels)
- cultural values, aesthetics, natural character and amenity (including flow under the SH 8 Bridge)
- Water based recreation (swimming, fishing, paddling)

Proposals for managing surface water

Option 1 (TWL option)

Minimum flow

Oct-May 750 l/s

Jun-Sep 1,600 l/s

Prim. alloc. limit 800 l/s

Option 2 (Non TWL option)

Minimum flow

Oct-Nov 750 l/s

Dec-Apr 450 l/s

May 750 l/s

Jun-Sep 1,600 l/s

Prim. alloc. limit 1,000 l/s

As TWL has not proceeded, Option 2 becomes the recommended option

Proposal for managing groundwater

Set Maximum Allocation Volume in Schedule 4A of the Water Plan for:

- Lower Tarras Alloc. Zone 18.8 Mm³/yr
- Bendigo Alloc. Zone 29 Mm³/yr
- Ardgour Vly Alloc. Zone 0.189 Mm³/yr

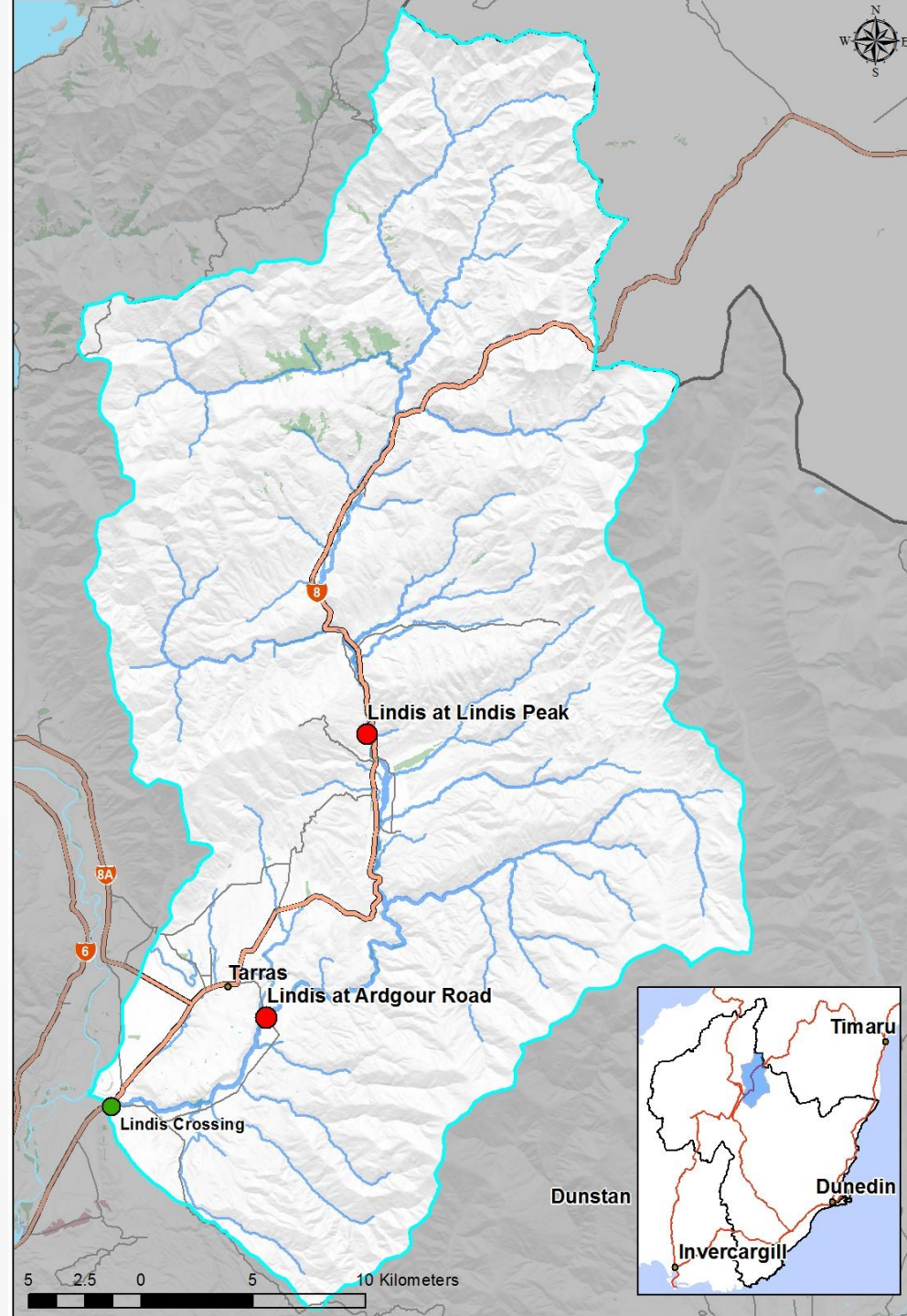
Manage the Lindis Alluvial Ribbon Aquifer (including Lower Lindis Fan Zone) as surface water

Surface water

Summer minimum flow proposal:
450l/s (Dec-April)

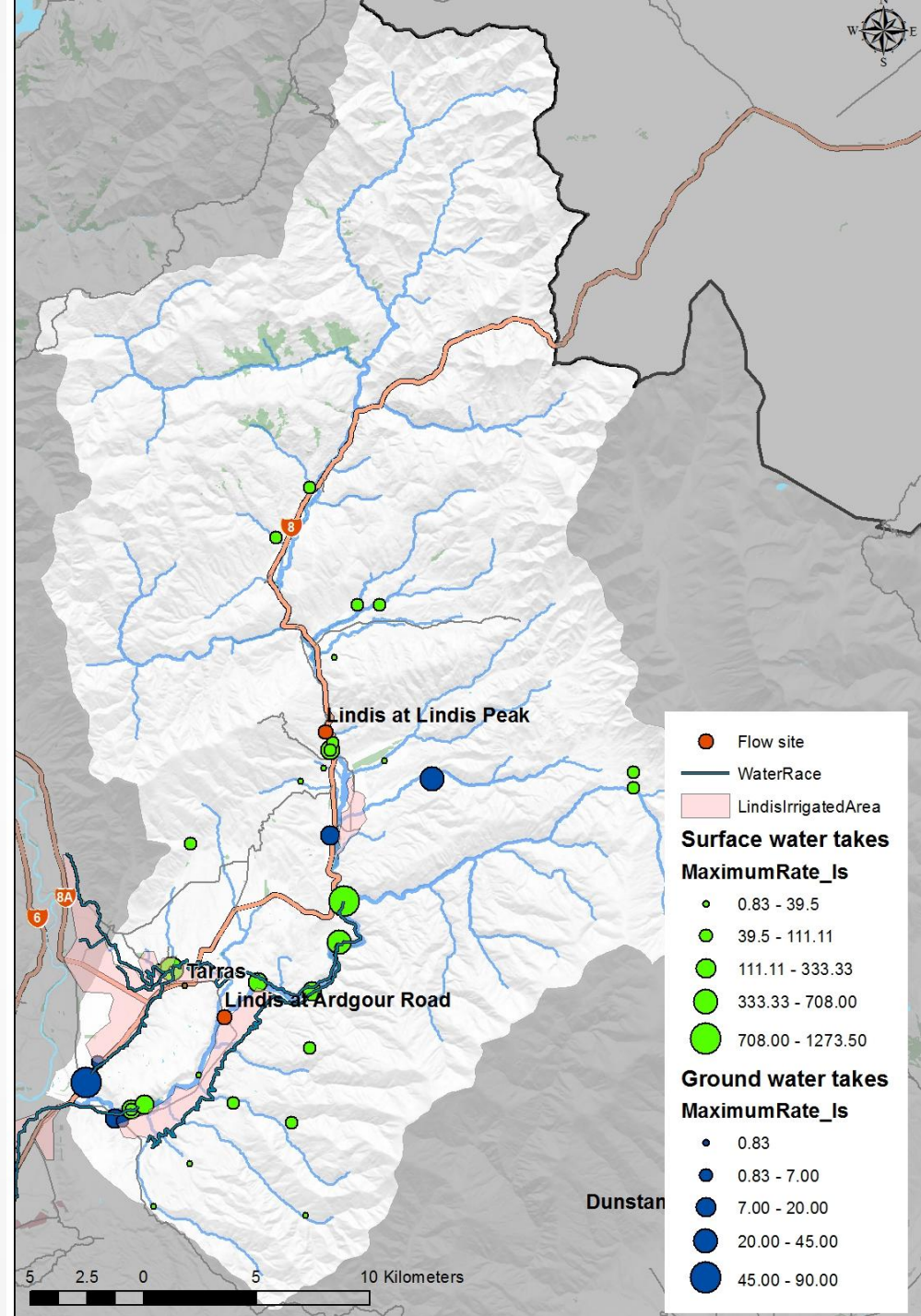
The Lindis catchment

- MALF 1,600 l/s & Mean flow 3,800 l/s
- Lower reach loses flow to groundwater (approx 440 l/s)
- Surface flow lost both upstream (5-10 km) and downstream (2-3 km) of the Ardgour Rd flow recorder



Lindis – flow, takes & irrigation schemes

- Total water abstraction is approx 2,300 l/s
- 3 irrigation schemes take around 70% of the total take
- Mainly border dyke/flood
- Reliability of supply 70% to 75%



450 l/s what does it mean?

- ❑ Access to irrigation maintained.
 - A drop in availability under current practice.

- ❑ In prolonged low flows
 - Permanent flows below Lindis Crossing Bridge and upstream of Ardgour Rd (Approximately 200 l/s)
 - Flows not guaranteed to the Clutha confluence
 - Refuge pools maintained in the lower 500m above Clutha Confluence.
 - Possible delays of trout returning to the Clutha

- ❑ River managed for trout passage, not trout habitat

Effect of 450 l/s on water temperature

- ❑ Peak temperatures likely to exceed 25 °C in much of the lower Lindis, making much of this section uninhabitable to trout
- ❑ Connection between pools will be important to allow trout to move out of warm areas
- ❑ Groundwater inflows may give some thermal refuge in pools

2,075 l/s @ Lindis Peak

472 l/s @ Ardgour flow site

300 l/s @ Lindis Crossing Bridge



Lower Lindis River 16/02/2007

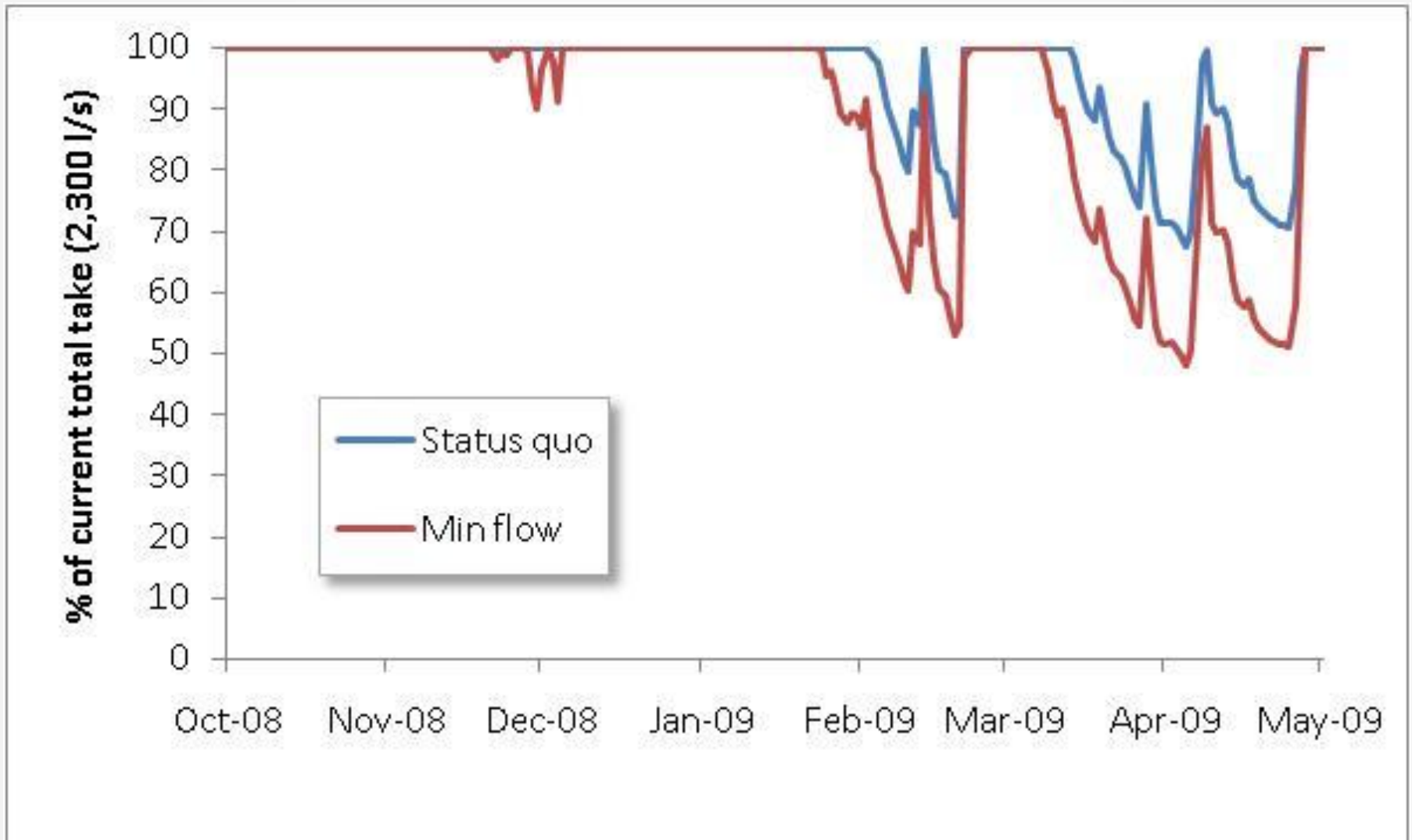


Lindis @ Ardgour Site= 370 l/s

Lindis Peak flow = 1530 l/s

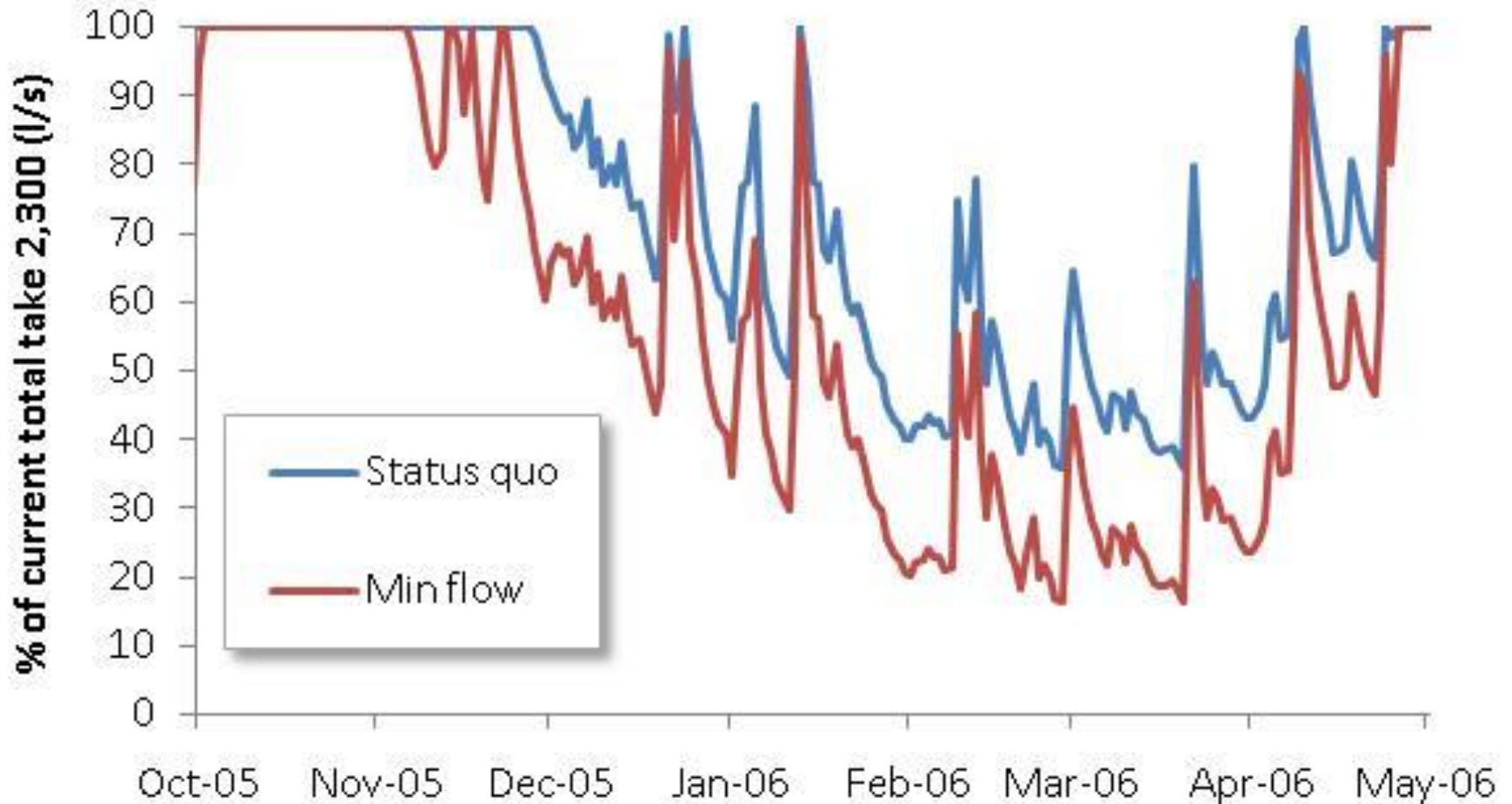
Availability of supply – “Average year”

Current irrigation practice



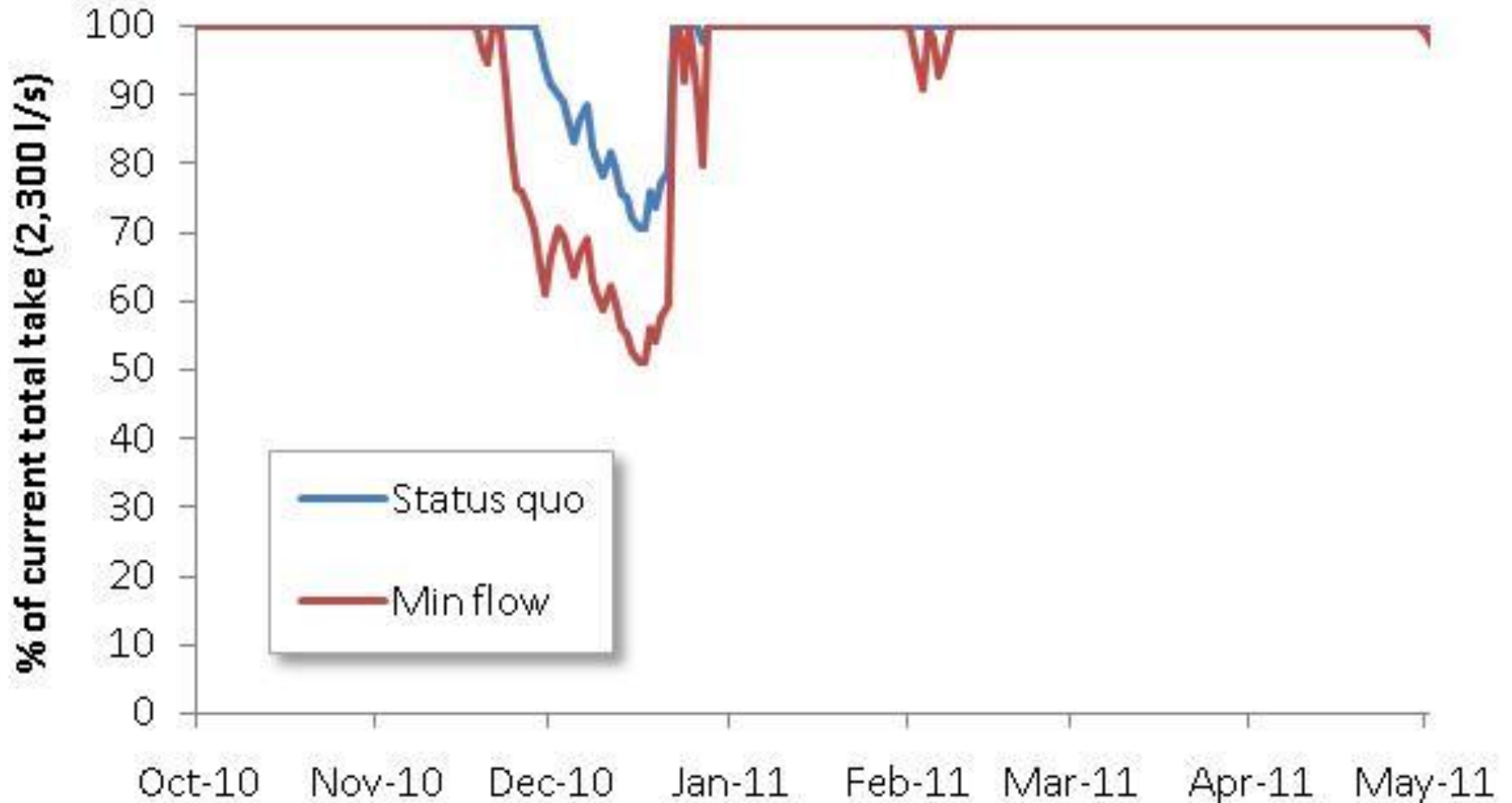
Availability of supply – “Dry year”

Current irrigation practice



Availability of supply – “Wet year”

Current irrigation practice



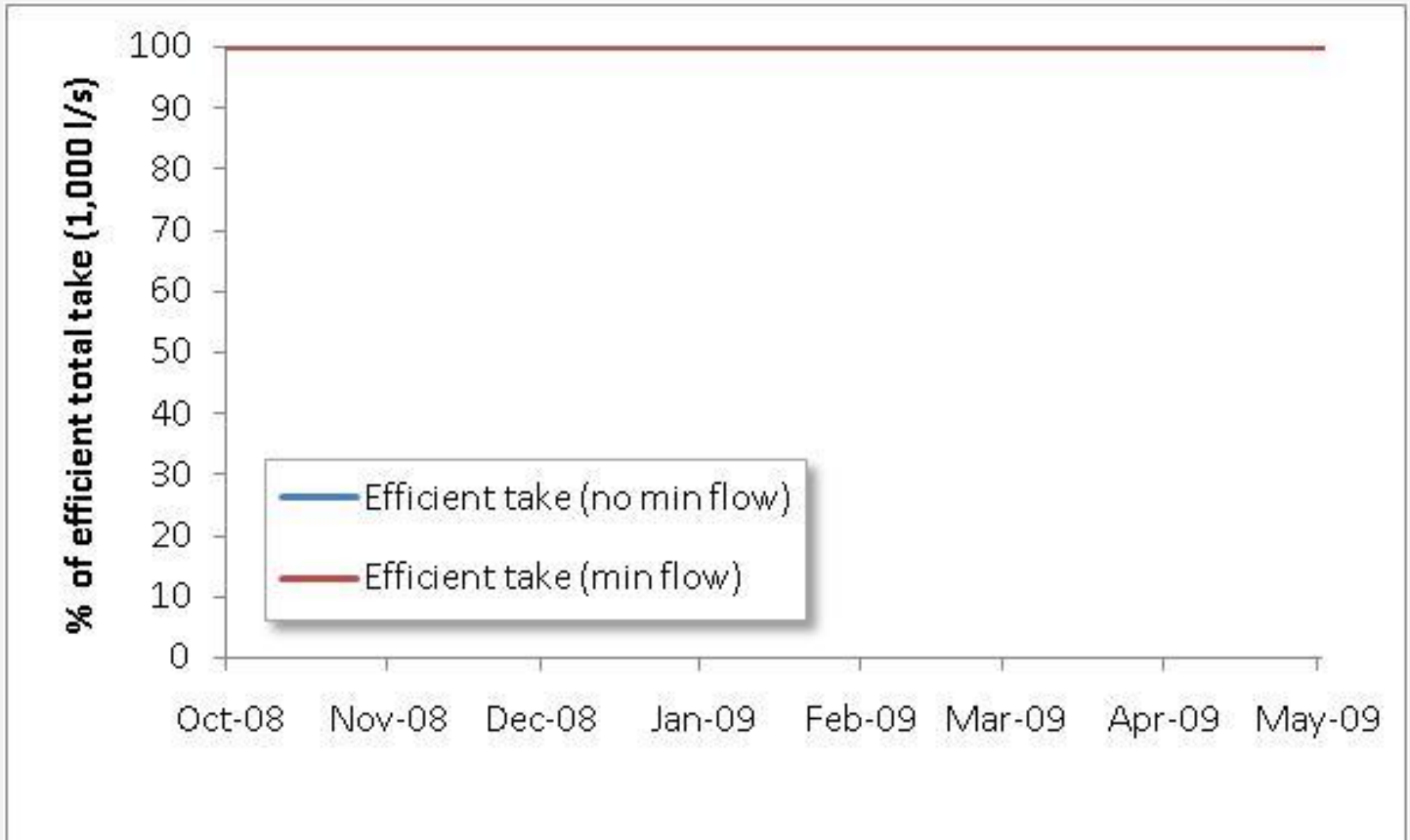
Is the proposed minimum flow achievable?

- 1. Efficient use of water**
- 2. Alternative water sources**

Increased efficiency

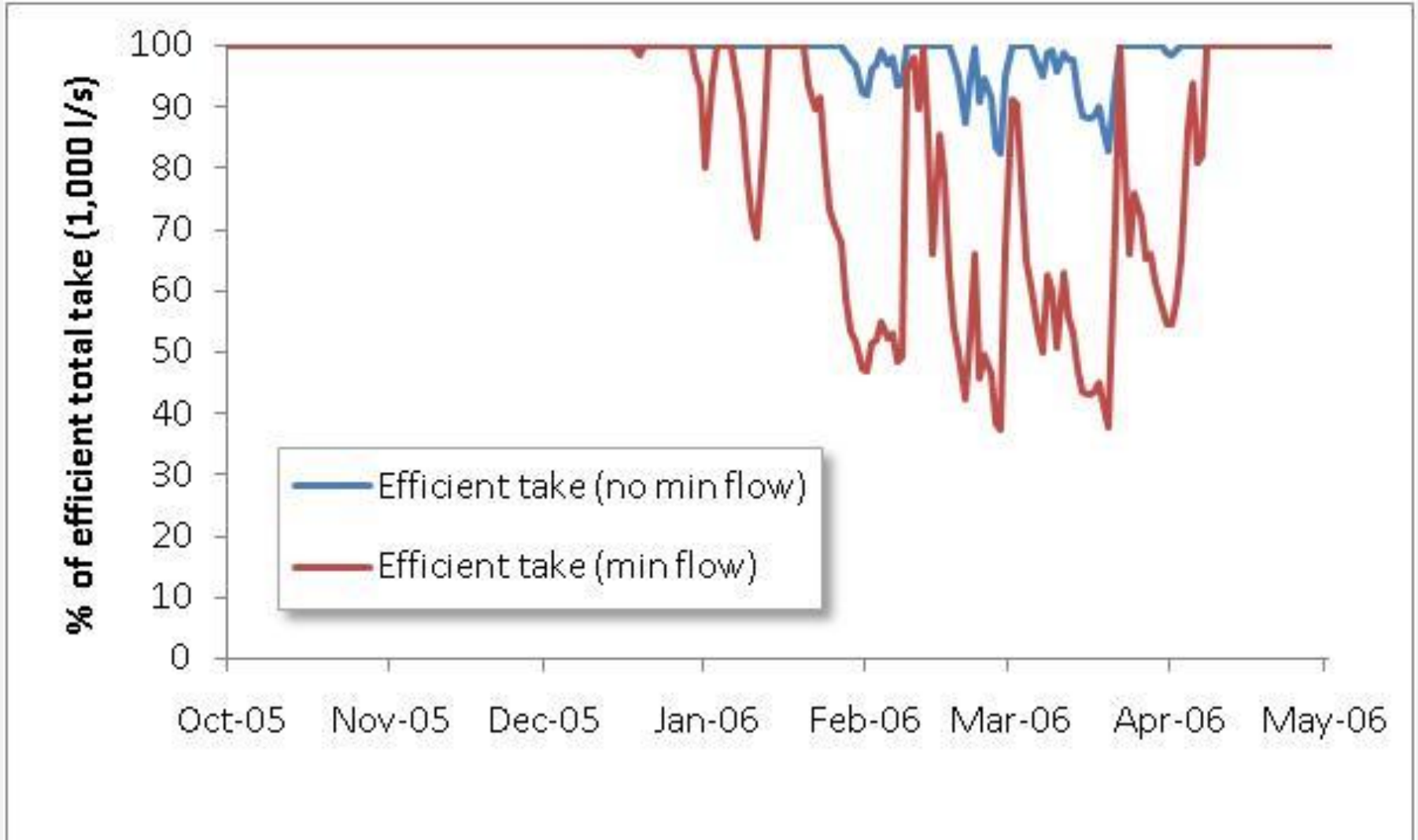
- 2,000 ha irrigated as of 2011
- 2,300 l/s is currently used to irrigate this area
- 1,000 l/s would be required to efficiently irrigate this area (2,000 ha) under spray, and this is what would be granted under the current Water Plan
- Consent renewals may be restricted on historic use and/or application efficiency

Availability of supply – “Average year” Efficient irrigation of 2,000 ha



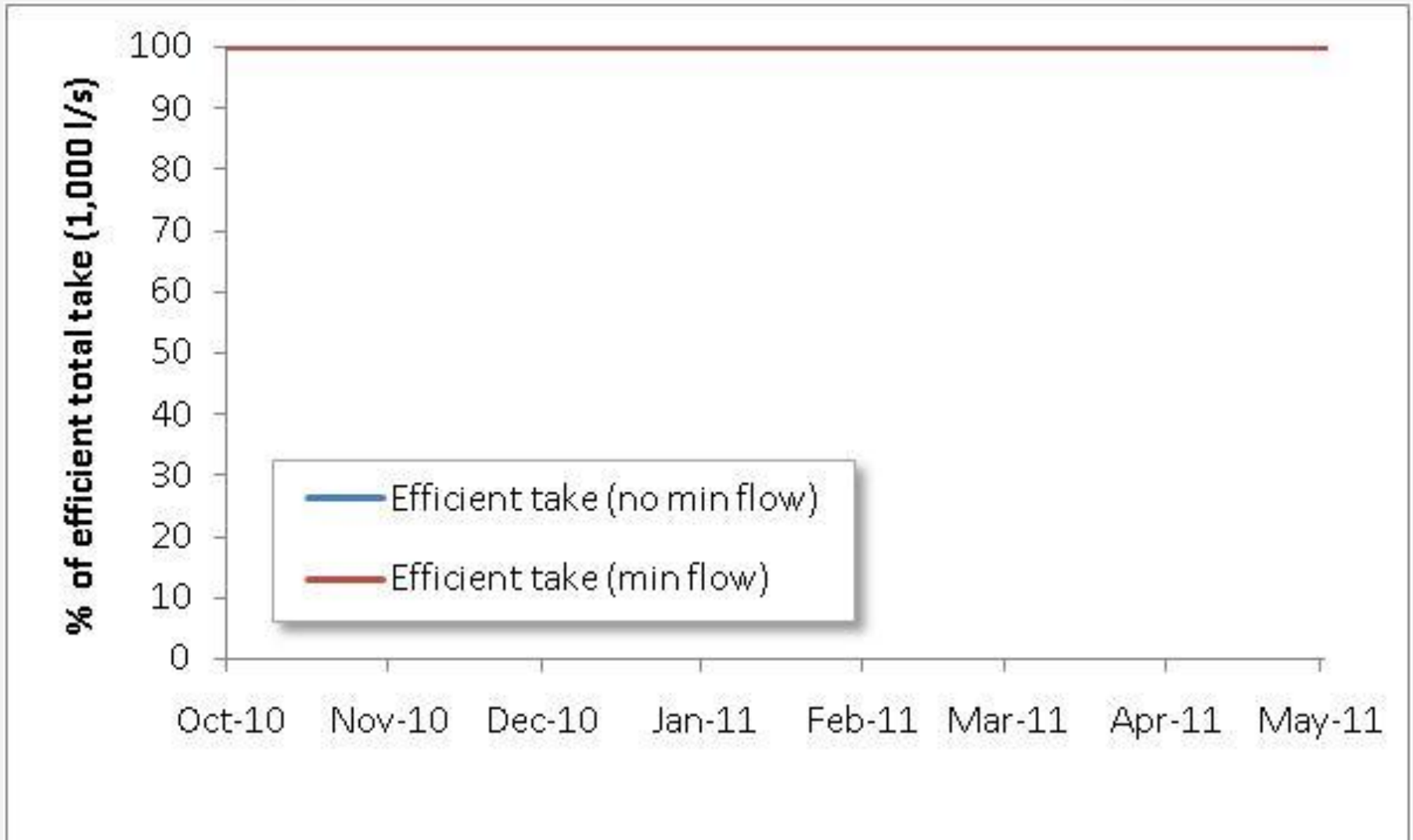
Availability of supply – “Dry year”

Efficient irrigation of 2,000 ha



Availability of supply – “Wet year”

Efficient irrigation of 2,000 ha



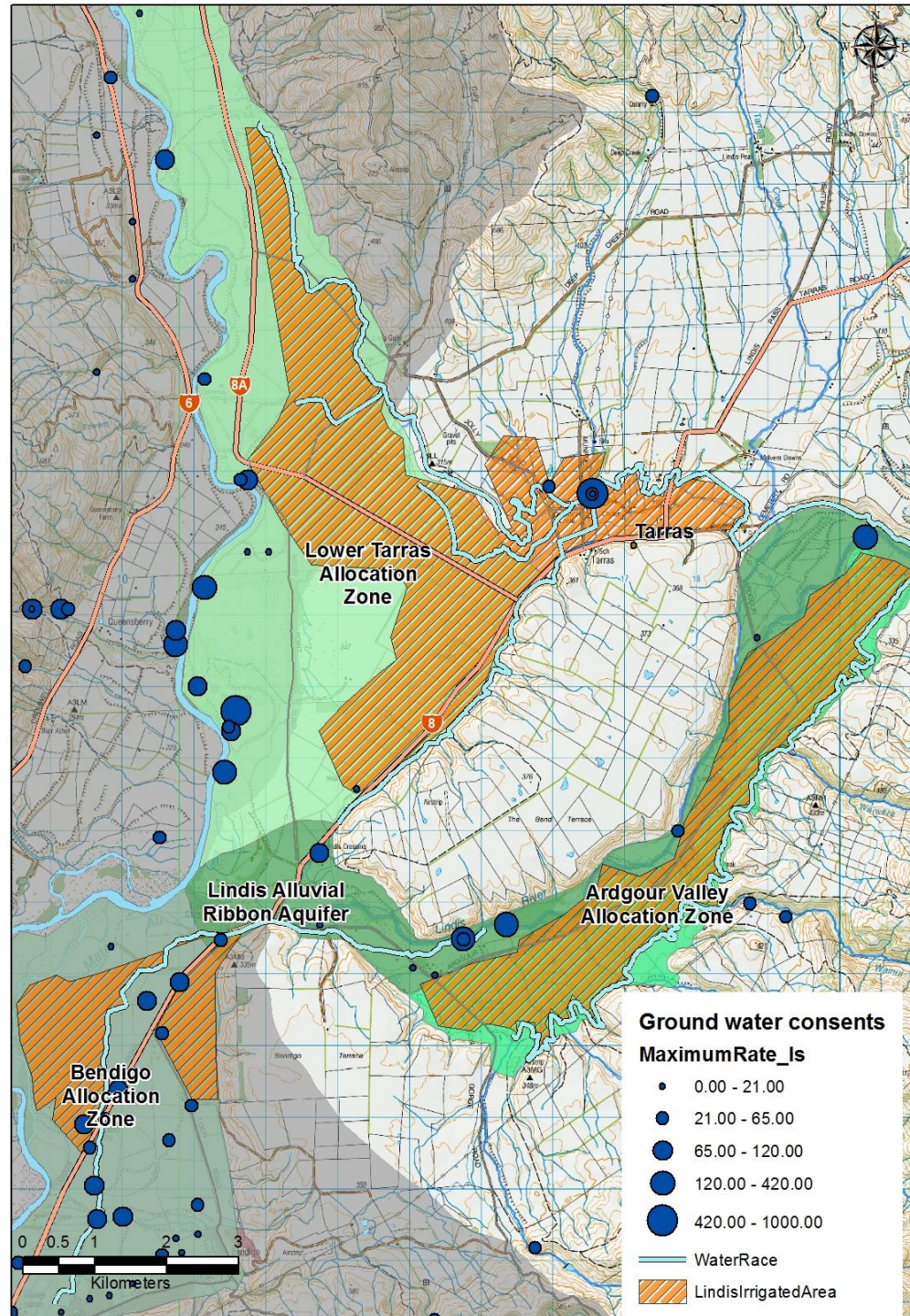
Alternative sources

□ Groundwater

- 600 l/s of consents recently granted in Bendigo allocation zone

□ Clutha River

- Over 1,000 l/s of consents recently granted



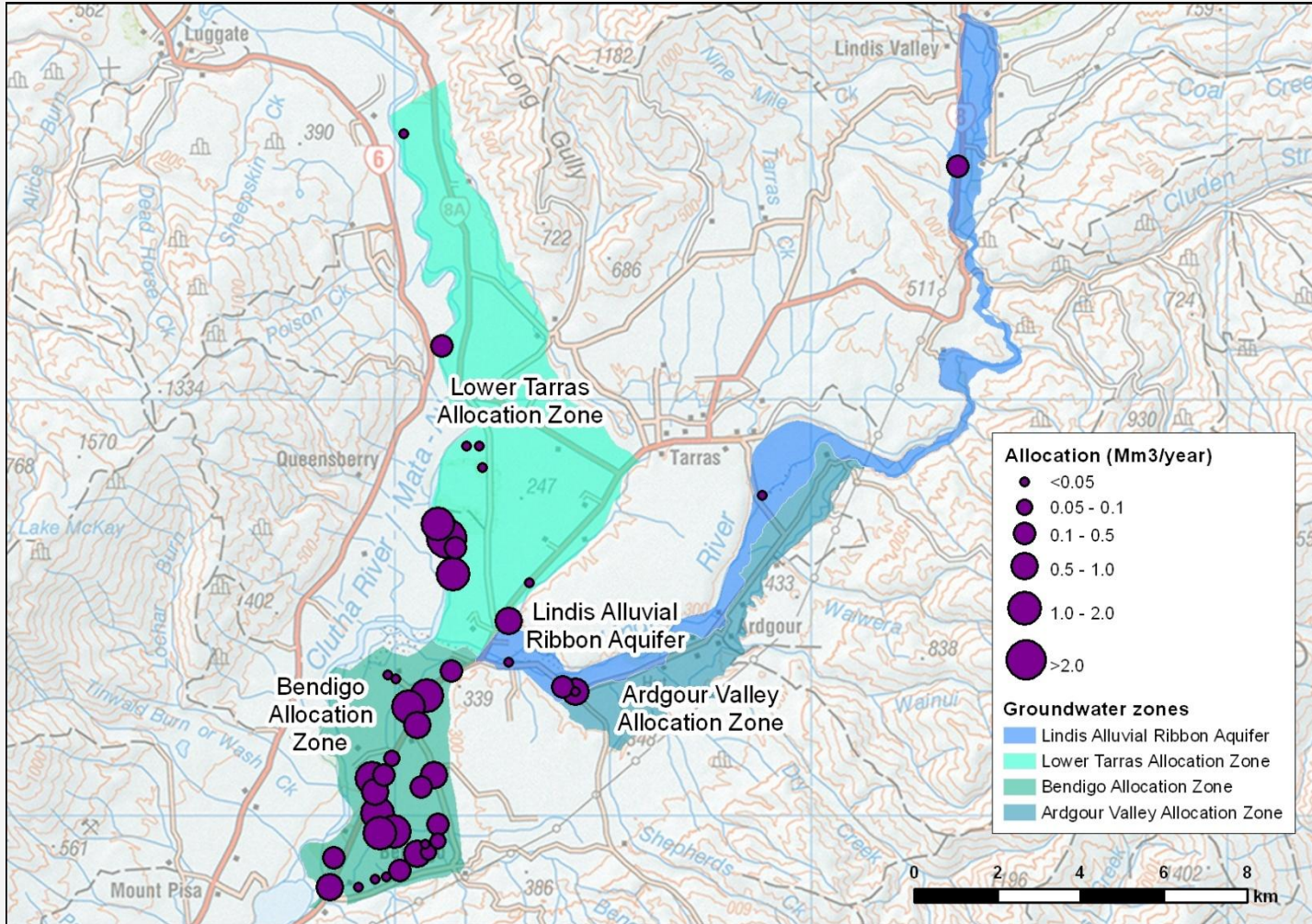
Summary – 450 l/s “summer flow”

- Does not guarantee flow continuity to Clutha
- Lower reaches may not be suitable for trout
- Maintains upstream flow connection, so 5-10km upstream of Ardgour Rd flow recorder will no longer run dry
- There is significant scope for increased irrigation efficiency
- Alternative sources can be accessed for much of the land currently irrigated from the lower Lindis

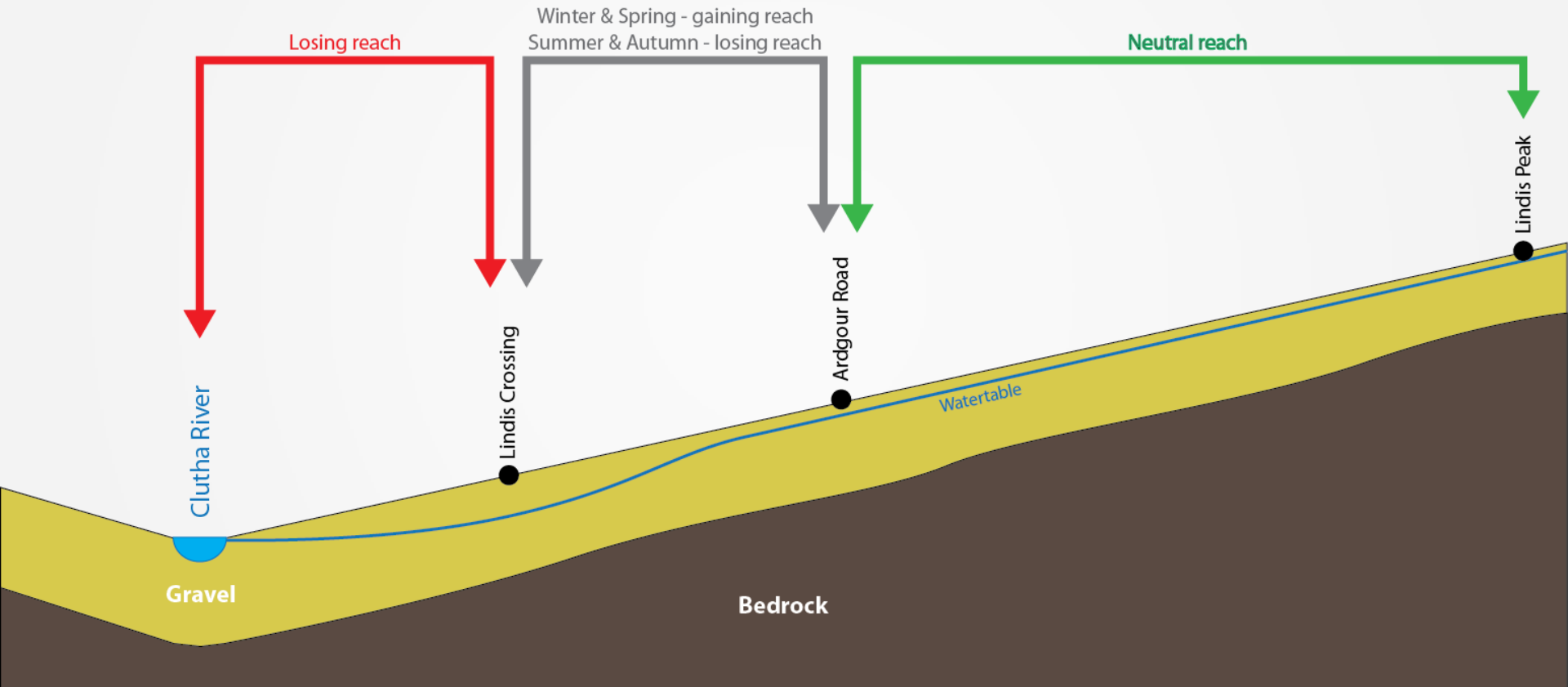
Opportunities for groundwater allocation

4 management zones

Groundwater zones



Groundwater & Lindis River



Groundwater & Lindis River

- ❑ Even when the Lindis River is dry groundwater pumping in the Lindis Valley and Lindis Fan can continue to influence stream depletion
- ❑ Estimated up to 90 l/s stream depletion
- ❑ This can dry up river bed by at least several hundred meters
- ❑ Possible additional future stream depletion of approximately 50 l/s

Current groundwater management

- ❑ Lindis Alluvial Ribbon Aquifer is managed as surface water
- ❑ Other zones managed as groundwater unless:
 - Less than 100m from surface water, or;
 - Stream depletion is greater than 5 l/s
- ❑ Allocation zones and Maximum Allocation Volumes are currently not included in the Water Plan
- ❑ Cumulative impacts less than 5 l/s are poorly managed

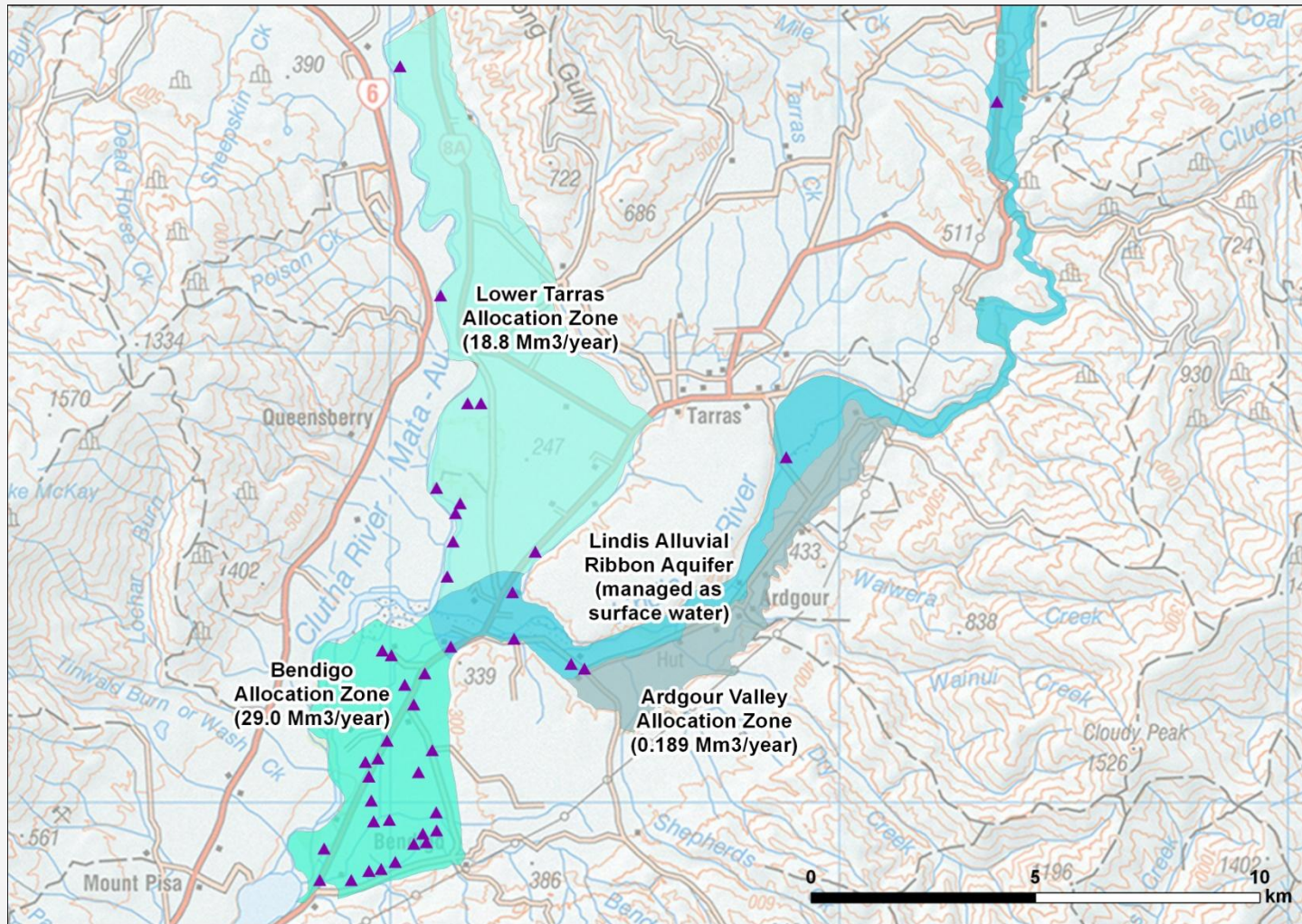
Proposal for managing groundwater

Set Maximum Allocation Volume in Schedule 4A of the Water Plan for:

- Lower Tarras Alloc. Zone 18.8 Mm³/yr
- Bendigo Alloc. Zone 29 Mm³/yr
- Ardgour Vly Alloc. Zone 0.189 Mm³/yr

Manage the Lindis Alluvial Ribbon Aquifer (including Lower Lindis Fan Zone) as surface water

Proposed Groundwater management



Evaluation– preferred option

Values	Outcome
Instream	<ul style="list-style-type: none">• Fish can retreat when river dries• Fish habitat between SH8 Bridge and Ardgour Rd Bridge improved• Temperature too high for trout below SH8 Bridge
Natural character	<ul style="list-style-type: none">• Flow @SH8 Bridge of at least 200l/s at all times• Dry river bed stretch reduced from up to 10km (current situation) to <1km below SH8 Bridge• Flow @ Clutha River confluence may cease
Recreation	<ul style="list-style-type: none">• Improvement
Economic - Tourism	<ul style="list-style-type: none">• Improved appeal of River at and above SH8 Bridge

Evaluation – preferred option

Values	Outcome
Economic (Efficient irrigation)	<ul style="list-style-type: none">• Initial cost for implementing more efficient irrigation practices or using alternative sources• No rationing during “average year”• Rationing required during “dry year”• Scope for further productivity gains (expansion of irrigated land through use of available alternative sources)
Economic – spinoff effects (Efficient irrigation)	<ul style="list-style-type: none">• Positive impacts on employment, supporting industries and services

Evaluation – preferred option

Values	Outcome
Cultural	<ul style="list-style-type: none">• Improvement to Mauri, Mahika Kai habitat (eels)• May not provide for all Iwi values
Groundwater	<ul style="list-style-type: none">• Groundwater levels maintained• Further allocation available in most groundwater zones

A wide, shallow river flows through a valley. The riverbed is composed of light-colored gravel and sand. The banks are rocky and sparsely vegetated with some yellow wildflowers. In the background, there are rolling green hills and a range of mountains with patches of snow under a clear blue sky.

Q & A Session

Next steps...

Recommended option



Consultation Draft



Notify proposed plan change



Plan Change operational



Changes put into effect

Opportunities for stakeholder input

Feedback

Comments

Submissions,
Hearing evidence,

How to provide further feedback

- Feedback forms
- Contact us on 0800 474082
- Website www.orc.govt.nz
- Email: policy@orc.govt.nz